



CAFES

HSC Course

COMMUNITY AND FAMILY STUDIES

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BOARD OF STUDIES KEY TERMS

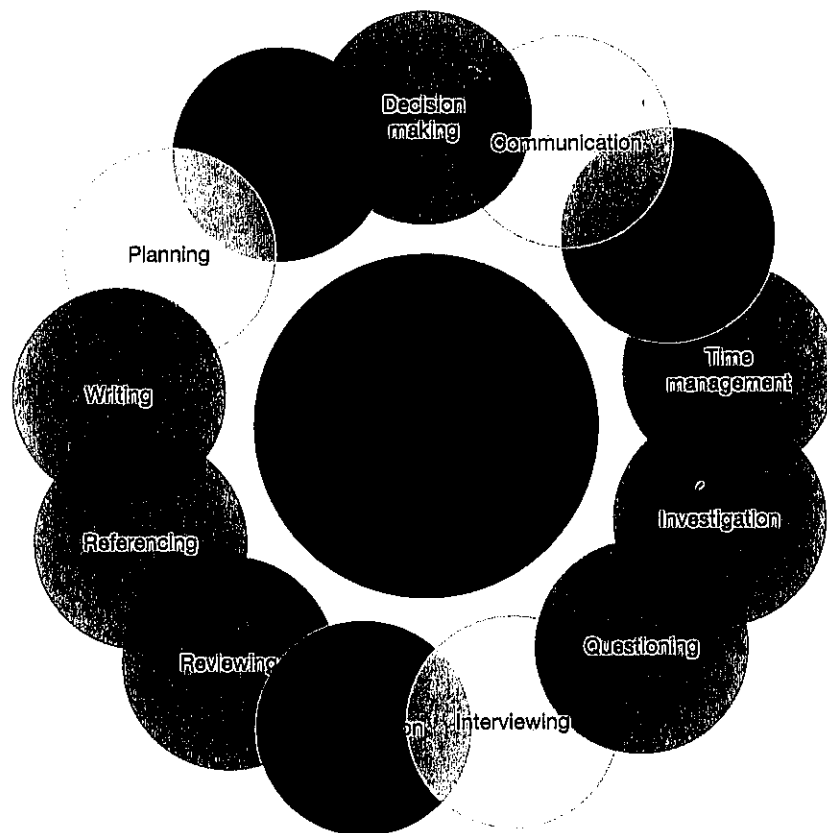
Account	Account for: state reasons for, report on. Give an account of: narrate a series of events or transactions
Analyse	Identify components and the relationship between them; draw out and relate implications
Apply	Use, utilise, employ in a particular situation
Appreciate	Make a judgment about the value of
Assess	Make a judgment 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 (analyse/evaluate)
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 judgment 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 into 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	Putting together various elements to make a whole

CHAPTER 1

RESEARCH METHODOLOGY

The main focus of this core is research: you will learn about aspects of research and develop the necessary skills to conduct effective research. The tasks you will complete in this core will enable you to develop specific skills to assist you in your everyday life in the future, whether in gaining employment, completing further study at university or TAFE, managing your independence or raising a family. As a result of conducting your own research, you will develop some or all of the skills shown in Figure 1.1.

FIGURE 1.1 ▷
Skills developed
through research



REQUIREMENTS OF THIS CORE

What do I need to do?

Apart from learning about the syllabus content in this core, you will also be required to complete an **Independent Research Project (IRP)**.

Independent Research Project

Why do I need to do it?

The purpose of the IRP is to allow you to show your knowledge and understanding of research methodology and to demonstrate your skills in research, decision making, analysis and communication without the pressure of exam conditions. This means you have the freedom to choose what you want to research and how you want to go about researching it. It won't be easy, but imagine being able to pass an assessment without having to cram for an exam, write a three-page essay or answer a question you don't understand. The IRP is your chance to work hard to improve your marks while studying something that is of interest to you.

What should I focus on?

The focus of your IRP must be related to one or more of the following Community and Family Studies content areas:

- Individuals
- Groups
- Families
- Communities
- Resource management.

In other words, you need to be able to relate the topic you would like to conduct your research on to one or more of the areas above. For example, if you wanted to research the role of the internet in the lives of young people, this would easily relate to the areas of individuals, groups and resource management. As long as you can justify how your chosen research topic relates to a Community and Family Studies content area, you can research it for your IRP.

To fulfil the requirements of your HSC, your IRP must comprise the following three parts:

- A project plan
- A project diary
- A product (research report).

IMPORTANT NOTE

The syllabus outlines the content you need to have knowledge of for your HSC exams. It lists this content in a particular order. Although this text will cover all of the content outlined in the syllabus, it will not necessarily provide this information in the order that it is listed in the syllabus. For this reason it is important that you use your syllabus to keep track of the content that you learn as you move through this core topic.

This section of the text comprises the following components which relate to your syllabus content.

Part 1

- Research basics
- Research terminology
- Ethics in research
- Methodologies
- Sources of data

Part 2

- Conducting research (steps involved in completing your IRP)

Part 3

- Presenting data

HELPFUL CHARACTERS

Throughout this core, the three characters below will point out key tips or information important for this subject.



Hey, my name is Indii, and I'd like you to meet some of my friends.



Hey, my name is Rhys, and we're all here to help you through this core.



Hey, my name is PJ. We'll point out important info and things to think about along the way.

PART 1 RESEARCH BASICS

RESEARCH TERMINOLOGY

- bias
- hypothesis/question
- reliability
- sampling
- validity

Before you conduct any research, it is important to understand some relevant terminology. An understanding of these key terms will allow you to ensure that any research you carry out is authentic, accurate and truthful.

TABLE 1.1 Research terminology

TERM	DEFINITION
Bias	A bias is a one-sided point of view on a topic or issue that does not take into account other ideas or opposing views. If a research method, result and/or data analysis is biased, it is influenced by a particular point of view or attitude.
Hypothesis	A hypothesis is a statement either for or against a topic or issue. A hypothesis is usually based on an observation or a problem, and it can be proven right or wrong by research.

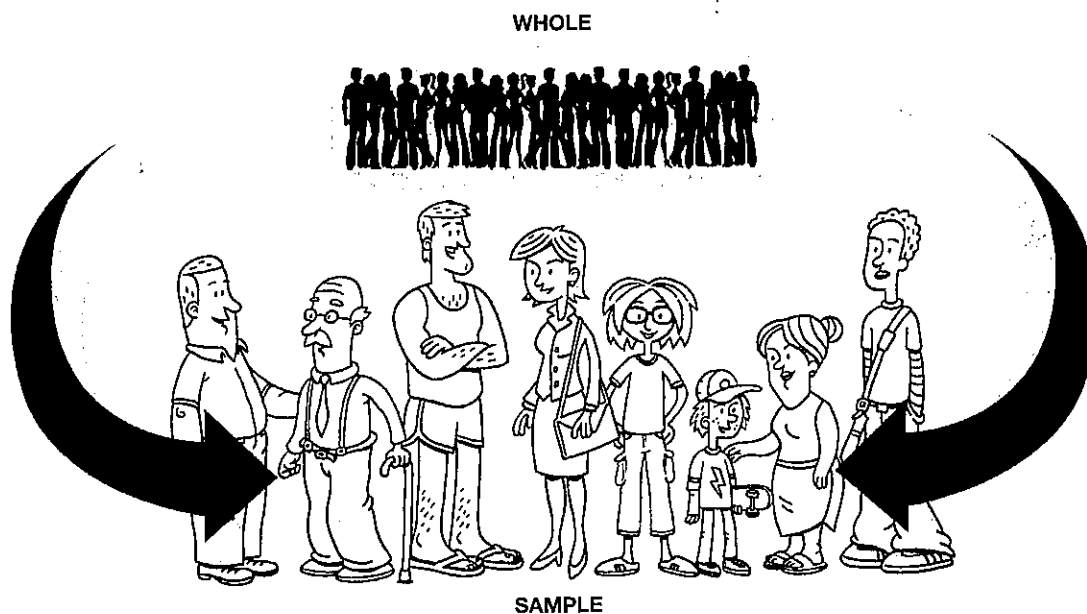
Continued ►

TABLE 1.1 Continued

TERM	DEFINITION
Question	In the context of research this means a question about a specific topic that can be answered through research.
Reliability	This refers to the consistency of research methods which, if used by different researchers under the same conditions, will yield similar results.
Sampling	This is a process used to select individuals or groups in order to conduct primary research.
Validity	Validity is when research measures what it proposes or intends to measure, resulting in data that can be trusted as a source of accurate and truthful information.

Sampling

The term *sample* refers to a small amount or part of something, which is intended to represent a larger amount or the whole. In the context of research, a **sample** is a group of respondents or participants (i.e. people) selected from a larger population for the purpose of conducting a survey, observation or case study.



◀ FIGURE 1.2
What is a
sample?

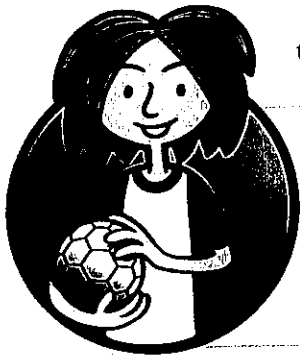
Sampling is where researchers select a suitable sample, which they intend to represent the ideas or characteristics of the whole population.

This is done because it is often more cost and time efficient to gather **primary data** or evidence for a research hypothesis or question by selecting just a sample group of people rather than trying to gather data from the whole population.

However, not all members of the sample selected by the researcher might end up participating in the research. For example, the researcher might not be able to contact or recruit all of the people in the original sample, or some people might drop out during the course of the research.

It's important to remember that your sample is the group of people that you select to be involved in your research. It is not the group of people who actually end up participating in your research.





For example, if you were to select a sample group of 50 people who you planned to survey using a questionnaire, during the course of your survey some people might decline to be involved, and some might agree to be involved but might not return their completed questionnaire. Therefore the number of people actually involved in your research might be lower than the number in your original sample.

If you have any problems with your sample group, you should record them in your diary. And don't forget to also write down ways to avoid those problems in the future.

Sample size

The question of how large a sample should be is a difficult one that depends on a number of factors.

Before deciding how large your sample should be, you need to define your **study population**. For example, it might be all students between the ages of 12 and 18 at Greenfield High School.

Next you need to determine your **sampling frame**, which in this case might be all students between the ages of 12 and 18 as listed in the Greenfield High School enrolment records. For example, Greenfield High School might have 1500 enrolled students between the ages of 12 and 18.

So what would be a suitable **sample size**? In order to determine the most appropriate sample size, you first need to consider the resources you have available, such as:

- Money—how much will it cost to collect data from each person? This might include the costs of photocopying a questionnaire for each person, travelling to interview each person, and so on
- Time—how much can you do within the available time? How many people do you have time to survey? How long will it take to collate the data you collect, based on the size of your sample?
- Knowledge—do you know enough people who fit the population that you intend to study? For example, if you want to study the refugee population, how many refugees or refugee organisations do you know of?
- Access to services—are you able to access the sample group? For example, if you want to research a topic specifically related to hospitals, how many hospitals do you have access to?



The validity of your research has more to do with the depth of information you gather and your analysis skills than with the size of your sample.

Sampling methods

Before you select your sample group, it is important to understand the various types of sampling methods available. Table 1.2 shows the types of sampling methods you can use to select a sample for your research.

The sampling method you use to select your sample group will help to prevent bias in your research data.



TABLE 1.2 Types of sampling methods

METHOD	DESCRIPTION
Simple random sampling	To obtain a simple random sample , you need to choose participants in such a way that each person in the population has an equal chance of being selected. A simple random sample is free from sampling bias. For example, if you want to select 10 people randomly from a population of 100, you could write or print their names on separate pieces of paper, fold them up, mix them thoroughly and then select 10 pieces of paper. In this case, every person has an equal chance of being picked.
Systematic sampling	A systematic sample is obtained by selecting one person on a random basis, and then choosing additional people at evenly spaced intervals until the desired number of units has been obtained. For example, you have a list of 100 students, in alphabetical order, and you want to select a sample of 20. Using systematic sampling, you divide 100 by 20, to get 5. You then randomly select any number between 1 and 5. Suppose that the number you pick is 4: that will be your starting number. So you select student number 4, and then select every 5th name on the list until you reach the end of the list. You will end up with 20 students in your sample.
Cluster sampling	A cluster sample is obtained by selecting 'clusters' from the population. A cluster might be something like a school within a particular region. For example, each high school in western Sydney could be a cluster. If you wanted to select five of these high schools to survey, you could first use simple random sampling or systematic sampling to select which schools to survey, and then each school selected would become a cluster. If you then wanted to interview teachers about their opinions of a new program, you would interview all the teachers in each cluster. Cluster sampling can be subject to bias. For example, in the above case, you would be likely to get similar responses from all the teachers in a particular school (cluster) because they all interact with one another, so this data might not represent the entire western Sydney teaching population.
Convenience sampling	A convenience sample is obtained by randomly selecting people from the population who are easy to access. For example, you might interview the first 10 people you meet in one day, or randomly select 10 of your close friends to survey. This can save time, money and effort, but it is the poorest way of selecting a sample as it can result in a lack of relevant data being collected or unreliable research outcomes.
Stratified sampling	To use this method, the researcher first needs to break the population into groups or divisions based on one particular characteristic or feature, such as education, income level, age or gender. For example: Group A = people who have completed less than five years of education Group B = people who have completed five to 10 years of education Group C = people who have completed 10 to 15 years of education. A stratified sample is then obtained by selecting a simple random sample from each of these groups. The simple random sample can also be based on a proportion of the people in each group. For example, if Group A comprises 100 people, Group B only comprises 50 and Group C comprises 30, you might decide to select a 10 per cent sample from each group, meaning you would select 10 people from Group A, five from Group B and three from Group C.



COPY OF
SAMPLING
METHODS
TABLE

CASE STUDY

Westside University scenario

A survey was conducted by Westside University to find out the level of stress that graduate students were going through. A mail questionnaire was sent to 200 randomly selected graduate students. Only 52 responded.

The results showed that the students were not under stress, when in fact it was the time of year of highest stress for all students, except for a small group who were writing

their thesis at their own pace. Apparently, this was the only group that had had the time to respond.

The researcher who was conducting the study went back to the questionnaire to find out what the problem was, and found that all those who had responded were third- and fourth-year PhD students.

In this case the research outcomes were unreliable, as the group of students who completed the questionnaire did not accurately represent the wider population.

As such, the results collected were invalid.

SOURCE: ADAPTED FROM WILLIAM MK TROCHIM, 2006, 'SAMPLING', RESEARCH METHODS KNOWLEDGE BASE, <http://www.socialresearchmethods.net/kb/sampling.php>.



With proper planning and sample selection, you can achieve reliable research outcomes.

Activities



- explore the relationship between sampling and reliable research outcomes
1. Suggest reasons why it is important to understand research terminology before conducting your own research. Use examples of terminology to support your response.
 2. Explain why surveying a sample group rather than a whole population might be more appropriate when conducting research.
 3. Outline how poor sampling methods can result in unreliable research results. Use an example to support your answer.
 4. Interpret the following statement made by Rhys: 'The validity of your research has more to do with the depth of information you gather and your analysis skills than with the size of your sample.'
 5. Using your knowledge of sampling and other research terminology, identify the factors that led to unreliable research outcomes in the Westside University scenario provided above.
 6. Compare two different sampling methods, and discuss how the sampling method used by a researcher can affect their research outcomes.

Evidence of learning



You will know you are on the right track if you can:

- define various terms used in research
- describe at least two sampling methods
- recognise the reasons for using the various sampling methods in research
- explain how effective sampling relates to reliable research outcomes.

ETHICS IN RESEARCH

- **privacy**
- **respect for subjects of research**
- **integrity of researcher**
- **integrity of data**

Ethics play a vital role in any research activity. Without having knowledge of ethics and ethical procedures, you may unintentionally break the law or show disrespect to those involved in your research.

In order to adhere to basic ethical principles during your research, you need to:

- Maintain the privacy of your participants
- Respect people's right to choose whether to participate
- Remain honest and open about all aspects of your research
- Ensure all data is accurate and reliable
- Acknowledge work that is not your own.

Proper planning and preparation before starting your research will allow you to come up with strategies to avoid any ethical problems.

An easy way to remember the basic elements of ethics in research is with the acronym 'RIP'—**respect, integrity and privacy**. Table 1.3 explains these three concepts.



TABLE 1.3 'RIP'—respect, integrity and privacy

CONCEPT	EXPLANATION
RESPECT	<p>To show respect for your research participants you need to remember the following principles.</p> <ul style="list-style-type: none"> • <i>Voluntary participation</i>—people must not be forced or pressured into participating in your research. • <i>Informed consent</i>—potential research participants must be fully informed about the procedures and risks involved in your research, and must give their consent to participate. • <i>Risk of harm</i>—you must not put participants in a situation where they might be at risk of harm, either physically or emotionally, as a result of their participation.

SOURCE: ADAPTED FROM WILLIAM MK TROCHIM, 2006, 'ETHICS IN RESEARCH', RESEARCH METHODS KNOWLEDGE BASE, <http://www.socialresearchmethods.net/kb/ethics.php>.

Continued

TABLE 1.3 Continued

CONCEPT	EXPLANATION
INTEGRITY OF RESEARCHER	<ul style="list-style-type: none"> • <i>Document all data accurately and truthfully.</i> Any conclusions you make should be based on accurately recorded data. Failing to report data or withholding information because it does not support your research conclusions may be considered dishonest. If any data had to be disregarded for any reason, this should be stated in your research report. • <i>Maintain all documents.</i> Altering or destroying your observation data, research publications or reports may be considered failure to report the truth and will make your research unreliable.
INTEGRITY OF THE DATA	<ul style="list-style-type: none"> • <i>Appendix</i>—any questionnaires, tapes of interviews or observational notes you conducted should be available. (Where possible, names and other identifying information should be removed to maintain the privacy of participants.) • <i>Bibliography</i>—the materials you use and their sources should be recorded and dated. This relates specifically to secondary data, which must always be acknowledged. • <i>Clear records</i>—your records must show exactly what research methods you used and how you conducted them. This supports data reliability and validity as it provides information for future researchers who may wish to replicate or apply your methods to their own research. <p>SOURCE: ADAPTED FROM UNIVERSITY OF PITTSBURGH 2007, 'GUIDELINES FOR RESPONSIBLE CONDUCT OF RESEARCH', http://www.pitt.edu/~provost/ethresearch.html#_Toc153961816.</p>
PRIVACY OF PARTICIPANTS	<p>As a researcher you need to remember the following two main principles of privacy:</p> <ul style="list-style-type: none"> • <i>Participant confidentiality</i>—always ensure that participants are aware that their personal information will not be made available to anyone who is not directly involved in your research project. • <i>Anonymity</i>—participants should remain anonymous, even to the researchers themselves, unless they have consented otherwise. Anonymity is a stronger guarantee of privacy than confidentiality, but it is sometimes difficult to accomplish, especially in situations where participants are observed or interviewed by the researcher. In this case, consent must be arranged prior to conducting the observation or interview. <p>SOURCE: ADAPTED FROM WILLIAM MK TROCHIM, 2006, 'ETHICS IN RESEARCH', RESEARCH METHODS KNOWLEDGE BASE, http://www.socialresearchmethods.net/kb/ethics.php.</p>



● HSC regulations

The Board of Studies NSW outlines some basic advice to students with regard to submitting assessment tasks such as the Independent Research Project (IRP). It is important for you to understand these requirements.

Plagiarism is when you use the ideas or words of another person as your own, without acknowledging where you got them from.

Examples of behaviours that the Board of Studies considers unacceptable include:

- Copying, buying, stealing or borrowing someone else's work in part or in whole, and presenting it as your own
- Using material directly from books, journals, CDs or the internet without acknowledging the source

- Submitting work that contains a large contribution from another person, such as a parent, coach or subject expert, that is not acknowledged
- Paying someone to write or prepare material that is associated with an assessment task, such as process diaries, logs and journals.

SOURCE: BOARD OF STUDIES NSW, 'ADVICE TO STUDENTS—HSC ASSESSMENTS AND SUBMITTED WORKS',
http://www.boardofstudies.nsw.edu.au/manuals/pdf_doc/hsc_assess_advice_student.pdf.

For more information on the points listed above, download the pamphlet 'Advice to students—HSC Assessments and Submitted Works' from the Board of Studies NSW website. Go to

➔ <http://www.boardofstudies.nsw.edu.au>,

click on 'Manuals and Guides' in the yellow menu on the left, then look under the heading 'HSC and SC'.

Under the same heading, you might also like to explore the booklet 'Rules and Procedures for Higher School Certificate Candidates', especially the sections titled 'Honesty in assessment—the Standard' and 'What constitutes malpractice?'.

Do you remember doing the course 'All my own work' in Year 11? The activity below will refresh your memory on some of the stuff you need to keep in mind when completing your IRP.



Activities

- **conduct research by:**
 - following ethical procedures in their research

1. Read the Board of Studies NSW pamphlet 'Advice to Students—HSC Assessments and Submitted Works' (see above).

Then test your knowledge by completing the following quizzes on the 'HSC: All My Own Work' quiz website at

- ➔ <http://amow.boardofstudies.nsw.edu.au/quiz.html>:
 - Module 2: Acknowledging Sources
 - Module 3: Plagiarism
 - Module 4: Copyright.

Continued ▷



Activities continued

2. Complete the table below, suggesting strategies that could be used to deal with each of the ethical issues listed.

ETHICAL ISSUE	YES	NO	STRATEGY
Will my research involve discussion of sensitive topics (e.g. sexual activity, drug use, abortion, divorce, sexuality)?			
Will my research involve participants who are unable to give informed consent (e.g. children, people with learning disability)?			
Will it be necessary for participants to take part in the research without their knowledge and consent at the time (e.g. observation of people)?			
Will my research require the cooperation of other people (e.g. parents, principals, healthcare workers) to gain access to those individuals in my selected sample group (e.g. students at a school, residents of a nursing home)?			
Is it possible that participation in my research will result in any illegal behaviour or the use of any illegal substances?			
Will my research cause stress, anxiety, harm or negative consequences for participants or myself?			

3. Read the following case study and then complete the activities below.

CASE STUDY

Ethics in research

You have asked Mrs Jovaisa, a 75-year-old resident of a healthcare facility who has Alzheimer's disease, to participate in your research on how community services assist in meeting the needs of the aged.

On the day you were at the healthcare facility interviewing one of the staff, you asked Mrs Jovaisa if she

would be interested in assisting with your research by completing a questionnaire. You didn't have any questionnaires with you at the time but Mrs Jovaisa agreed to complete the survey if you brought one over in the next few days.

However, when you visit Mrs Jovaisa the next day with your questionnaire she looks at you blankly and seems to have no idea what you are talking about.

- Outline the ethical issues you would need to consider in this situation.
- Suggest strategies you could use to prevent this problem from occurring in the future.

Evidence of learning

You will know you are on the right track if you can:

- identify what the acronym RIP stands for with regard to ethics in research
- recognise the main principles of respect and privacy in research
- identify at least two things that will ensure that the integrity of your research is maintained
- define the term *plagiarism*
- suggest strategies to avoid ethical problems occurring in research.

METHODOLOGIES

■ quantitative and qualitative

When planning and conducting your research, you will need to use various research methodologies in order to collect different types of data.

Most of the research methodologies you will use will enable you to gather numerical or statistical information. These are called **quantitative methodologies**. The most effective methodologies for collecting numerical or statistical data include interviews, questionnaires and observations.

Quantitative methodologies allow researchers to obtain numerical or statistical data in relation to their research question or hypothesis.

Quantitative methodologies are useful when you want to:

- Show percentages or ratios
- Compare numbers in text
- Visually represent the amounts or levels of something in tables or graphs.

Other research methodologies enable you to collect information about people's opinions and ideas. These are called **qualitative methodologies**. The most effective methodologies for collecting information about people's opinions and ideas are interviews, case studies and literature reviews.

Qualitative methodologies allow researchers to obtain people's opinions and ideas in relation to their research question or hypothesis.

Qualitative methodologies are useful when you want to:

- Compare people's opinions or ideas
- Present arguments for and against something
- Illustrate the positive and negative effects of something
- Support quantitative data.

Table 1.4 lists some examples of effective quantitative and qualitative research methodologies.

Understanding what qualitative and quantitative methodologies are will help you to conduct your research and present your results appropriately.



You learnt about examples of research methodologies in the preliminary course. In Part 2, we'll briefly go over these again to refresh your memory.



TABLE 1.4 Examples of effective research methodologies

EFFECTIVE QUANTITATIVE METHODOLOGIES	EFFECTIVE QUALITATIVE METHODOLOGIES
Interview	Interview
Questionnaire	Case study
Observation	Literature review

SOURCES OF DATA

Throughout your research you will collect both primary data and secondary data. **Primary data** is information that you collect by conducting your own research. **Secondary data** is information that you collect from another researcher or from a source such as a newspaper article, book or website.

The sources that you use to collect your primary and secondary data will vary according to your research topic, sample group and research methodologies. Sources of data can include people, electronic sources, organisations, printed resources and libraries, or 'PEOPL' for short.

Sources of data can include people, places or other resources, such as books, that you can obtain information from.

It is extremely important to collect data from a variety of sources, in order to provide greater perspective on your research topic. If you were to use data from only one source, it would be difficult for you to reflect the range of views and opinions that exist with regard to the topic.

For example, secondary data from print and electronic sources is easily accessible and can provide a range of

opinions on a topic; however, these opinions might be out of date and might not reflect current views. Primary data collected from people and/or organisations provides current information on a topic; however, it can also be biased, because the people or organisations surveyed might have one-sided views on the topic. Using both secondary and primary data sources will enable you to collect a range of views and opinions on your research topic and represent the overall picture rather than just one particular view.

● people/individuals

People can be sources of primary data, which can be collected by means of surveys, case studies or observations.

Examples include:

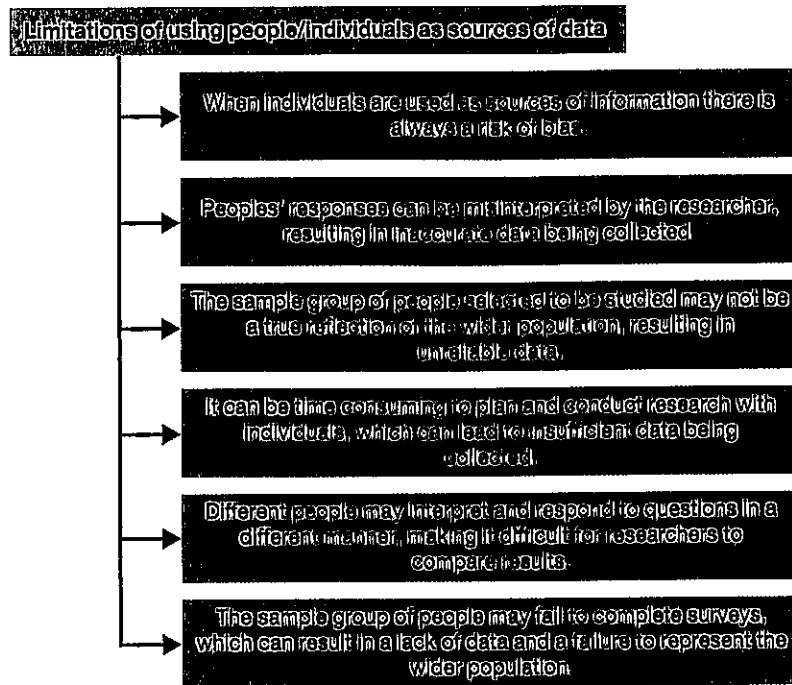
- People in a particular context, such as a workplace, school, home or sporting event
- A range of people from all walks of life
- People involved in a particular situation, such as a celebration, a community event, conflict, parenting or caring.

● electronic sources

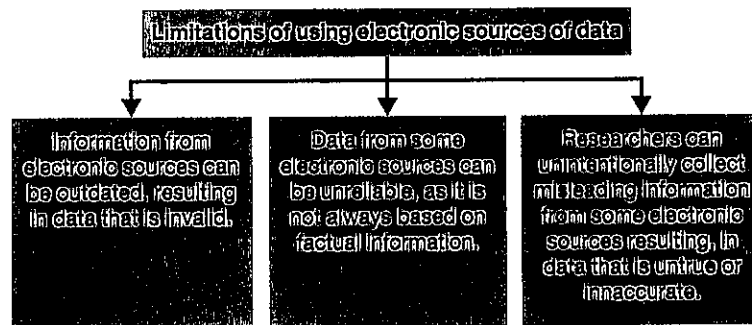
Electronic sources can be used to collect secondary data in the form of electronic publications and case studies. They can also be used to collect primary data through observation.

Examples include:

- Websites
- Television programs
- Videos
- DVDs
- CD-ROMs
- Radio programs.



◀ FIGURE 1.3
Limitations of
using people/
individuals as
sources of data



◀ FIGURE 1.4
Limitations of
using electronic
sources of data

● organisations/groups

Organisations and other groups can be sources of primary data, which can be collected by means of surveys, case studies and observations. They can also be sources of secondary data, which can be collected by means of literature reviews.

Examples include:

- Staff of a particular organisation, such as nurses or childcare workers
- Experts in a particular field, such as marine biologists or university lecturers
- Particular groups within the community, such as families, young people or elderly people
- Pamphlets or brochures produced by an organisation
- Data previously collected by an organisation, such as by the Australian Bureau of Statistics or the Australian Institute of Health and Welfare.

● print sources

Print sources can be used to collect secondary data by means of literature reviews.

Examples include:

- Newspaper articles
- Books, including biographies and autobiographies
- Journals
- Magazines
- Encyclopaedias
- Research reports
- Annual reports
- Pamphlets and brochures.

FIGURE 1.5 ▷
Limitations
of using
organisations/
groups as sources
of data

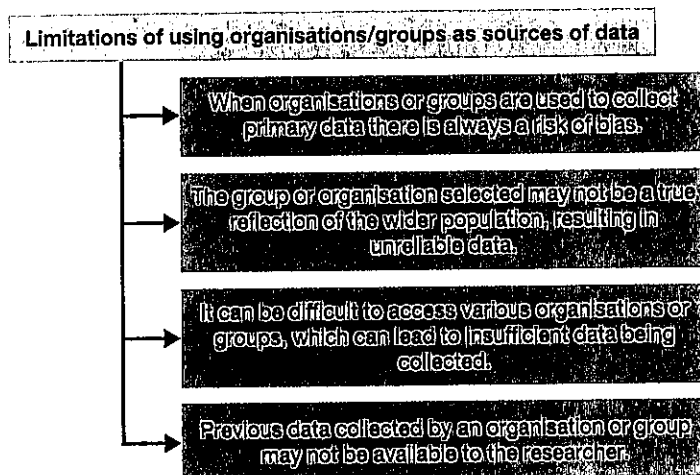
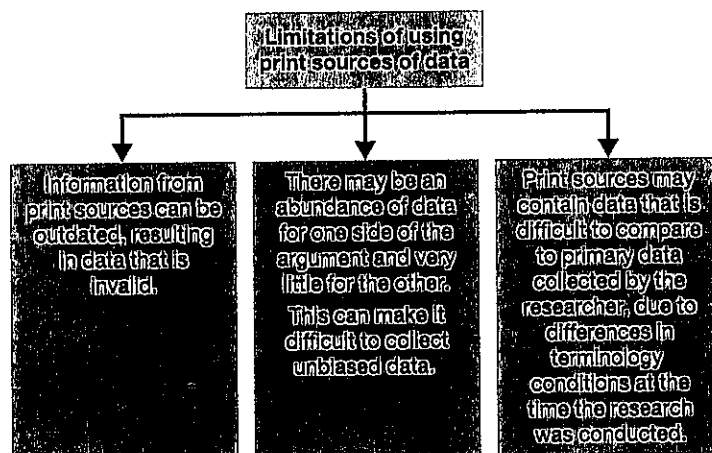


FIGURE 1.6 ▷
Limitations
of using print
sources of data



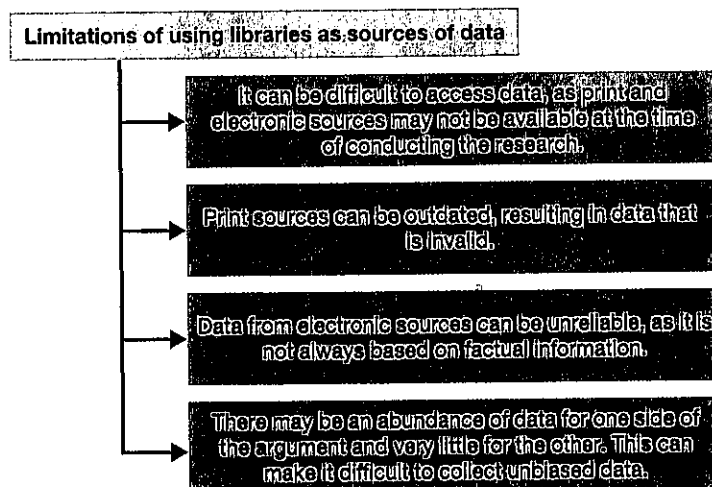
● libraries

Libraries often provide access to both print and electronic sources of data, and can therefore be used as sources of secondary data by means of literature reviews and reference to previously conducted case studies.

Examples include:

- Books
- Newspapers
- Journals
- Magazines
- Encyclopaedias
- Research reports
- Annual reports
- CD-ROMs
- Videos
- DVDs
- Websites.

FIGURE 1.7 ▷
Limitations of
using libraries as
sources of data



Activities

● examine the limitation of data and its use to support particular views

- Using a table based on the template below, classify the five sources of data discussed above according to the two categories—primary and secondary—and provide a reason to justify each classification.

PRIMARY SOURCES	REASON	SECONDARY SOURCES	REASON

- Identify the limitations of data collected from print and electronic sources, and comment on how using only these sources could lead to bias in research data.
- Explain how using only organisations and/or groups as sources of data may result in research results that only support one particular view.

● conduct research by:

- collecting and recording from primary and secondary sources of data

- Collect and record both qualitative and quantitative data using the secondary source 'Nation in state of denial on obesity' provided on the eText.
- Use the example interview in 'Global warming' provided on the eText to collect information from five primary sources of data (for example, people, organisations and so on). Record the data you have collected, either in writing or by using another form of technology such as a voice or video recorder.



NATION IN STATE OF DENIAL ON OBESITY



GLOBAL WARMING

Evidence of learning

You will know you are on the right track if you can:

- demonstrate an understanding of the types of data collected by using qualitative and quantitative methodologies
- distinguish between primary and secondary sources of data
- identify the five sources of data, and provide examples of each
- recognise the limitations of the various sources of data
- collect and record data from both primary and secondary sources.

Review questions

1. What is bias?
2. What is the difference between a research hypothesis and a research question?
3. What is the term used to describe research that measures what it intends to measure?
4. How do you know if your research is reliable?
5. What are two types of sampling methods?
6. What is the acronym used to remember ethics in research? What does it stand for?
7. What are the ethical considerations you need to remember when conducting research?
8. Which research ethics would be violated if you pressured or forced someone to be involved in your research?
9. How can you avoid accusations of plagiarism in your Independent Research Project?
10. What might be some consequences of not understanding research ethics?
11. What type of data can be collected using quantitative methodologies?
12. What type of data can be collected using qualitative methodologies?
13. What types of methodologies could be used to collect data that would show the proportion of males compared with females in relation to a particular topic?
14. If a researcher wanted to compare opinions or present arguments for and against something, what would be the most suitable methodology?
15. What are the most effective research methodologies for collecting statistical data?
16. What is a short way of remembering the five sources of data discussed in the text?
17. What are the five sources of data discussed in the text?
18. How is primary data different from secondary data?
19. What are the limitations of using people/individuals as sources of data?
20. Why is it important to use a variety of sources to collect data?

PART 2 CONDUCTING RESEARCH

CONDUCTING RESEARCH

This part of the chapter outlines the steps involved in conducting research, so you can be well equipped with both the knowledge and the skills to complete your independent research project (IRP). In order to conduct effective research, you need knowledge of ethics in research, research methodologies and sources of data. In addition, it is important that you have good planning skills and effective resource-management skills, and are a confident decision maker. If you are equipped with all of these things, producing a final product (research report) will not seem so overwhelming. The research planning 'clock' shown in Figure 2.1 outlines the necessary steps involved in conducting research.

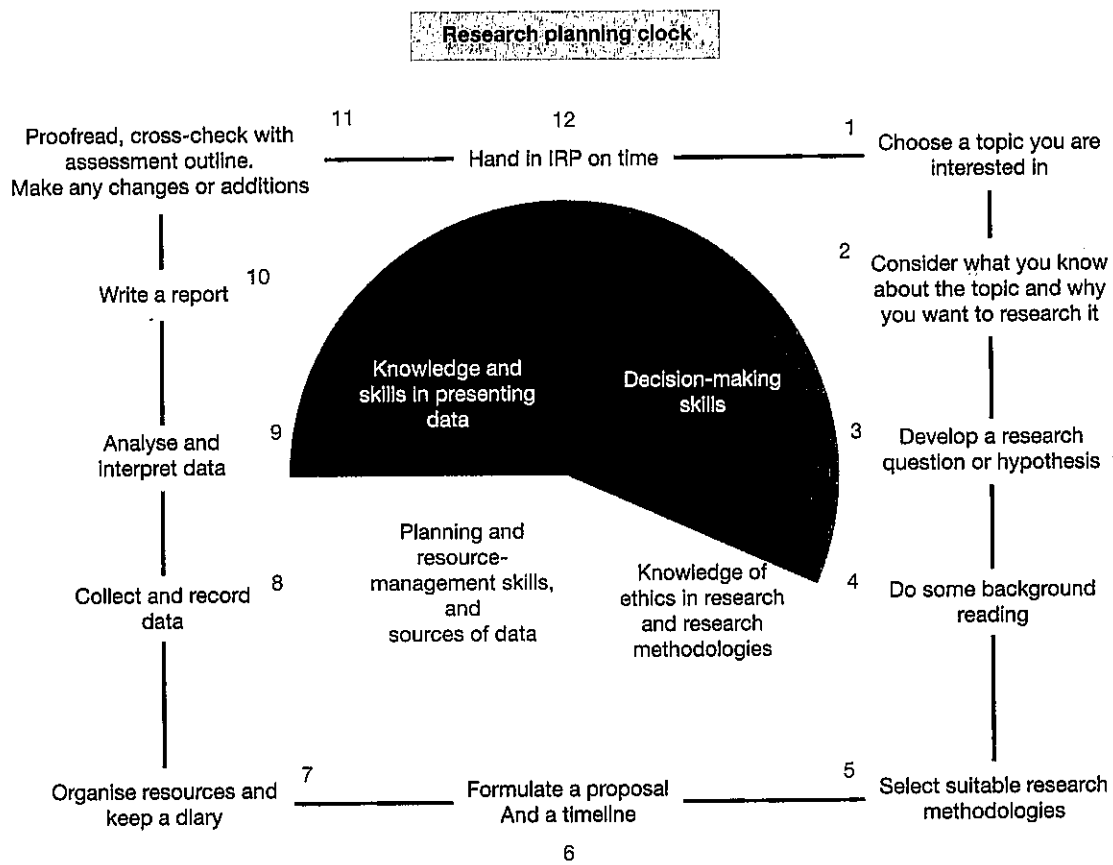


FIGURE 2.1 Steps in conducting research

● formulating a research proposal

A research proposal is an outline of what a researcher plans to do in order to complete their research project. It highlights the researcher's short-term, intermediate and long-term goals, the resources they require and the timeframes in which they intend to complete each goal. In essence, a research proposal is the 'what, why, how, when, where, who' of their research.

ELEMENTS OF A RESEARCH PROPOSAL

- P Present the topic area.
- R Recognise why you chose the topic.
- O Outline how the topic relates to the CAFS course content.
- P Put forward the research question or hypothesis.
- O Offer an explanation of how you developed that question or hypothesis.
- S State the methodologies (including the sampling methods) you will use and why.
- A Address any ethical issues you might face, and the strategies you will use to overcome them.
- L List the sources of data, resources and actions you will use in conducting your research.

In order to formulate a **research proposal**, you must first complete Steps 1–5 on the research planning clock (see Figure 2.1). Each of these steps is discussed below.



Get your proposal sorted out early, because you'll need plenty of time to conduct your primary and secondary research.

this will just lead to a lack of motivation and commitment to completing your research.

A list of possible research topics has been provided on the eText to give you some ideas and get you thinking. Use this list to decide on five topics that you might find interesting to research. The topics you select should involve things that you would like to find out more about. You might also find that you can link two topics together to form your specific research topic—for example, physical activity and youth; or natural disasters and wellbeing.

You will further refine your choice of research topic in Step 3.

Step 1: Choose a topic you are interested in

There is no point in doing your research on something that is not important or interesting to you, as



RESEARCH TOPICS

Step 2: Consider what you know about the topic and why you want to research it

It is important to think about what you already know about the topic, and the reasons you want to research it, so that you are able to justify your choice when writing your research proposal.

Knowing a lot about a topic can be both helpful and unhelpful. Having some knowledge about a topic can make it easier to find and collect information, because you might already have some knowledge about relevant sources of data. On the other hand, if you already know a lot about a topic then you might get bored during your research, because you might not find out anything new—knowing very little about a topic can make it very interesting to research. Knowing a lot about a topic can also cause bias in your research, because you might already have an opinion about it that might influence your collection and analysis of data.

Step 3: Develop a research question or hypothesis

This is an important step in formulating your proposal, because you need to identify the specific question or hypothesis that you are going to prove or disprove through your research. Without a suitable research question or hypothesis, you will have no focus on which to base your research proposal. For some people, developing a research question or hypothesis is the hardest part of completing the IRP.

In Step 1 you decided on some topics that you might find interesting to research. Once you have a list of interesting topics, rank them in order of importance to you, placing the topic you are most interested in at the top of the list, and so on. Then, using the topics you have ranked first and second, create a mind map outlining what each topic means to you, what you already know about it and why you would want to research it. You might also want to include in your mind map:

- other issues related to that topic

- research methodologies that might be suitable for researching that topic
- people, organisations or groups that might be relevant to that topic.

To help you create your mind map, an example is shown in Figure 2.2, and a template has been provided on the eText.

Creating a mind map can help you to decide:

- which topic you know most about
- which topic you are most interested in researching
- which topic would provide the most sources of data
- how much time each topic would take to research
- other issues related to each topic
- the type of question or hypothesis you could develop for each topic.

For example, in Figure 2.2, initially the researcher was interested in how access to resources affects people’s level of participation in physical activity. However, this topic is too broad. By completing a mind map, the researcher was able to come up with more ideas about the topic, and also to narrow it down in order to focus on one particular issue, such as:

- the influence of age on a person’s level of participation in physical activity
- the effects of physical activity on health and wellbeing
- the relationship between physical activity and obesity levels
- technology and young people’s participation in physical activity.

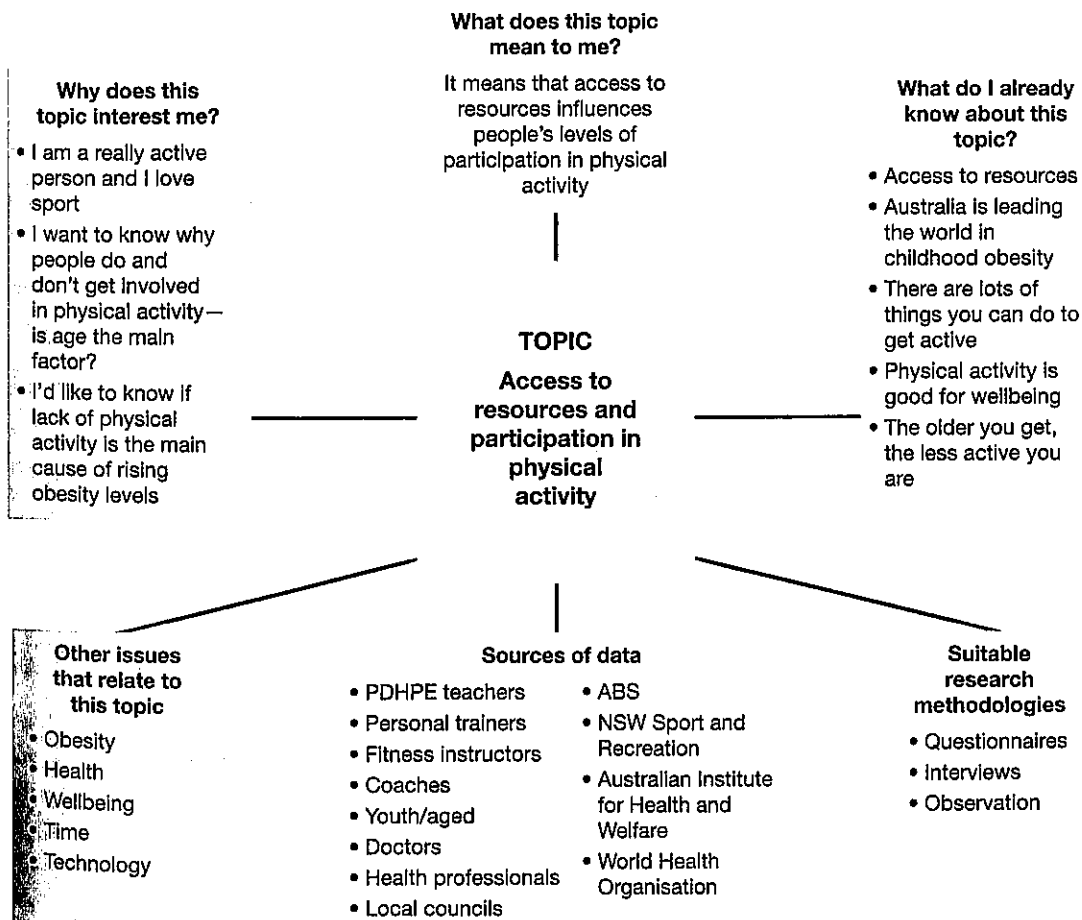


FIGURE 2.2
Example
mind map



MIND MAP
TEMPLATE



Once you have decided on your final topic, you should be able to come up with at least three possible research questions or hypotheses. Table 2.1 provides some examples for the topics discussed above.

It is sometimes easier to research a 'closed' question than an 'open' one, because it makes clearer what your conclusion might be: yes or no. You can then use your research data to show how or why you came to that conclusion.

TABLE 2.1 Examples of research questions/hypotheses

TOPIC	QUESTION OR HYPOTHESIS
The influence of age on a person's level of participation in physical activity	<ul style="list-style-type: none"> • Does age influence an individual's participation in physical activity? • Does being more than 65 years old change a person's level of participation in physical activity? • Who participates in more physical activity—aged or young people?
The effects of physical activity on health and wellbeing	<ul style="list-style-type: none"> • Does a lack of physical activity affect a person's socioemotional wellbeing? • <i>Physical activity has many benefits on a person's physical and socioemotional wellbeing.</i>
The relationship between physical activity and obesity levels	<ul style="list-style-type: none"> • Can people who participate in regular physical activity still be diagnosed with obesity? • <i>Lack of physical activity is the main cause of obesity in the local community.</i> • <i>Obesity affects a person's ability to participate in physical activity.</i>
Technology and young people's participation in physical activity	<ul style="list-style-type: none"> • <i>The introduction of gaming technology has led to a decline in the physical activity levels of 15–24 year olds.</i>

Other considerations when developing your research question or hypothesis

Before you decide on your final question or hypothesis, it is important to consider any **ethical issues** you might face when researching that questions or hypothesis. For example, if you choose to conduct research on the topic of obesity, the following ethical issues might arise.



- Your research might involve discussion of sensitive topics (people's weight).
- Your research might cause stress or anxiety for some participants.
- Your research might require people's participation without their knowledge or consent at the time (that is, observation).
- Your research might require the cooperation of other people (such as health workers) to gain access to your sample group (people with obesity).

Use the ethical issues table provided on page 12 to help you make a final decision on your research question or hypothesis.

Once you have decided on a possible research question or hypothesis, it's a good idea to ask other people what they think of it. Sharing your ideas with other people will allow you to get **feedback** and possibly some ideas on how to reword or restructure your question or hypothesis before moving ahead with your research.

If you are asked to provide feedback to other people on their research question or hypothesis, here are some things you might consider:

- Is the question or hypothesis something that the researcher is interested in?
- Does the question or hypothesis relate to the CAFS syllabus?

- Is the question or hypothesis easy to understand?
- Is it clear what the main research topic is?
- Can the question or hypothesis be answered easily, or is it too in-depth or complex?
- Can the question or hypothesis be researched easily, or will it be too time-consuming?
- Is there enough secondary data available on the research topic?
- Are there any ethical issues that might arise from researching the question or hypothesis?
- Will the researcher be able to access a suitable sample group to conduct primary research on the question or hypothesis?
- Can you offer any other suggestions on or improvements to the question or hypothesis?

If you're having trouble developing a question or hypothesis, share your thoughts with other people. This can help you to think of more ideas or examples of possible questions to use.



QUICK TIPS FOR DEVELOPING A SUITABLE RESEARCH QUESTION

- Create mind maps on the topics that interest you.
- Develop more than one question or hypothesis to start with.
- Make your question or hypothesis focus on a specific issue.
- Use a closed question, as this will make it easier to determine the conclusion of your research.
- Make sure there is enough background information on your question or hypothesis.
- Consider any ethical issues that might arise before deciding on your final research question or hypothesis.
- Make sure the sample group for your question or hypothesis is accessible.
- Share your question or hypothesis with others, as they might be able to help you improve it.

Step 4: Do some background reading

It is vital that you do this before formulating your proposal, because if there is very little secondary data available on the topic you have chosen then you might not wish to research that question or hypothesis. Having limited secondary data will make it difficult for you to complete a literature review or make comparisons with your primary research results. If there is an abundance of secondary data on your research question or hypothesis, then you will be able to be more specific in your proposal.

● research methodology

Step 5: Select suitable research methodologies

Once you have decided on your research question or hypothesis, you can start to think about how you might go about collecting primary and secondary data. This step is important to think about before formulating your proposal, as you will need to outline how you intend to gather the necessary data to prove or disprove your research question or hypothesis.

A recap of the research methodologies you learnt about in the preliminary course has been provided here to help you to select the most suitable research methodologies for your specific topic.

It is also important to explain in your proposal why you intend to conduct your research using the methodologies you have selected.

Only a summary of each research methodology, along with specific things to consider, has been provided below, as you should already have an in-depth knowledge and understanding of research methodologies from the preliminary CAFS course.

- survey, using interview (structure, unstructured), questionnaire (oral, written)

SURVEYS USING INTERVIEWS

WHAT ARE THEY?	THINGS TO CONSIDER
<p>An interview is a form of survey where the researcher asks one or more people a series of questions to gather information about a particular topic. It can involve face-to-face discussion or communicating via technology such as telephone, email, video conferencing, webcam and so on.</p> <p>The purpose of using interviews as a research method is to gather both quantitative and qualitative data. When structured effectively, interviews allow the researcher to collect in-depth qualitative data to support the data collected from questionnaires.</p> <p>Using interviews as a research methodology helps you to collect primary research data.</p>	<ul style="list-style-type: none"> How many people will you interview? Who will you interview, and why? When will you conduct the interviews, and how long will it take you? What will you do if people are not available or are unable to participate in the interview at the time you have arranged? Will your interview be structured or unstructured?

NOTE: FOR FURTHER INFORMATION ON INTERVIEWS AS A RESEARCH METHOD, SEE THE CAFS PRELIMINARY TEXT, MODULE 1, CHAPTER 2.

SURVEYS USING QUESTIONNAIRES

WHAT ARE THEY?	THINGS TO CONSIDER
<p>A questionnaire is a form of survey that consists of a series of questions. It is good to use when resources such as time and money are limited. A questionnaire can also be sent via email or linked to a web page.</p> <p>The main purpose of using questionnaires as a research method is to gather quantitative data. However, they can also be used to collect qualitative data.</p> <p>Using questionnaires as a research methodology helps you to collect primary research data.</p>	<ul style="list-style-type: none"> How many questionnaires will you conduct? Who will you survey with questionnaires, and why? When will you conduct the questionnaires, and how long will it take you? Will your questionnaire be written or oral? What will you do if people are not available or if they do not complete your questionnaire?

NOTE: FOR FURTHER INFORMATION ON QUESTIONNAIRES AS A RESEARCH METHOD, SEE THE CAFS PRELIMINARY TEXT, MODULE 3, CHAPTER 6.

— case study

CASE STUDIES**WHAT ARE THEY?**

A **case study** is a written summary of a real-life case, based on data collected over a period of weeks, months or years. The researcher selects a single issue and tries to find out all they can about it over time. An overall picture of the issue can then be created through the process of reflection and analysis.

The purpose of using case studies as a research method is to gather qualitative data using a combination of primary and secondary sources of data.

Using case studies as a research methodology helps you to collect primary research data. Alternatively, you can collect secondary research data if you choose to use a case study that already exists.

THINGS TO CONSIDER

- Will you conduct your own (primary) case study or use an existing (secondary) one?
- If you will conduct your own case study, how will you conduct it?
- What specific issue will you conduct your case study on, and why?
- When will you conduct your case study, and how long will it take you?
- Would it be more effective to use a case study that already exists?

NOTE: FOR FURTHER INFORMATION ON CASE STUDIES AS A RESEARCH METHOD, SEE THE CAFS PRELIMINARY TEXT, MODULE 2, CHAPTER 6.

— observation

OBSERVATION**WHAT IS IT?**

Observation is used to record what is witnessed by a researcher, such as what is said or done by participants in a particular context.

The purpose of using observation as a research method is to gather quantitative data, which can be displayed in a format such as a sociogram or list. However, depending on how you conduct your observation you may also be able to collect qualitative data, such as descriptions or explanations of events that occur within a group.

Using observation as a research methodology helps you to collect primary research data.

THINGS TO CONSIDER

- How many people will you observe?
- Who will you observe, and why?
- When will you conduct your observation, and how long will it take you?
- What will you do if people are not available or if they are absent on the day of your observation?
- Will you be a participant or a non-participant during the observation?

NOTE: FOR FURTHER INFORMATION ON OBSERVATION AS A RESEARCH METHOD, SEE THE CAFS PRELIMINARY TEXT, MODULE 2, CHAPTER 5.

LITERATURE REVIEWS

WHAT ARE THEY?

A **literature review** is an examination of existing research that has been conducted on a particular topic or issue. It involves the researcher summarising the views, opinions and findings of other researchers.

A literature review is used to provide background information, and allows you to gain an in-depth understanding of the topic prior to conducting your own primary research.

The purpose of using a literature review as a research method is to gather existing quantitative and qualitative data from a variety of sources.

Using a literature review as a research methodology helps you to collect secondary research data.

THINGS TO CONSIDER

- What are the main issues relating to your research topic?
- How much data is available on the topic?
- What sources of data will you use?
- How will you present the data?
- When will you conduct your literature review, and how long will it take you?

NOTE: FOR FURTHER INFORMATION ON LITERATURE REVIEWS AS A RESEARCH METHOD, SEE THE CAFS PRELIMINARY TEXT, MODULE 3, CHAPTER 2.



Once you have a good understanding of what each research methodology involves, it is important to select the most appropriate methodologies for your research topic, taking into consideration the resources available to you. For example, there is no point in deciding to use a case study to conduct your research if you don't have enough time to conduct a case study.

Similarly, it is important to choose a research methodology that will provide you with the data you need for your research. For example, observation would not be an appropriate research methodology for research on people's personal values, because values can be difficult to observe, and also because observation can easily be influenced by the researcher's bias.

Make sure the methodologies you select are SMART (see Table 2.2).

The checklist shown in Table 2.2 will help you to evaluate whether a particular methodology would be appropriate for your research.

TABLE 2.2 The SMART checklist for selecting research methodologies

S	Suitable	Is the methodology straightforward? Will it help you to collect the data you want? Why is the methodology the right one to use? Do you know how to use it? Do you have a good idea of what you will need to do (for example, what you will need to develop, plan, organise, coordinate and so on)?
M	Measurable	Will you be able to measure your progress towards answering your research question if you use this research method? Do you have a realistic idea of how long it will take to conduct? Will the methodology take up too much of your time?

Continued ▷

TABLE 2.2 Continued

A	Achievable	Is the methodology easy to conduct, or is it so difficult that you might decide to give up on it halfway through your research? Does the methodology interest you and make you want to do it (for example, are you motivated enough to conduct interviews or carry out observation)? Will it be easy or difficult for you to commit to the methodology (be aware that some methodologies might interfere with your social life)?
R	Realistic	Is the methodology realistically achievable? Do you have the knowledge, skills and abilities to conduct research using this methodology? Do you have the resources to conduct research using this methodology? Are you willing and able to conduct research using this methodology (including organising, managing and completing the research)? Do you believe that you can and will put in enough effort to conduct research properly using this methodology?
T	Timely	Do you have a reasonable timeframe in which to conduct research using this methodology (for example, if you only have a short period of time in which to conduct your research, then a case study might not be the most suitable method)? Are you able to set realistic timeframes for completing your research using this methodology?

● planning

Step 6: Formulate a proposal and a timeline

Formulating your proposal

When formulating your proposal, it is important to cover most of the questions outlined in Table 2.3. You do not need to address every question separately, but your proposal should provide an overall picture of the six focus points: what, why, how, when, where and who.

TABLE 2.3 Questions to consider when formulating your research proposal

FOCUS POINT	QUESTIONS
What	What is your topic? What is your research question or hypothesis? What do you hope to find out from your research? What data do you hope to collect from the research methodologies you have chosen? What sources of data will you use? What resources will you need?
Why	Why have you chosen your research topic/question/hypothesis? Why have you chosen your research methodologies?
How	How will you collect your primary research data? How will you collect your secondary research data? How will you select your sample group? How will you overcome any ethical issues? How much time do you need?
When (timeline of actions)	When do you plan to complete each of the steps involved in conducting your research? When do you plan to conduct your literature review/questionnaires/interviews/case studies/observations? When will you collect and record your primary research data? When do you hope to interpret and present your data?
Where	Where do you need to go in order to collect your primary and secondary data? Where will you get your resources from?
Who	Who will you need support from? Who will be involved in your primary research?



A timeline is a good way to plan how you intend to achieve your short-term and intermediate goals within a given timeframe.

Formulating your timeline

There is no right or wrong way to create a timeline. However, for it to be effective, a timeline should include two specific elements:

- a list of all the specific actions required to conduct the research
- the dates or timeframes within which each of these actions will be completed.

Setting a timeline begins with setting goals. First, you need to identify what the long-term goal of your research project is. Next, you need to identify all the intermediate goals or actions that are required to achieve your long-term goal. Finally, you need to outline all the short-term goals or actions that are necessary to achieve each of your intermediate goals.

Many of the actions you identify will be specific to your particular research project; however, some of the common short-term and intermediate goals or actions that a researcher might include in their timeline are shown in Table 2.4. There is no particular order in which you must complete each of these actions—you should use your timeline to decide on the most appropriate order and times for you. For example, none of us wants to be writing up a literature review on our birthday, or conducting interviews the day before another assessment task is due.

TABLE 2.4 Common actions included in a research timeline

LONG-TERM GOAL: CONDUCT RESEARCH IN ORDER TO COMPLETE AN IRP		
INTERMEDIATE ACTION	SHORT-TERM GOALS/ACTIONS	DATE TO BE COMPLETED
Select a research topic	<ul style="list-style-type: none"> • Develop a suitable question or hypothesis to research • Write introduction section of IRP 	
Conduct secondary research	<ul style="list-style-type: none"> • Find secondary sources of data • Collect and record relevant information 	
Present secondary data	<ul style="list-style-type: none"> • Write a literature review • Develop a bibliography 	
Conduct primary research	<ul style="list-style-type: none"> • Select suitable methodologies • Select sample group(s) • Create survey tools, e.g. questionnaires, interview questions • Write methodologies section of IRP • Conduct methodologies, e.g. interviews, observations • Collect data and record relevant information 	
Present primary data (research results)	<ul style="list-style-type: none"> • Interpret key data • Create graphs, tables and charts • Write primary research results section of IRP 	
Analyse data	<ul style="list-style-type: none"> • Organise data into 'for' and 'against' categories • Compare primary and secondary data • Write analysis section of IRP 	
Determine conclusion of research	<ul style="list-style-type: none"> • Examine key findings • Make a judgment on research findings • Write conclusion section of IRP 	

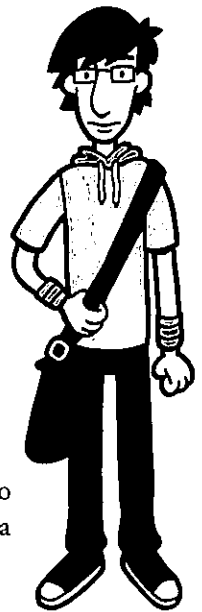
Continued ▷

TABLE 2 4 Continued

LONG-TERM GOALS: CONDUCT RESEARCH IN ORDER TO COMPLETE AN IRP	
Compile final report	<ul style="list-style-type: none"> • Create title page • Write abstract • Decide on format for presenting IRP • Assemble all elements of IRP
Other	<ul style="list-style-type: none"> • Write in diary • Write up acknowledgements • Compile appendices

Planning involves making decisions about when you expect to achieve your short-term goals or actions. It is not possible to complete every goal or action at the same time, so it is vital that your timeline shows the specific dates and timeframes in which you expect to carry out each action.

Remember that your intermediate goals will take some time to complete: each of the related short-term goals will be completed during that period of time.



Step 7: Organise resources and keep a diary

Organising resources

This step involves planning what you intend to do, how you intend to do it, what you will need in order to do it and when it needs to be done by. Creating a specific timeline of actions (as you did in Step 6) will give you a good guide to the types of things you need to plan for, such as the following.

- What resources will I need, and why? (For example, will I need time, money, a computer, a printer, paper, a photocopier, transport, books and so on?)
- How will I get these resources? (For example, do I have access to a printer or photocopier to print or copy my questionnaires? Do I have the time and transport to conduct interviews?)
- What will my sources of (primary and secondary) data be?
- Who will I need to speak to, and why? (For example, am I going to interview people? Who? Will I ask anyone for feedback on my work? Who?)
- When do I need to complete each action? (For example, what specific dates and times will I hand out and then collect questionnaires, conduct interviews or observations, type up my final report?)
- How much time do I have? (For example, how many weeks do I have to complete this assessment? When do I need to start collecting my primary research? How long will it take me to conduct my questionnaires or interviews? When do I want to start typing up my final report?)

Keeping a project diary

Part of your assessment requirement includes submitting a project diary. The research planning stage therefore includes organising the resources that you will need to keep your project diary.

The format and content of your project diary will be discussed in more detail in Part 3 of this chapter, but as a general guide, your project diary should be used to:

- record your research activities, such as interviews and phone calls
- present an account of the positive and negative experiences you faced throughout the research process
- suggest recommendations for future researchers.

Sometimes it is hard to remember all the small things you have achieved on a day-to-day basis, and carrying a diary around with you everywhere, whether in paper or electronic form, might not always be possible or practical. PJ, Rhys and Indii all have suggestions below about how to make diary-keeping easier.



Use your mobile phone to record reminders, memos or voice recordings. Then whenever you get time to write in your diary you can refer to your phone for information.

Create a blog that you can log on to every night to record all the things you achieved that day. When it comes time to present your diary, you can either give your teacher the link to your blog, print out your blog or compile all your blog entries into weekly diary entries.



Have an envelope and a pad of post-it notes with you wherever you go. That way, if you happen to come across something related to your research, or if you unexpectedly complete one of your short-term actions, you can write a quick note about what you did, when you did it and any problems you encountered. Then once a week you can compile all your post-it notes into a weekly diary entry.



● collecting and recording data

Step 8: Collect and record data

Collecting data involves using research methodologies to gather data from a range of primary and secondary sources. Recording data involves documenting the specific data that is relevant to and necessary for the research topic.

Researchers are often bombarded with lots of information, both verbal and non-verbal. To ensure that their research data is collected and recorded appropriately, a researcher needs to carefully consider the methods they will use to collect and record data during the research process—whether it is primary data such as participant responses, behaviours or actions, or secondary data such as statistics or existing literature.

The most common methods of **collecting** and **recording data** include:

- providing participants with surveys (in either paper or electronic format), such as questionnaires where participants record their own responses in writing
- taking notes during face-to-face interviews, observations or case studies, or when examining secondary research
- photocopying or printing data from secondary sources
- other methods such as using a voice recorder or video camera where appropriate.

When making decisions about how to collect and record data, you need to consider how much data you want to collect, and then record the appropriate amount during the research process.

Depending on the method(s) you use to collect your research data, you might find that you end up either:

- recording data that is not relevant to your research—for example, you might choose to use a questionnaire to collect participants' responses to a range of topics and issues, but once this data has been recorded you might find that some of it is not relevant to your research topic. This means that you will have still collected and recorded plenty of data, but that some of it might not play a part in your final interpretation and analysis, or
- recording more data than is necessary—for example, you might decide to use a video camera to collect data from your observations, so that when you play back the video you can record all the data. However, this will take up additional time, when you could simply have collected and recorded the most relevant data at the time by taking notes during your observations. Obviously this will depend on what you are observing and how much time you have to examine the data.

Other things you might consider when collecting and recording data include the following.

- Make sure you have gained permission to use the methods you plan to use to collect and record data—for example, using a video camera in a public place.
- Practise using that method to collect and record data before beginning your actual data collection—for example, practise taking notes in an interview, as you might find that you are unable to record the data quickly enough and so decide to use a voice recorder instead.
- Check that any required equipment is in good working condition—for example, malfunctioning of equipment such as a voice recorder, video camera, photocopier or printer might result in no data being collected or recorded, and you might need to devote more time to collect and/or record the data again.

It is important that you carefully consider the research methods and tools you are going to use to collect and record data before beginning your primary and secondary research.



Some of the activities in Part 1 of this chapter should have prepared you for collecting and recording data from both primary and secondary sources.



USING QUESTIONNAIRES TO COLLECT AND RECORD DATA

Questionnaires are one of the most common methods of collecting and recording data. But data collected by means of a questionnaire will only be reliable and valid if the questions included in it have been developed correctly and carefully. In other words, the data collected by means of a questionnaire is only as good as the questions asked. The quality of the questions used will determine the effectiveness of the data collected in determining the conclusion of the research question or hypothesis. It is therefore important to construct any questionnaire with the following things in mind.

- Write a good introduction—state the purpose of the research, the research question or hypothesis, and clear instructions on how to complete the questionnaire and how long it should take.
- Keep it short—try to stick to between six and 10 questions.

Continued

Continued

- Make the questions clear and easy to understand—everyone who reads the questions should be able to understand what they mean.
- Ask only relevant questions—only ask for information you need. For example, is it important to your research to know what country a person was born in or what size clothes they wear?
- Make sure each question only asks about one thing.
- Limit the number of possible responses in closed questions to five or six, but ensure that enough possible responses are provided that the data will accurately demonstrate a broad spectrum of responses.
- Make sure the possible responses to closed questions cover various viewpoints—don't provide just one possible positive response and four negative ones.
- Avoid questions that contain any bias, such as 'Do you agree that society has a negative attitude towards young people?' Instead ask, 'What do you think society's attitude is towards young people?'
- Avoid sensitive questions, or ensure that the possible responses provided are inclusive of a diverse range of people. For example, don't ask a question about what size clothes people wear but then only provide for responses up to size 16, as this may not be inclusive of the whole population.
- Only ask open questions that will support data gathered from closed questions.
- See the 'Tips for developing a good survey' on the eText for more advice.



TIPS FOR
DEVELOPING
A GOOD
SURVEY

● analysing and interpreting data

Step 9: Analyse and interpret data

Interpreting data

Interpreting data involves examining the information you have collected and recorded in order to make sense of it; in other words, giving it meaning. Interpreting data means being able to translate a large amount of information into key data.

The results section of your IRP is where you interpret your research data; in other words, this is where you clarify the key data from both your primary and secondary research.

When **interpreting data**, you should be able to:

- tally quantitative data from questionnaires or interviews
- clarify data recorded from observation or case studies
- summarise information from secondary sources
- present key data in graphs, tables, charts or written reports
- explain possible reasons for key data (you can often use qualitative information as evidence for this).



Analysing data

Analysing data involves exploring your results in order to draw conclusions from them. Analysing data means being able to show a relationship between your key data and your research question or hypothesis.

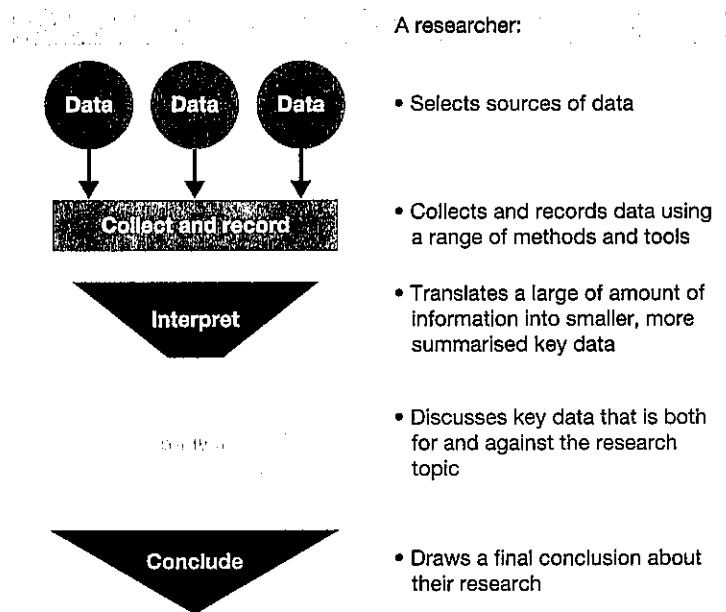
When **analysing data**, you should be able to:

- identify key data that is relevant to your research question or hypothesis
- discuss key data that is both for and against your research question or hypothesis
- construct an argument using the key data in order to draw conclusions about your research.

As a result of your analysis, you should be able to come to a conclusion about your research. This means making a judgment on the outcome of your research, based on the key data you have discussed.



The steps involved in processing research data are shown in Figure 2.3



◀ FIGURE 2.3
Steps in processing research data

Activities

- conduct research by:
 - developing a suitable question
 - selecting appropriate research methodology for specific research settings
 - preparing a plan of how and when resources will be used
 - collecting and recording from primary and secondary sources of data
 - analysing and interpreting data collected for research purposes

Continued

 **Activities continued**

1. Using the information provided in the table below, match each of the stages in conducting research with the knowledge and skills required. Justify your answers, using specific examples.

STAGE IN CONDUCTING RESEARCH	KNOWLEDGE AND SKILLS REQUIRED	EXAMPLES
Formulate a proposal <hr/> <hr/> <hr/>	<ul style="list-style-type: none"> • Decision-making skills • Planning skills • Knowledge of ethics in research • Resource-management skills • Knowledge of sources of data • Knowledge of research methodologies • Knowledge and skills in presenting data 	
Select suitable research methodologies <hr/> <hr/> <hr/>		
Organise resources <hr/> <hr/> <hr/>		
Collect and record data <hr/> <hr/> <hr/>		
Analyse and interpret data <hr/> <hr/> <hr/>		
Write a final report <hr/> <hr/> <hr/>		

2. Select three research topics from the list of possible research topics provided on the eText, and justify how each one relates to any of the following CAFS content areas:

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



RESEARCH TOPICS

Continued ▷



Activities continued

3. Use the mind map template on the eText to construct a mind map for two topics of your choice. Propose three possible research questions for each topic.
4. Identify the considerations you should take into account when providing feedback to others with regard to their research question or hypothesis.
5. Using the table below, assess the suitability of various research methods and tools for collecting and recording data. An example has been provided.



MIND MAP
TEMPLAT

RESEARCH METHOD OR TOOL	ADVANTAGES	DISADVANTAGES
Written questionnaires	Can collect and record a large amount of data with little effort	Questions may not collect the type of data needed for research, or may provide more data than is needed
Interviews		
Note-taking		
Observation		
Video recording		
Case studies		
Photocopying/printing of secondary data		

6. Rhys wants to conduct research on the topic 'conflict in families'. He wants to conduct a case study over a period of six weeks, hand out and collect 50 questionnaires, interview three family counsellors and find secondary data on the topic. He has yet to develop a research question for his topic, and he needs to submit his research proposal in two weeks' time. Create a suitable timeline for Rhys. (Alternatively, prepare a timeline for your own IRP, and have a friend critique it.)
7. Suggest possible management strategies (how and when resources will be used) for each of the following research scenarios.
 - Indii wants to conduct five interviews and use 50 questionnaires. She has five weeks in which to do this. During the third week she has an English assessment due.
 - PJ wants to conduct observations in order to collect and record data on the levels of participation of high-school students in physical activity during lunchtimes. He also wants to interview three PDHPE teachers on the topic. He has two weeks in which to complete his observations and interviews.
 - Rhys has organised interviews with three family counsellors on one day. The day before his interviews, one of the counsellors contacts him to say that she will be unable to meet with him at the scheduled time. He had booked specific times so he wouldn't have to miss out on soccer training.
8. 'The data collected by means of a questionnaire is only as good as the questions asked'. Explain the meaning of this statement.

Continued ▶

Activities continued



BASIC CRITERIA FOR CRITIQUING QUESTIONNAIRES



EXAMPLE QUESTIONNAIRES



DATA SAMPLES

9. Select one of the example questionnaires on the eText, and use the checklist below to identify any flaws in the questionnaire and suggest improvements that could be made.

BASIC CRITERIA FOR CRITIQUING QUESTIONNAIRES		
CRITERIA	YES	NO
A poor introduction		
Fewer than six questions or more than 10 questions		
Questions that are difficult to understand		
Questions that ask for unnecessary or irrelevant information		
Open questions that do not support closed questions		
Too few or too many responses per question (four to six is recommended)		
Questions that contain bias		

NOTE: IF YOU TICKED 'YES' FOR ANY OF THE ABOVE CRITERIA, THIS INDICATES THAT THE QUESTIONNAIRE REQUIRES FURTHER IMPROVEMENT.

Write your comments on the questionnaire here:

10. Interpret each of the data samples provided on the eText by doing one of the following.
- Tally the quantitative data.
 - Clarify records from observation or case studies.
 - Summarise information from secondary sources.
 - Present key data in a graph or written format.
 - Explain possible reasons for key data.

Evidence of learning

You will know you are on the right track if you can:

- develop a suitable research question or hypothesis for your IRP
- explain the main elements of a research proposal
- select the most appropriate research methodologies for specific research settings
- demonstrate planning skills by developing a realistic research timeline
- show an understanding of considerations to take into account when providing feedback to others
- outline the positives and negatives of various methods of collecting and recording data
- demonstrate the skills of interpreting and analysing data in your own IRP.

Review questions

1. What are the 12 steps in the research planning clock?
2. Which of the steps in the research planning clock should be completed before formulating a research proposal?
3. What are the elements of a research proposal?
4. How can a mind map help a researcher to decide on a suitable research question or hypothesis?
5. What does 'SMART' refer to when selecting research methodologies?
6. Why would a researcher use a timeline?
7. What are the two key elements that should be included in a timeline?
8. Why would a researcher choose to use questionnaires as a research methodology?
9. What should a research diary be used for?
10. How can you make writing your diary entries easier?
11. Why would a researcher choose to take notes to record data rather than using a video camera?
12. Why would a researcher need to be able to interpret data?
13. How could a researcher demonstrate in an IRP that they are able to interpret data? Give specific examples to support your response.
14. What three things should a researcher be able to do when analysing data?
15. What are the steps in processing research data? Use a diagram in your response.

PART 3 PRESENTING DATA

PRESENTING DATA

For your final Independent Research Project (IRP), it is important that you understand how to present research data appropriately and clearly. The term **data** can be used to refer to any information related to a research project, ranging from something as simple as the research question or **hypothesis** to the results collected from primary research. Understanding the various ways in which you can present your research data will assist you to produce a quality research project.

● graphs, tables, presenting key data

Graphs and tables can be excellent ways to present complex data as easy-to-understand information. They allow the researcher to present information in a format that is quick and easy for the reader to interpret. Graphs and tables are the most effective way to illustrate trends or comparisons observed in a large amount of data, rather than trying to explain all the information in written format. Conversely, the information from a graph or table can be translated into written text to highlight some of the key data.



Before creating a graph, ask yourself, is it necessary? A table or even written text may be more appropriate for the data you want to present.

Graphs versus tables

Tables are the most appropriate way to present data when the researcher wants to maintain numerical details; for example, showing specific differences in things such as amounts, percentages, metres or dollars.

For example, if a researcher wanted to demonstrate the types of support services accessed by young people, and it was vital to show the number or percentage of young people accessing each service, a table would make it possible to present the exact numbers or percentages, whereas a graph may not show this as accurately. Table 3.1 is an example of using a table to present specific numerical data.

TABLE 3.1 Using a table to present specific numerical data

TYPES OF SUPPORT SERVICES ACCESSED BY YOUNG PEOPLE (% OF THOSE SURVEYED WHO ACCESSED EACH SERVICE)			
SERVICE	MALES	FEMALES	TOTAL
Family doctor	15	45	30
Kids Helpline	49	58	53.5
Beyond Blue website	32	87	59.5
Reachout Australia website	72	89	80.5
Other	35	21	28

NOTE: THIS TABLE DOES NOT REPRESENT REAL, FACTUAL DATA. IT IS JUST AN EXAMPLE CONTAINING FICTIONAL DATA TO MODEL THE USE OF A TABLE TO REPRESENT SPECIFIC NUMERICAL DATA.

Graphs, on the other hand, are useful when the researcher wants to visually represent a pattern, comparison or trend in the research data, and when precise numerical details do not need to be communicated.

For example, if a researcher wanted to demonstrate a trend in young people accessing a support service over the past five years, a graph could be used.

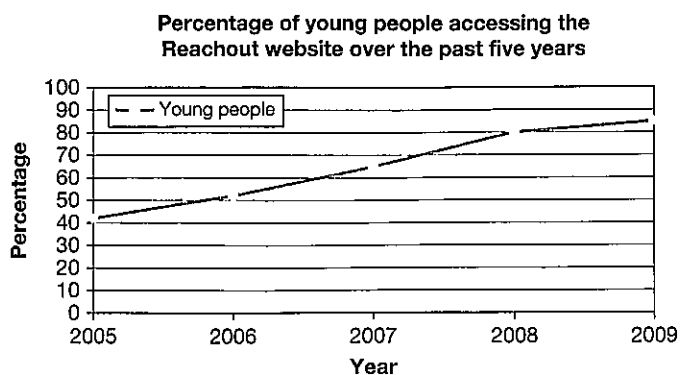


FIGURE 3.1 Using a graph to present trends in data

NOTE: THIS GRAPH DOES NOT REPRESENT REAL, FACTUAL DATA. IT IS JUST AN EXAMPLE CONTAINING FICTIONAL DATA TO MODEL THE USE OF A GRAPH TO REPRESENT TRENDS IN DATA.

Choosing the right style of graph to present research data

There are many different styles of graphs, and not all graphs are appropriate for presenting all types of data. Different graph styles should be used to convey different information.

The most common styles of graphs are:

- column graphs (vertical)
- bar graphs (horizontal)
- line graphs
- pie graphs.

Keep in mind that in your CAFS HSC exam it is more likely that you will be asked to suggest the most appropriate style of graph for presenting a particular kind of data, or to interpret the information presented in a graph, than be examined on your ability to create or draw one.

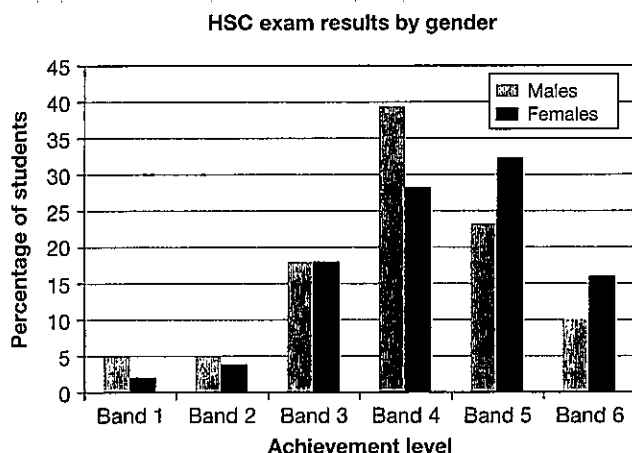


Table 3.2 shows an example of each of these types of graphs, and some considerations to take into account when deciding which kind to use.

TABLE 3.2 Considerations for choosing the right style of graph to present data

Graph Style	Considerations
Column Graph	Useful for comparing data across categories. Shows differences between data points.
Bar Graph	Useful for comparing data across categories. Shows differences between data points.
Line Graph	Useful for showing trends over time. Shows changes in data over a period.
Pie Graph	Useful for showing proportions of a whole. Shows the relative size of each part.

A **column graph** consists of an axis and a series of labelled vertical columns that represent different values. The numbers along the side are called the scale.



Considerations

Column graphs are useful for presenting comparisons among data, e.g. males compared to females.

They are suitable for displaying differences between data because they are able to show more than one series of data.

Column graphs lack much room for written labels at the bottom of each column on the x-axis, so it's best to use this type of graph when these labels are short.

FIGURE 3.2 HSC exam results by gender

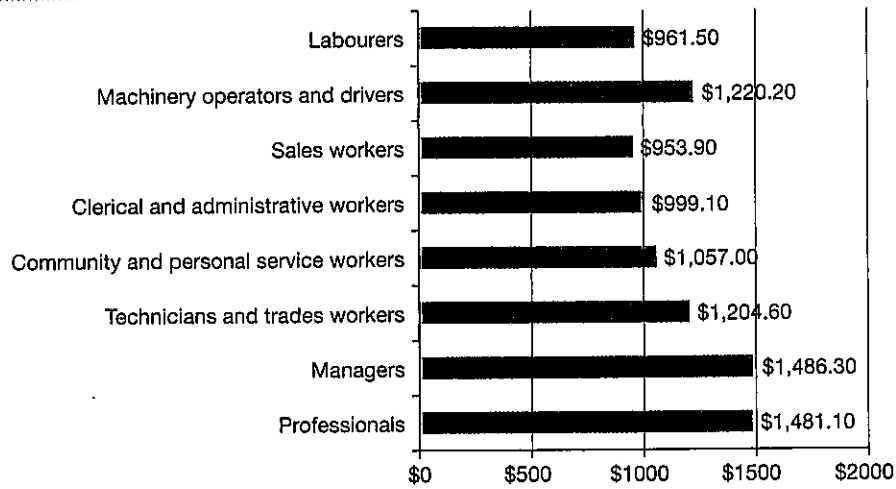
Continued

TABLE 3.2 Continued

BAR GRAPH

A **bar graph** consists of an axis and a series of labelled horizontal bars that show different values. The numbers along the bottom are called the scale.

FIGURE 3.3 ▷ Average weekly earnings by occupation



Considerations

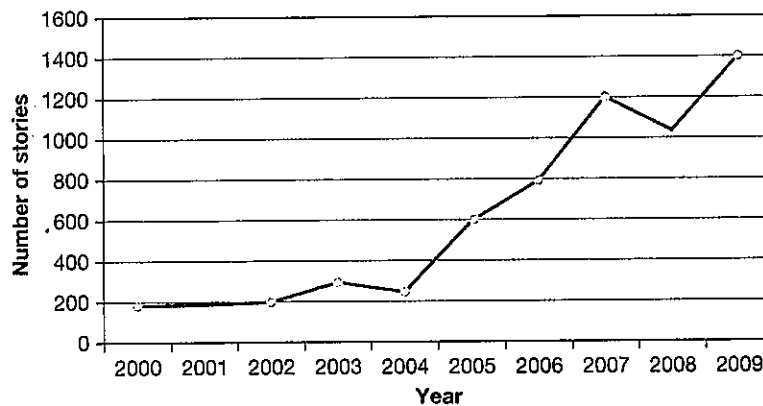
Bar graphs are good for showing values or amounts: the longer the bar, the greater the value or amount.

Bar graphs are suitable when you want to display category labels in full, e.g. try fitting 'Machinery operators and drivers' neatly on the x-axis of a column graph!

LINE GRAPH

A **line graph** is presented as a line that is either stable or on an incline or decline. The numbers along the side are called the scale.

FIGURE 3.4 ▷ Coverage of obesity in the Australian media, 2000–2009



Considerations

Line graphs are good when you want to show a trend in data over time.

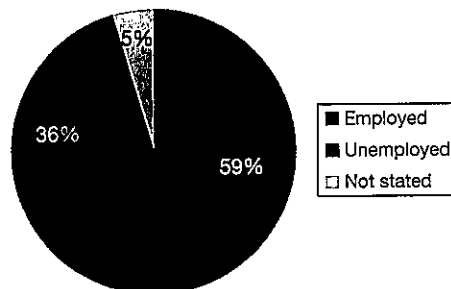
It is important to use a consistent scale on each axis so that the line's shape represents the data correctly.

You should only use a line graph if you have 10 or fewer items of data to display.

PIE GRAPH

A **pie graph** (also known as a pie chart) is presented as a circle divided into segments. Pie graphs are used to display the relative sizes of the parts that make up a whole.

FIGURE 3.5 ▷ Employment status of Australian population, 2001



Considerations

Pie graphs are good when you want to show a simple comparison of a small number of items that make up a total number.

A pie graph may not be suitable if the data values are too similar, because it can be difficult to see the differences in segment sizes.

Including more than five segments will make a pie graph hard to read.

It's important to label each of the segments with their values, to make the graph easier to interpret.

NOTE: THE GRAPHS ABOVE DO NOT REPRESENT REAL, FACTUAL DATA. THEY ARE JUST EXAMPLES CONTAINING FICTIONAL DATA TO MODEL THE DIFFERENT GRAPH STYLES.

FEATURE BOX

Tips for presenting data using graphs

- Avoid using too many different line types, or too many different symbols, or too many different colours, or too many different fonts.

Use a consistent colour scheme throughout your report. Use a consistent font throughout your report.



GRAPHING
ACTIVITIES



Remember, when marking your IRP, your teacher won't care about how pretty your graphs look. All they will focus on is how well you have represented the data, and whether you have selected the most suitable style of graph.



If you do not feel confident in designing graphs, or if you want to extend your skills in graph selection, there are some activities on the eText that will help you to develop your knowledge and skills.

Presenting key data

When researchers conduct primary research, it is vital that they are able to present their key findings appropriately. There are various ways in which researchers may do this, ranging from text to graphs and tables.

When selecting the format in which to present their key data, it is important for researchers to consider the purpose of presenting the information, and what they want the reader to understand from it. Table 3.3 outlines the purpose of key data that researchers might wish to display in their final report, and provides examples of how it may best be presented.

TABLE 3.3 Presenting key data

PURPOSE OF DATA	FORMAT	EXAMPLE																																											
To express percentages or ratios	Text	<ul style="list-style-type: none"> • 30% of students use the school library computers. • Of the 60 participants surveyed, 55% were male and 45% were female. • 1 in 10 people identify as same-sex attracted. • Boys chose to participate in sport more often than girls, at a ratio of 6:1. 																																											
To compare numbers	Text	<ul style="list-style-type: none"> • 20 out of the 30 students in the class have access to the internet at home. • Out of the 100 Year 11 students surveyed, 25/50 females compared to 48/50 males have their driver's licence. 																																											
To provide specific numerical values, levels or amounts	Table	<p>Who do adolescents go to for advice (numbers of respondents)?</p> <table border="1"> <thead> <tr> <th></th> <th>DOCTORS</th> <th>TEACHERS</th> <th>FRIENDS</th> <th>PARENTS</th> </tr> </thead> <tbody> <tr> <td>Boys</td> <td>10</td> <td>32</td> <td>90</td> <td>20</td> </tr> <tr> <td>Girls</td> <td>30</td> <td>48</td> <td>52</td> <td>31</td> </tr> </tbody> </table>		DOCTORS	TEACHERS	FRIENDS	PARENTS	Boys	10	32	90	20	Girls	30	48	52	31																												
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To visually represent differences or trends	Graph	<p>Bar graph</p> <p>Who do adolescents go to for advice?</p> <table border="1"> <caption>Data for Bar Graph: Who do adolescents go to for advice?</caption> <thead> <tr> <th>Source</th> <th>Boys</th> <th>Girls</th> </tr> </thead> <tbody> <tr> <td>Doctors</td> <td>10</td> <td>30</td> </tr> <tr> <td>Teachers</td> <td>32</td> <td>48</td> </tr> <tr> <td>Friends</td> <td>90</td> <td>52</td> </tr> <tr> <td>Parents</td> <td>20</td> <td>31</td> </tr> </tbody> </table> <p>Line graph</p> <p>Trends in illness and death from lifestyle diseases, 1985-2005</p> <table border="1"> <caption>Data for Line Graph: Trends in illness and death from lifestyle diseases, 1985-2005</caption> <thead> <tr> <th>Year</th> <th>Mortality (%)</th> <th>Morbidity (%)</th> </tr> </thead> <tbody> <tr> <td>1985</td> <td>42</td> <td>65</td> </tr> <tr> <td>1990</td> <td>58</td> <td>58</td> </tr> <tr> <td>1995</td> <td>52</td> <td>38</td> </tr> <tr> <td>2000</td> <td>65</td> <td>40</td> </tr> <tr> <td>2005</td> <td>68</td> <td>30</td> </tr> </tbody> </table> <p>Pie graph</p> <p>What type of family structure do you have?</p> <table border="1"> <caption>Data for Pie Graph: What type of family structure do you have?</caption> <thead> <tr> <th>Family Structure</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Blended family</td> <td>33%</td> </tr> <tr> <td>Nuclear family</td> <td>41%</td> </tr> <tr> <td>Sole-parent family</td> <td>8%</td> </tr> <tr> <td>Step-parent family</td> <td>18%</td> </tr> </tbody> </table>	Source	Boys	Girls	Doctors	10	30	Teachers	32	48	Friends	90	52	Parents	20	31	Year	Mortality (%)	Morbidity (%)	1985	42	65	1990	58	58	1995	52	38	2000	65	40	2005	68	30	Family Structure	Percentage	Blended family	33%	Nuclear family	41%	Sole-parent family	8%	Step-parent family	18%
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NOTE: THIS TABLE DOES NOT REPRESENT REAL, FACTUAL DATA. IT IS JUST AN EXAMPLE CONTAINING FICTIONAL DATA TO MODEL THE VARIOUS METHODS OF PRESENTING DATA.

● report writing and presentation

After conducting your research, it is vital that you are able to present a final report that is organised and logical.

There are various formats that you can use for the presentation of your IRP. These include:

- hard-copy written report
- electronic written report
- hard-copy oral presentation
- PowerPoint oral presentation
- notebook presentation
- film or media presentation.

Your IRP does not have to be a masterpiece, rather, it needs to concisely reflect your knowledge of the research process and the outcomes of your research.



Your teacher will outline the options you have regarding the presentation of your final report. Whatever format you choose, include the elements outlined in Table 3.4 in your report in order to present a final product that is clear and systematic.

TABLE 3.4 Elements of research presentation

ELEMENT	DESCRIPTION	WHY IS THIS IMPORTANT?
Title, author and date	This is where you state the research hypothesis or question, the author's name and the date the report was completed.	Other researchers might wish to use your research as secondary data so will need to be able to reference the author and know when the research was conducted.
Abstract	This is an overall summary of your research, including the topic, aim and purpose, methodologies, sources of data, major findings and conclusion.	This allows readers to get an overall idea of the research conducted without having to read the entire report.
Acknowledgments	This allows the researcher to thank all those involved in the research.	This shows the researcher's integrity and ability to express appreciation to those who helped throughout the research process.
Introduction	This is a brief outline of the research topic and hypothesis or question, why it was chosen by the researcher and what the researcher expects to find out. It should also explain how the research is related to the Community and Family Studies course.	This element explains the background reasons for conducting the research and highlights the expected outcomes of the research.
Methodologies	This is a description and justification of the research methodologies and sampling methods used, including specific information detailing 'who, what, where and why'.	This provides other researchers with the methods to conduct similar research and aims to ensure the reliability of future research.
Results	This includes the major findings of both the primary and the secondary research that are relevant to the research hypothesis or question. Elements such as a literature review, graphs and tables are included in this section, to present both qualitative and quantitative data.	This section provides readers with a snapshot of the research data that informed the research conclusion.
Analysis	This includes an interpretation of the major findings, both for and against the original hypothesis or question. It should highlight the most significant and relevant results and show the relationships between the data and the research hypothesis or question.	This ensures that all points of view are shown, to prevent bias and to allow the reader to develop a deeper understanding of the research findings.

Continued ▾

TABLE 3.4 Continued

ELEMENT	DESCRIPTION	WHY IS THIS IMPORTANT?
Conclusion	This clearly expresses the outcome of the research, providing an answer to the research hypothesis or question. It should be based on the information presented throughout the research report, and should include any recommendations for future research.	This provides the answer to the research hypothesis or question, and offers other researchers suggestions to overcome the barriers that they may face during the research process.
Bibliography	This is a list of all the secondary sources consulted during the research process or referred to in the research report.	This demonstrates the integrity of both the researcher and the data, and provides other researchers with sources of further information.
Appendix	This includes any additional information relevant to the research but not essential to the specific elements of the research report, such as copies of interviews, sample questionnaires, other tables or graphs, and definitions of terms. A list of all the appendices included should be included at the start of the appendix section, so that the material can be accessed easily by the reader.	This provides examples of materials used throughout the research or additional relevant information about the sample group or the secondary sources used.



TEMPLATES FOR PRESENTING YOUR PROJECT DIARY

Project diary

In addition to your final report, you will also need to submit a project diary. Your project diary should be used to:

- record your research activities, such as interviews and phone calls
- present an account of the positive and negative experiences you faced throughout the research process
- suggest recommendations for future researchers.

Some format ideas you might like to consider when deciding how to present your project diary include:

- handwritten journal
- audio diary
- blog
- electronic document
- video diary
- wiki.

Sample electronic templates, web-based diaries and voice diary software can be accessed at the URLs below. These will need to be modified to suit the assessment requirements of your project diary.

Electronic journals:

- ➔ <http://office.microsoft.com/en-au/templates/CT101441201033.aspx>

Web-based diaries:

- ➔ <http://www.smartcode.com/downloads/free-diary-application.html>

Voice diary software:

- ➔ <http://www.freedownloadcenter.com/Best/cute-diary-free.html>



It is up to you to choose the most appropriate way to present your project diary entries, but your teacher will provide some direction as to what is expected with regard to your diary information and presentation.

● bibliography

A bibliography is a list of all the secondary sources you have consulted during the research process or referred to in your research report. Table 3.5 shows some basic examples of the kind of information to include in your bibliography.

Your bibliography is where you provide specific details of the secondary sources of data you have used to inform your research.



TABLE 3.5 How to reference secondary sources of data in a bibliography

TYPE OF SOURCE	INFORMATION TO BE INCLUDED
Book	Author's surname, Initials/first name, Year. <i>Title of book</i> . Edition. Place: Publisher.
Journal article	Author's surname, Initials, Year. Title of article. <i>Full Title of Journal</i> , Volume number (Issue/Part number), Page number(s).
Newspaper article	Author's surname, Initials, Year. Title of article. <i>Full Title of Newspaper</i> , Day and month, page number(s).
Online newspaper article	Author's surname, Year. Title of document or page. <i>Name of newspaper</i> , additional date information (day and month). Available at: URL [Accessed: day, month, year].
Website	Name of website, Year. <i>Title of web page</i> . (last updated: day, month, year). Available at: URL [Accessed: day, month, year].
DVD or video	<i>Full title of DVD or video</i> . Year of distribution. Medium (DVD or video). Director (if relevant). Country of origin: Film studio or maker.
Television program	<i>Series title, episode name and number (if relevant)</i> , Year of broadcast. Broadcasting organisation and channel, date and time of broadcast.

SOURCE: ADAPTED FROM ANGLIA RUSKIN UNIVERSITY, 'HARVARD SYSTEM OF REFERENCING GUIDE', http://libweb.anglia.ac.uk/referencing/harvard.htm?harvard_id=48.

● appendix

An **appendix** is used to present any additional material or information that is related to the content of the research report but not so closely related that it needs to be included in the main part of the report. An appendix should include any research material or information that is of secondary interest to the reader, such as background information, supporting facts, surveys, tables or graphs and definitions of terms.

Always assume that the reader will only have a short time to read your report and will only want to access the materials included in your appendix if it's absolutely necessary.



What do I include in the appendix?

Jamie Member

HSC: 2009

Posts: 121

Last activity:

7 August 2009, 8:14 pm

I've done my IRP on how the representation of masculinity has changed in the media over time. I have reviewed 50 magazine and newspaper advertisements from the 1950s to 2000s, and in my analysis I talk about 10 specific advertisements that demonstrate change. I'm not sure whether to include the other 40 in my report.

I am also considering putting the 10 advertisements I have discussed into the main part of my report to support my analysis. If I do this, a lot of pages will have pictures, a few lines of text and then more pictures, which might make my analysis look slightly disorganised.

I am not sure what the best way to present this data would be. Can anyone provide advice?

There are a number of different ways that a researcher can organise and refer readers to the appendices in a research report. A general rule is that the first appendix item mentioned in the report should be called Appendix 1 (or Appendix A), the next one mentioned should be called Appendix 2 (or Appendix B), and so on. Provided that your references to the materials contained in the appendices are consistent with the way you have labelled and organised the materials themselves, you can choose your own way of organising and referring to them. However, numbering or lettering would be the most effective and logical way.



It is important to number or alphabetise each piece of material that you plan to include in your appendix in the order that you refer to it in your report.

EXAMPLE OF HOW TO REFER TO MATERIAL INCLUDED IN THE APPENDIX TO A REPORT

A researcher has carried out a questionnaire to gather data, and wants to include a copy of the questionnaire in her report so that readers can refer to it if they wish. Rather than placing it in the main body of the report, the researcher labels the questionnaire 'Appendix 1', and inserts a mention to it in the Methodologies section, as shown below.

Methodologies

A sample group of 50 people was surveyed on their level of participation in physical activity by means of a questionnaire (Appendix 1).



TEMPLATES
FOR
PRESENTING
YOUR IRP

Activities

- **conduct research by:**

- crediting sources of data by means of bibliography and appendix

1. Identify the information you would need to include in a bibliography for each of the following secondary sources of data. You will need to use the URLs provided to find the bibliography information for each source.

Website:

- ➔ http://www.health.nsw.gov.au/pubs/2007/woo_schools_report.html

Online newspaper article:

- ➔ <http://www.smh.com.au/lifestyle/relax--its-good-for-you-20090819-eqlo.html>

Book:

- ➔ <http://www.amazon.com/Research-Methods-Physical-Activity-Thomas/dp/073603692X#reader>

2. Using your knowledge of presenting data, propose a response to the post submitted by Jamie on the topic of 'What do I include in the appendix?' that appears in the text.

Evidence of learning

You will know you are on the right track if you can:

- distinguish between the various styles of graphs used to present data
- identify the most appropriate styles of graph for presenting research data
- reference various secondary sources of data correctly
- explain why a researcher would include a bibliography and an appendix when presenting data.

Review questions

1. How can a researcher best present the results of their research?
2. Why would a researcher choose to present data using a table?
3. What are the most common styles of graphs used to present research data?
4. When would it be preferable to use a bar graph rather than a column graph?
5. What types of data would be best presented using a line graph?
6. What are the four purposes of presenting key data?
7. What are the elements of research presentations outlined in the text?
8. Why is it important to include the date in a research report?
9. What is an abstract?
10. What should be included in the Results section of a research report?
11. What are the various ways in which you could present your research diary?
12. Why would you include a bibliography in your research report?
13. What specific information would a researcher need to include in a bibliography when they have used books and websites as secondary sources of data?
14. Why would a researcher include an appendix in their research report?
15. What should be included in an appendix?