Credit value: 15

22 Research methodology for health and social care

Health and social care professionals carry out a form of research whenever they observe, take measurements and refer to other professionals to gather and record information about the individuals in their care. They interpret the information and use it to assess the individual's progress against the individual's care plan. If necessary, the plan is changed and the effect of this is also monitored. This is regarded as informal research because it is part of routine health and social care practice and relates to the care of individuals. However, all new advances in health and social care are tested using a formal research process, which involves specific planning, collecting relevant information, interpreting it and publishing the results of the research.

This unit investigates different functions of health and social care research and the principles that underpin it. You will explore ethical and legal issues relating to health and social care research and different techniques that may be used to gather research data. You will plan a small-scale research project on a topic relating to health and social care, subject to consent from your centre and the assessment requirements of the unit. The plan will include a justification of your choice of methods to gather new information in the context of existing knowledge of the subject gathered from a literature review. You will carry out the research and produce a report in which you present your results, interpret them and evaluate the research methodology you used in the project.

Learning outcomes

After completing this unit you should:

1 understand the function of research in health and social care

2 understand ethical issues relating to research in health and social care

3 understand research methodologies relevant to health and social care

4 be able to plan for a research project

5 be able to conduct research relevant to a health and social care context

6 be able to interpret research findings.

Assessment and grading criteria

This table shows you what you must do in order to achieve a **pass**, **merit** or **distinction** grade, and where you can find activities in this book to help you.

To achieve a **pass** grade, the evidence must show that you are able to:	To achieve a **merit** grade, the evidence must show that, in addition to the pass criteria, you are able to:	To achieve a **distinction** grade, the evidence must show that, in addition to the pass and merit criteria, you are able to:
P1 Explain the function of research in health and social care. **See Assessment activity 22.1, page 413**	**M1** Discuss the function of research in chosen area of interest. **See Assessment activity 22.1, page 413**	
P2 Discuss ethical issues relating to research in the health and social care sectors. **See Assessment activity 22.2, page 424**		**D1** Assess research methodologies with regard to ensuring validity of findings. **See Assessment activity 22.4, page 446**
P3 Compare different research methodologies for health and social care. **See Assessment activity 22.3, page 440**	**M2** Justify the research methods chosen for the project. **See Assessment activity 22.4, page 446**	
P4 Plan a research project. **See Assessment activity 22.4, page 446**		
P5 Carry out the planned research project. **See Assessment activity 22.5, page 448**	**M3** Assess strengths and weaknesses of the research project in meeting the aims or hypothesis. **See Assessment activity 22.6, page 456**	
P6 Report findings and conclusions from research project. **See Assessment activity 22.6, page 456**	**M4** Assess findings of the research project in relation to the original hypothesis. **See Assessment activity 22.6, page 456**	**D2** Evaluate how the research project could have been improved. **See Assessment activity 22.6, page 456**

How you will be assessed

This unit will be assessed through assignment tasks that you will complete in stages over the duration of the unit. Your assessment will include written assignments, a detailed action plan for your own research project, and a report on the findings from your project.

Dave, 17 years old

I chose swine flu as the topic for my project because there were lots of scary headlines in the news at the time and I wanted to find out why everyone was worried.

Because I chose my topic quickly, I had plenty of time for my project. I found the Internet most useful for research, especially as the information on swine flu was changing all the time. Information about other types of flu helped me decide on the questions and answer choices for my questionnaire. It took quite a long time to get the questionnaire right but the pilot study was worth it because I got good data from the survey. I interviewed a practice nurse and got lots of information about vaccination because I had planned my questions in advance. I also found the latest government statistics about swine flu on the Internet so I was able to use these in the discussion of all my results.

Although I had to alter the timescales (I had to rearrange the interview because the nurse was ill and I got a bit behind), my plan helped me stick to what I had to do and I handed in the report early. I concluded from my results that the public is very confused about swine flu, partly because of the news stories. By the time I had finished, the government was saying that there was no swine flu epidemic after all, even though they were predicting an epidemic when I started my project.

Over to you!

1. What will you choose to investigate for your research project?
2. How could you use the research skills you learn in this unit to help you with other units on the programme?
3. Why do you think research is important in health and social care?

Whitehouse, Mary, et al. BTEC Level 3 National Health and Social Care: Student Book 1, edited by Beryl Stretch, Pearson Education Limited, 2014. ProQuest Ebook Central, http://ebookcentral.proquest.com/lib/carmel-ebooks/detail.action?docID=4191375.
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1 Understand the function of research in health and social care

Get started

How has research affected your health and well-being?

In pairs, discuss how your own experiences of health and/or social care, or of others known to you, could have been influenced by research. You could think about changes in procedures introduced in recent years, either nationally or locally. Why were these changes introduced? What sort of research do you think might have been carried out, both before the change was made and after it was implemented?

Share your examples in a small group and list as many different purposes for research as you can.

1.1 What is research?

Research is a planned process in which information is collected systematically for a specific purpose, analysed and reported. The processes of research will be explored in detail in this unit but key features are presented in Table 22.1 to provide an introductory overview.

1.2 Functions of research

Research can have many different functions or purposes: identifying needs, highlighting gaps in provision, planning provision, informing policy or practice, extending knowledge and understanding, improving practice, aiding reflection, allowing progress to be monitored, and examining topics of contemporary importance.

Table 22.1: A summary of key features of research

Purpose	The overall aim of the research
Rationale	The reasons for the research (e.g. its value to health and social care)
Audience	The people interested in the research findings
Literature search	Finding out what is already known about the subject of the research
Ethical issues	Ensuring that the research does not cause any harm
Research proposal	The plan for the research
Methodology	The strategy and techniques used to conduct the research
Participants	The individuals who provide research information about themselves or their experiences
Research data	New information obtained from carrying out the research
Interpretation	Analysing the research data to gain new understanding of the topic
Evaluation	Making judgements on the quality of the data, etc.
Conclusions	A summary of the key points that have been learned from the research
Recommendations	Suggestions for further research or ways in which the research findings might be applied
Research report	A detailed, full (usually written) account of the research, sometimes also accompanied by an oral presentation by the researcher, who is questioned by experts about the research

Identifying needs

All health or social care workers who are involved in care planning use research principles to identify the needs of individuals. A doctor takes a medical 'history' of a patient in an initial consultation and may take measurements such as the pulse rate or blood pressure and require blood samples to be analysed. A care home manager observing an individual resident may identify that they may need more assistance with personal care and discuss this with the individual. The information gathered enables the professional to make decisions about treatment or care to meet the individual's needs.

The specific needs of one individual may be similar to those of others but, before a new treatment or care routine is introduced for everyone, it is necessary to carry out a specific study, or research project, to investigate the benefits to others. There are many organisations, often charities, which are dedicated to improving the care of individuals with specific diseases and disorders through research. Their research may focus on better diagnosis so that needs can be identified earlier or more specifically, e.g. through screening or by researching the physiological aspects of the disease so that treatment can be more carefully targeted to interact with the body's systems and tissues to slow the progress of the disease or to cure it. For example, 2.5 million people in the UK have Type 2 diabetes and Diabetes UK spent over £6 million on research in 2009 (Diabetes UK, 2009a). Its website has considerable information about its diabetes research (Diabetes UK, 2009b). Health professionals, commercial companies and others who work in the NHS frequently contribute to this type of research.

Did you know?

In 2008/09 UK medical charities invested over £935 million in research relating to medical conditions such as cancer, heart disease and arthritis.

Source: Association of Medical Research Charities (AMRC), 2009

Highlighting gaps in provision

The health and social care needs of communities change over time with the rise and fall of local employment; young families moving in and growing up; and young adults moving on, leaving older adults in the family home. The services needed for a new housing estate, with lots of young children, are usually different from those needed on a well-established estate with a greater proportion of older adult residents. In addition, risks to health also change. Government and local authorities continually gather data at local and national levels to monitor whether health and social care services are adequate to meet the needs of the local population. In the UK, the proportion of older people in the population is increasing steadily as people live longer and much attention is being given to how best to provide services to meet their needs effectively and efficiently. Support for adolescent mental health needs, the predicted swine flu epidemic and maternity care are some other examples of services where gaps in provision have been highlighted in recent years.

Planning provision of services

Provision of services for health and social care is expensive and a new service can take several years to develop. Strategic health authorities, primary care trusts (PCTs) and local authorities, which are responsible for planning health and social care service provision, have to be sure that any decision to invest public money in developing new services is justified. Their decisions need to be based on information that is accurate, recent and reliable. They may carry out the research themselves or they may **commission** others, such as universities or organisations, to do it for them.

Research reports about various aspects of service provision are available online, for example on the NHS Direct (2009) service.

Key terms

Provision of services – This refers to health and social care services which are provided, and how they are organised, in communities (e.g. hospitals, care homes, Sure Start centres, etc.).

Commission – The process by which an organisation requests and funds another organisation to carry out work on their behalf. For example, the Department of Health may commission a university to conduct research on a specific topic. In the UK public sector, the commissioning process usually requires the organisations to tender competitively against others.

Did you know?

A recent research report indicates that the incidence of Type 1 diabetes will rise dramatically by 2020, with an increase of 50 per cent for children under 5 years and of 70 per cent in children under 15 years. This level of increase is likely to require an expansion of services to support children with diabetes.

Source: Sennika, 2009

Reflect

Where is the nearest accident and emergency unit located for your home? In the last decade or so, many older Victorian hospitals located in the centres of towns and cities have been replaced by new hospitals built on the outskirts, near fast roads and away from city-centre traffic congestion. Why do you think this is?

Activity 1: Local information

Search on the Internet for information relating to planning health and social care provision in your local authority area. You should find documents relating to different types of provision, e.g. day care, domiciliary care and services for adults with learning disabilities.

What research do you think has been carried out to provide the evidence on which decisions about provision are based?

Functional skills

ICT: In this activity you can demonstrate your ICT skills by selecting a variety of sources of information and navigating to evaluate their relevance to the task.

Informing policy and practice

Policy

Research shows that older people stay healthier for longer if they remain in their own homes so local authorities have reorganised their social services departments (see also Unit 6, Personal and Professional Development), closed down many of their residential homes and now deliver more home-based care. Similarly, some doctors' surgeries are now based on out-of-town business or industrial parks because research has shown that workers take less time off if they can see a doctor near their workplace, rather than taking a day's leave to get to a surgery near where they live. To assist in developing health and social care policy, the government commissioned a major review of the NHS, known as the Darzi Review (DH, 2008), to identify priorities for health care over the next ten years or so.

Practice

Research into health and social care practice may be associated with, for example:

- the needs of individuals
- improving the quality of care
- ensuring that resources are used efficiently, without waste
- addressing specific problems that have arisen
- reducing risks, e.g. of acquiring infections such as MRSA.

Improvements to practice might involve, for example:

- modifying care routines
- changing how care teams work together
- reorganising the layout of a care space
- developing better communication for visitors
- increasing choice
- enabling more autonomy.

If a health or social care professional identifies that the care received by the individuals they are responsible for could be improved, they may carry out **action research** within their everyday duties that leads to improvements to practice being made.

The professional would research published literature on the subject, plan a simple project to introduce a change in practice, collect information to measure

Key term

Action research – Research in which the researcher is a participant in a situation that occurs, regardless of the research, but from which information is collected systematically. The purpose is to gain a better understanding of the situation so that knowledge, understanding or practices in that context can be enhanced.

WorkSpace

Sally Knowles

Early years practioner

Sally has worked as an early years practitioner for about ten years and has noticed that an increasing number of children are coming to the nursery with delayed speech development. She is completing her degree to gain early years professional status. For her dissertation, she has chosen to research how the nursery could better support these children and their parents/carers to help the development of their speech. Sally discusses her ideas with her tutor, gains consent from the nursery's governors and plans her project. From her literature search, she realises there are a range of schemes and support programmes available but she is not sure which one is best.

She also wants to gain a better understanding of why the children in her nursery are not developing age-appropriate speaking skills.

Sally decides to survey the parents of all the children in the setting to find out what interactions the children usually have with adults when they are not at nursery. She realises from her initial research that it would also be useful to know how long the children spend watching television and playing with other children. She knows the questionnaire needs to be simple to complete because some of the parents have limited English and others have limited reading skills. Another aspect of her project is to observe parent–child interactions when the parents come into the setting. Sally also researches, critically analyses and evaluates reviews of six specific language support strategies. As a result of her research, she makes several recommendations for actions the nursery can take to promote speech development in all the children and particularly those with language delay. These include:

- inviting a speech therapist to take a two-hour evening CPD training session for staff to raise their awareness of speech and language difficulties
- nominating two staff members to work with the therapist as specialist support workers for the children with speech delay
- presenting a request to the governors for an early years practitioner to be sponsored to undertake specialist training in supporting speech and language development.

Think about it!

1. What type of research is Sally carrying out?
2. How could Sally's recommendations improve practice in the nursery?
3. What can you find out about delayed speech and language development in young children?

its effects, and then analyse and interpret it. If the results show positive or negative effects on individuals, the professional could recommend that the change becomes standard practice in the care unit. Publishing a report of the research in a health or social care journal could encourage similar care units to adopt the improved practice.

Extending knowledge and understanding

Science and technology research leads to the development of new knowledge and understanding of materials and the living world. Although some scientific research may appear quite far removed from health and care needs, health and social care is a very important area in which scientific knowledge and discovery can be applied. New drugs, techniques and equipment (such as MRI scanners) are all products of laboratory-based science research. For example, when the 'pacemaker', to regulate the heartbeat, was introduced, it had a huge impact on many individuals, enabling them to live a near-normal life. Other computerised devices allow continuous monitoring of the body so that critically ill patients have an improved chance of surviving previously fatal conditions.

Did you know?

Survival rates for leukaemia, a cancer of the blood, have doubled since 1971. This is largely because of research into finding new drugs to treat the cancer, how the drugs are given, and the testing that can be done to see how the body is responding to treatment.

Source: Cancer Research UK, 2009

Sometimes research in apparently unrelated areas may have consequences for people's health, well-being and care. For example, research into climate change has highlighted the fact that there will be a shortage of food and that some communities may be displaced by rising sea levels. Action research following previous natural disasters suggests that major disruption to communities affects basic amenities such as safe drinking water and adequate food, both important for individuals' health.

Aiding reflection

The concept of reflection is explored in Unit 6 Personal and professional development. Research can provide you with **data** on which to reflect. Data obtained using a research methodology is likely to be more objective and reliable than information obtained by casual, unplanned observations, etc.

Monitoring progress

When any major change has been introduced it is important to find out what the effect of the change is. On an individual level, a care worker in a care home makes regular observations and checks to see that a new resident settles in well. A PCT manager wants to know that a newly introduced practice or service is working well. If the change is complex, such as using a new building and staff team, monitoring systems and processes would help assess whether the service is effective in benefiting individuals. Monitoring involves research, for example:

- using questionnaires to investigate perceptions of individual users of a new service
- interviews or questionnaires with staff
- gathering quantitative data, e.g. the number of individuals using the service, how quickly they are seen or that their needs are met
- reviewing the data to see whether there are any weaknesses in the service
- developing and then implementing an action plan to address problem areas and enable further improvements.

Examining topics of contemporary interest

New, or contemporary, issues relevant to health and social care continually emerge both at national and local levels and become the subject of debate among the public and professionals. Before the debate can give rise to changes in services or practice, research is needed to explore the extent of the issue and possible benefits to individuals and society. Examples of issues that have emerged in recent years include:

- the role of alternative therapies in health and well-being

Key term

Data – A plural word for 'information'. Strictly, a single piece of information, fact or statistic is 'datum' but because data usually consists of more than one piece of information, this term is rarely used.

- the likelihood of a global epidemic of influenza (flu)
- the strategy to focus accident and emergency cover in fewer larger hospitals and downgrade more local emergency departments to 'minor injuries' units.
- whether individuals with terminal illnesses should be assisted in ending their life
- concerns about global warming and climate change and its impact on populations and their needs for survival
- whether genetically modified crops are harmful to man and the environment.

More examples of different purposes for research are given in Table 22.2 on the next page.

Most of us will have experienced new health or social care developments introduced as a result of research. For example, advances in development of new materials mean that dental fillings are now plastic and white, rather than the more visible metal (amalgam or gold) used for most of the last century. At the same time, other research into the chemistry of the teeth and dental decay means that the chemicals included in toothpastes also make it less likely that people will need fillings.

Activity 2: Contemporary issues

Can you think of other contemporary issues that are relevant to health and social care both nationally and locally?

Spend 20 minutes researching the issues above, or your own choice of issues, on the Internet and share your findings with others in your group.

Activity 3: Current research

Use the Internet, journals and newspapers to find specific research that illustrates each of the examples in Table 22.2.

Go back to the starter activity at the beginning of the unit and match your ideas about how research has influenced your experiences of health and social care with the purposes identified in the table.

Assessment activity 22.1

P1 M1 BTEC

Write an essay:

- *explaining* the function of research, using a range of examples you have researched
- *examining* the function of research, using the examples you have researched.

Grading tips

P1 Before you start your task, review research reports from a range of health and social care sources. Make notes on the purpose of the research reported in each case.

M1 Use Internet research to investigate a range of different points of view on the examples of research you select, and discuss these in your assignment task.

PLTS

Independent enquirer: This assignment requires you to analyse and evaluate information and judge its relevance and value for the task.

Functional skills

ICT: In this assignment you will be navigating and discriminating between sources to meet the requirements of the task.

Table 22.2: Examples of how different purposes might apply in health and social care research

Purpose	Examples
To find an explanation for a phenomenon	• Why there is an increase in the incidence of hospital-acquired infection
To improve an outcome from a process	• So that older people discharged from hospital can be rehabilitated in their own homes more successfully
To improve practice	• To enable an operation to be carried out without the need for a general anaesthetic • To identify support that will enable carers to communicate better with relatives of people with dementia
To develop new equipment, tools and devices for use in health and social care	• The development of MRI scanners • The development of microscopic nanotechnology devices circulating in the blood that continually monitor changes in levels of specific circulating chemicals, together with computers that pick up the signals from the microchip and process the data onto a monitor screen
To describe new knowledge	• Finding out more about the ways in which people are using a newly opened drop-in centre • Describing the way a gene works to control a particular metabolic process in a cell or tissue
To measure the effect of a change	• Finding out whether a day centre for those with mental health difficulties reduces the amount of medication these individuals need to take
To criticise a theory/practice/opinion	• Gathering evidence to disprove the theory that there is an association between the MMR vaccine and autistic spectrum disorders
To explore the effects of different variables on a phenomenon	• How specific socio-economic factors influence the health and well-being of a community • How different activity levels affect individuals' ability to lose weight
To apply new knowledge and understanding to a previous interpretation of a phenomenon	• Applying advances in medical genetics to identify young women at risk of developing breast cancer at a particularly young age
To predict an outcome	• Moving individuals into sheltered housing will enable them to live independently for longer
To assess perceptions of an experience	• Assessing young people's perceptions of their experience of school health education lessons • Assessing the public's understanding of the nutritional information provided on food packaging
To find out attitudes	• Examining students' attitudes to behaviours that may damage their health • Examining workers' views of people who experience stress in their workplace
To answer a question	• Is there an association between being overweight and education? • What causes myalgic encephalomyelitis (ME)?
To test a hypothesis	• Proving (or disproving) that intensive support for families with children under three will increase the children's life chances as adults

Whitehouse, Mary, et al. BTEC Level 3 National Health and Social Care: Student Book 1, edited by Beryl Stretch, Pearson Education Limited, 2014. ProQuest Ebook Central, http://ebookcentral.proquest.com/lib/carmel-ebooks/detail.action?docID=4191375.
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2 Understand ethical issues relating to research in health and social care

2.1 Ethical principles of research

Ethics are written statements that reflect the **morals** of society. Whereas morals are unwritten codes setting out what is deemed to be acceptable or unacceptable behaviour, ethics are written codes and reflect society's views of what is right or humane. There are internationally recognised guidelines in place that provide a framework for ethical research and this influences the codes of ethics that apply to research carried out in the NHS and universities in the UK. Codes of conduct or practice (see Unit 6, Personal and Professional Development) for health and social care professionals do not explicitly include research but the underlying principles of professional practice would be consistent with expectations for ethical research.

Did you know?

The conduct of modern medical research is based on the principles stated in the Nuremberg Code of Human Rights in Experimentation published in 1947. This code was introduced to prevent any repeat of the abuse suffered by concentration camp prisoners during the Nazi era, who were subjected to degrading and inhuman experiments in the name of research.

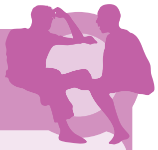
The ethical principles that underpin all research include clauses:

- protecting individuals
- ensuring that individuals only participate **voluntarily**
- ensuring that any personal information relating to the research is treated confidentially
- stipulating that the plan for any research project is subject to independent scrutiny by experts.

Although codes of ethics are written, they are not rules, but serve to set the boundaries of what is, and is not, an acceptable way to conduct research.

Protecting individuals from harm

This principle ensures that researchers consider the possible effects of their research on the participants. For example, participants' rights and feelings should be considered when planning the project and collecting the data from the individuals. Research should not cause harm, or **maleficence**, but this should be considered in the context of the research being undertaken. Thus it might be unacceptable for a researcher to cause a patient with mental illness to become very distressed when being asked questions about mental health. However, if tests for an anti-cancer drug cause a patient's hair to drop out, this might be seen as acceptable harm under the principle of **beneficence**, if the drug destroys the cancerous growth and the patient survives the cancer.



Activity 4: What is acceptable research?

There are two research projects relating to teenage behaviour being proposed. The first involves 14- to 16-year-old participants using sun beds and the second, with 16–18-year-olds taking part in a physical exercise activity.

1. What are your views as to the acceptability of each project? What would your reservations be?
2. What safeguards would you want to put in place?

Key terms

Ethics – Written statements, relating to what is acceptable and unacceptable, that reflect the morals of a society. Morals may be modified over time, so ethical codes tend to evolve to reflect these changes.

Morals – The unwritten codes of what a society considers to be acceptable or unacceptable. The morals of a society tend to change over time.

Voluntarily – Doing something of your own free will, without being forced, or coerced, into doing it.

Maleficence – Causing harm.

Beneficence – Something that does good or has a beneficial effect.

Did you know?

In 2006, several young adults, who had accepted a fee to participate in a research trial testing drugs, were taken so seriously ill within minutes of being given the drug that they had to be rushed to hospital and placed on life support. They experienced extreme swelling of their tissues and took several weeks to recover. The most seriously affected victim lost all his toes and the tips of several fingers, and is still unable to work.

Informed consent

Activity 5: Would I participate?

You have been asked to take part in a research project investigating sexual behaviour in adolescents and young adults. In pairs, decide what questions you would ask about the project before you agree to participate.

Getting **informed consent** means telling participants how their contribution will advance the research. They should receive all the information they need *before* agreeing to participate, including:

- the overall purpose of the research
- what is expected of the participants if they take part in the research
- what, if any, risks are involved in participating, e.g. possible side-effects, how severe these might be, how data generated from participation will contribute to the research
- an entitlement to be able to withdraw from the research at any time.

Researchers should tell participants explicitly about their rights. In the examples above, the distressed patient could therefore withdraw from the research, and the cancer patient should be warned beforehand of possible effects. Participants may withdraw from the research while the study is in progress or have their own data withdrawn from any report of the study. Participants should be free to use their personal judgement about whether to participate according to their own perception of the risks associated with participation.

Occasionally, it may be necessary to withhold some information from participants in order to avoid knowledge about the research affecting how participants respond. This can arise particularly in behavioural studies, when knowledge of what behaviour is being studied might affect how participants respond in the research. Another example would be the double-blind trials that are used to test the effectiveness of new drugs. The doctors who administer the test drug to patients do not know whether they are giving the patient the drug or a placebo (an apparently identical dose that does not contain the drug). This ensures that the doctor remains totally objective in monitoring the patient's progress in response to the treatment.

Confidentiality

Researchers must ensure that data from participants cannot be identified or be traceable back to specific individuals. The researcher needs to establish appropriate systems to ensure **confidentiality** and prevent data about individuals being accessed by unauthorised people. This can be achieved by designing systems for collection and processing of the data that do not reveal the identity of the participants, yet enable all the data from any one participant to be linked. Usually, this involves representing each participant by a unique code reference, rather than by name, so the **anonymity** of individuals is maintained.

Maintaining anonymity is an important protection for participants. It is also important for maintaining the integrity of the study because it helps to reduce the risk of bias. As a consequence, any analysis and interpretation of the data from the project would be less objective or comparable.

Key terms

Informed consent – Being provided with all relevant information that may influence the decision to give consent to participate.

Confidentiality – Keeping information, such as research data, confidential or hidden, so that only the information needed for the purpose of the research is made available to the health or social care researchers.

Anonymity – Keeping the identity of an individual hidden from others.

Case study: Janice

Janice is a nurse in a psychiatric research team investigating dementia. The research protocol requires her to make observations of patients with dementia while they are undertaking specific tests of memory and cognitive function. One of the patients does not complete the research tests and, although Janice saw this patient doing something almost identical earlier in the day, she did not make the observation under the conditions set for the research test, so she realises she cannot include the observations in the research.

1. Why couldn't Janice include her observation from earlier in the day?
2. In what way was Janice demonstrating her awareness of ethical principles?

Ethical approval

All research carried out in the NHS, care settings, the community or in university departments requires ethical approval. The research should not commence before the approval has been received and, if it does, any data collected prior to the approval date has to be discarded.

Organisations such as the NHS, charities and university departments have formal procedures for the ethical approval process. The researcher submits a specially designed form to present the relevant information about the proposed research project to the ethical committee.

Did you know?

The ethical guidelines from the Medical Research Council, which is funded by the government, include sections among others, on data sharing, use of animals, use of human tissue and global bioethics.

A research ethics committee consists of a panel of individuals who critically evaluate each proposal in relation to the ethical implications of the planned research. An ethics committee may accept, reject or ask for modification and resubmission of a research proposal. NHS ethics committees are made up of health and care professionals and scientists, who contribute technical and research expertise to the discussion, and lay members contributing as representatives of the general public. Universities, for whom research is often a major part of their activity, will have a research ethics committee and publish guidelines for researchers.

Did you know?

Each NHS Strategic Health Authority operates an ethics committee for its own region. Information about all these committees and dates for submitting proposals to be considered at monthly intervals are available online from the National Research Ethics Service (NRES), via the National Patient Safety Agency (NPSA) website.

Gaining ethical approval for a research project is time-consuming, often taking many months. Any research involving vulnerable individuals (such as patients, children or individuals using care services) or a health or social care setting, would only be approved if the study was being carried out by professionals. It is not acceptable for students to carry out a research project in health or social care settings for these reasons.

Fig 22.1: Why are research proposals scrutinised by an ethics research committee?

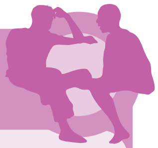
2.2 Ethical issues and research

Ethical codes for research are only guidelines, not legislation. While it may be straightforward to make a judgement about what is, or is not, acceptable for many projects, the judgement for some research may be much less clear. Over time, the boundaries of knowledge are continually extended by research, particularly in science. Society's understanding of what is acceptable is based on existing knowledge. Research that is breaking through existing boundaries of knowledge, into the unfamiliar, creates ethical **dilemmas**.

Examples of dilemmas relating to research that have arisen in recent years include:

- using stem cells in research to better understand certain diseases
- investigating genetically modified crops as a way of increasing food production to support increases in the human population.

Activity 6: Research dilemmas



Research one of the research dilemmas mentioned above, or another that interests you.

1 Identify the different arguments in relation to the ethical issues raised by the research dilemma.

2 What would *your* decision be, if you were a member of an ethical committee discussing whether or not to give consent to similar research?

3 Compare your judgement with that of other members of the class.

Dilemmas such as the examples above make news headlines because they affect society. Resolution of the dilemma may involve changes in the law and in the interpretation of the ethical codes that govern research.

Key term

Dilemma – Arises when it is difficult to choose between different choices.

Human rights

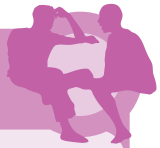
Individuals in European Union countries have, among other rights, a right to life, to be free from torture, degrading treatment, and discrimination and to have their privacy respected. All research must respect these rights. Stem cells are retrieved from embryos that are a few days old, and it is this that creates the ethical dilemma in relation to research using this type of tissue.

Role of the media

The media, whether print, broadcast or Internet, are powerful influencers of public opinion. For example the media were very influential in publicising the contents of the 1998 research report on MMR and autism. In 2002, the media publicised destruction by protestors against experiments in which genetically modified crops were being grown in fields to investigate any potential effects on the environment. This research trial was subsequently abandoned because it was impossible to protect the research sites.

News media are mostly controlled by private companies, which often think it more important to print spectacular headlines that will maximise profits for their shareholders, rather than take care to present a fair and objective report of all the uncertainties and weaknesses the researchers may have discussed in their full research report. However, there are other examples where the media have campaigned vigorously to benefit groups who would otherwise not be in a position to influence opinion and social policy. The Thalidomide case, for example, led to major changes in the ways new drugs are tested before being prescribed.

Activity 7: The Thalidomide story



In the late 1960s and early 1970s, the *Sunday Times* ran a vigorous campaign on behalf of children born with limb deformities after their mothers took the drug Thalidomide for morning sickness. As a result the Distillers Company, which marketed the drug, set up a trust fund in 1973 to support the needs of the Thalidomiders, as they now prefer to be called.

1 Use the Internet to research the role of the *Sunday Times* in influencing research on drugs.

2 Extend your research to investigate how the Thalidomiders are coping with life, now that they are in their middle years.

Whitehouse, Mary, et al. BTEC Level 3 National Health and Social Care: Student Book 1, edited by Beryl Stretch, Pearson Education Limited, 2014. ProQuest Ebook Central, http://ebookcentral.proquest.com/lib/carmel-ebooks/detail.action?docID=4191375.

Use and misuse of data

Researchers have a duty not only to protect participants from harm but also to ensure that the project is carried out with integrity. Integrity in research involves:

- carefully considering the methods used to carry out the research
- ensuring the accuracy of the data
- ensuring the accuracy of generalisations derived from the results and the analysis
- ensuring that the contributions of participants are not wasted because the research is of poor quality due to flawed methodology. (This is not the same as research that does not prove its underlying hypothesis or does not provide an answer to the question posed by the research.)

Research methods

Methods of research are described in the next section but, in relation to ethics, it is important to design the project with care and select methods that are appropriate for the purpose of the research. A flawed methodology reduces the validity of the research findings, lessens the usefulness of the research and devalues the participants' contributions.

Research accuracy

Inaccuracies due to equipment faults and sloppy practice or carelessness in taking measurements would be considered unethical because they abuse the commitment participants make to the research project. Changing data or ignoring unexpected or 'rogue' results is unethical because it is falsifying evidence. Sometimes a rogue result could indicate an important difference. The researchers should investigate the cause of the rogue result before dismissing it.

Deliberately presenting data to exaggerate or downplay research findings is also unethical. This can be done, for example, by taking measurements with an accuracy that is inappropriate for what is being measured, or by setting the scale of a chart or graph in such a way that it makes the difference between two measures look proportionately greater (or smaller) than it is. For example, recording the body weight of 60–70 kg adults to the nearest 0.01 kg (i.e. the nearest 10 grams), while very accurate, would be relatively meaningless because a 0.01 kg difference in weight would not be significant in relation to normal hour-by-hour fluctuations in body weight. However, it might be appropriate to record the weight gain of a premature baby weighing less than 2 kg to the nearest 0.01 kg.

Did you know?

The discovery of the antibiotic Penicillin came from a chance contamination of a culture of bacteria being grown in a laboratory by Alexander Fleming.

Generalisations

A common strategy for researchers, when interpreting their results, is to use **inductive reasoning** to apply their findings from the specific results obtained under the specific methodology of their particular research project to make a more general claim. Similarly, in a wide-ranging project, **deductive reasoning** could be used to make claims about more specific situations.

If the researchers have sufficient valid evidence from their research, preferably combined with other evidence published in the literature, inductive or deductive reasoning may be acceptable when making claims about the value of their research findings. However, if the logic of the arguments put forward in support of the reasoning is flawed and not supported by reliable and valid evidence, then making either inductive or deductive claims is not valid and the data is being misused. For this reason, researchers use very tentative language when drawing conclusions about their research. For example, they may emphasise that their conclusions only hold for their particular research methodology, for their particular participants, or use language such as 'the results suggest that' or 'are consistent with those found in other studies'. (This means they do not disagree with the other studies but cannot be more certain than that.)

Key terms

Inductive reasoning – Arguing logically from the specific to the general.

Deductive reasoning – Arguing logically from the general to the specific.

These are some of the reasons why it is rare for researchers to claim they have 'proved' a theory or claim. However, when introduced to the implications of research, e.g. in relation to the effectiveness of a new treatment, the public may find it easier to understand certainty, rather than a balance of probabilities.

Vulnerability of individuals

Research involving vulnerable individuals is important if health and social care services and practice are to meet their needs. However, their vulnerability, perhaps from learning disability or acquired cognitive impairment (e.g. brain injury or dementia), means that as participants, individuals may find it difficult to understand the information about the research, to ask questions about it or to answer questions (e.g. in a questionnaire) without help. There is a risk that anyone helping the participant to answer questions could influence the responses given or change them, either deliberately or unintentionally. Also, researchers could exploit the vulnerability of the participants by omitting to check that the participant has understood the information they have been given or possibly not being truthful about the research. Omitting individuals from a sample because they are vulnerable is also not ethical. Researchers should make provision to avoid exploitation or abuse of vulnerable people when they participate in research.

2.3 Implications of research

Who commissions research?

Research costs money by taking up professionals' time, or because they require particular equipment and other resources. It also requires specialist research skills, which an organisation may not have – either because they are too small or because they do not have sufficient use for such skills. These considerations mean that research is often commissioned from another organisation.

Did you know?

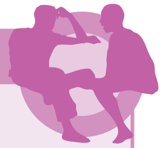
Research commissioned by the government, the NHS and other public sector organisations is usually won through a competitive tendering process whereby each organisation interested in carrying out the research submits a proposal and budget for the research.

Research carried out by an organisation is likely to reflect that organisation's interests. The Alzheimer's Society will therefore commission research, or carry it out itself, relating to that disorder. However, if the organisation paying for the research is a commercial company, it may only be interested in the findings of the research if they promote the company positively, e.g. if they boost sales or enhance the public's perception of the organisation. As the commissioner of research, the organisation has the power to influence the research by:

- setting up the research methodology so that it deliberately only investigates a selected aspect of the subject
- only comparing its own findings with those from other research projects that also support the arguments in favour of its own interests and ignoring contradictory evidence
- suppressing, by not making public, any research findings that are against the company's interests in promoting its activities.

Not all research carried out by private organisations is necessarily poor quality. Nevertheless reports based on commercially sponsored research should be evaluated critically so that any possible **bias** is clearly identified; and the results of the research should then be used with appropriate care to take account of this.

Activity 8: Who's paying?



Several companies relevant to health and social care carry out extensive research, which they publish in relevant journals. Just because a commercial company has commissioned research, it does not necessarily mean that the research will not conform fully to ethical principles and be conducted and reported openly and objectively.

Look at a selection of research reports and note the name of the organisations involved in the research, either as researchers or through funding (sponsoring) the research project.

1. To what extent do you think the organisations may benefit from the research?
2. Is there anything in the research methodology and findings that suggests the research may be biased?

Functional skills

English: In this activity you will be reading a range of texts and understanding the detail in order to detect meaning and identify the purpose of the research when considering bias.

Authenticity

Research aims to add new knowledge and understanding either by:

- generating new data
- or interpreting or applying existing knowledge in a new way.

Research is based on the principle that the researcher is a neutral observer of a **phenomenon** and does not distort or alter observations made of the natural world.

Key terms

Bias – A situation in which an investigation produces results that are influenced by *unacknowledged* factors, perhaps because of the way the investigation was designed, errors were ignored or how the results were interpreted.

Phenomenon – A term used to describe an event or observation, e.g. the rise in hospital-acquired infections. The plural is phenomena.

However, due to pressures on a researcher, such as:

- the need to produce results by a deadline
- wanting to gain prestige for career advancement
- inappropriate influence of others (e.g. the sponsors of the research)

there may be a temptation to alter results from those actually recorded. This is unethical and can have serious consequences for the researcher involved.

Did you know?

A health or social care professional may be charged with professional misconduct if they are involved in unethical research practice.

Validity

Validity depends on what *claims* are made about a piece of research and how well the claims are supported by the evidence or results from the research. Various factors, listed below, may affect the validity of research.

- The *methods* used to conduct the research should be appropriate for the purpose of the research. This might include the underlying premise of the method, the accuracy of the equipment used to make measurements, whether any tests for reliability of the research instruments/equipment used were carried out, the care with which the conditions of the experiment or investigation were carried out, how the results were analysed and any assumptions made in doing this.
- The presentation of the *findings*, for example what arguments are used to explain the relationship between the results and the conclusions, assumptions or bias in the arguments presented, ignoring some results and/or over emphasising others.
- The *conclusions* should be an automatic outcome from a discussion of the results. Conclusions that have been evaluated against evidence from other sources apart from that being reported (see also triangulation, page 449) have greater validity than those that are not evaluated against existing knowledge and understanding of the subject. Conclusions that have very little relationship with the results reported would have very limited, if any, validity.

Reliability

Reliability is about the extent to which the research can be reproduced. Reliable research when repeated by another researcher using exactly the same methods, produces the same results. Researchers often test the reliability of equipment used in experiments before they conduct a long, complex series of tests. In a laboratory, experiments may be repeated several times. Once the scientists have perfected their techniques and equipment, an average value may be used, or if the variations between results are unavoidably great, then many measurements may be required and statistical tests applied to the results. It is much more difficult for social scientists to repeat a survey. Even if they use exactly the same participants, the circumstances could not be exactly the same because participants' second contributions could be influenced by their previous experience of participating.

Did you know?

Good practice in social research is to conduct a pilot study on a small sample of participants beforehand, to test the reliability and validity of research instruments such as the questions combined together in a questionnaire. This enables possible sources of error to be identified and steps can then be taken to reduce them before starting the main study.

Apart from conducting a pilot study, social science researchers take great care to keep as many aspects of the research methodology as constant as possible. In a large study, several different researchers may be involved in carrying out interviews. In this situation all the interviewers should take part in trial interviews, compare the results, discuss the differences and agree the actions they will take to reduce the differences when carrying out the research interviews. This process is sometimes called standardisation.

Did you know?

The National Child Development Study (NCDS) is a longitudinal study of all the people born in England, Scotland and Wales in one specific week in March 1958. The numbers of people in the original sample have decreased slowly over the years since then, because people die or emigrate. Source: IoE, 2009

In social science research, one way to maintain the validity of data over a long period is to start with large numbers of participants. In the above study, over 17,600 babies were born in that week in 1958 but, although nearly two thousand were no longer traceable, there were still well over 15,000 participants remaining in 2004. Research that involves unstructured interviews may only report fewer than ten case studies but if the interviewees were selected because they have a very rare disease, the findings – even from such a small sample – could still be valuable in improving the care sufferers from the disease receive. A survey using a questionnaire enables many more people to give information for the research and, provided that all reasonable care is taken with the methods, the results should be reasonably reliable. Each method used in social science research is limited by the reliability of the data it generates.

Impact of key reports

The government and other reputable organisations, such as The King's Fund and the Nuffield Trust, commission or produce research reports on health and social care topics.

Activity 9: Independent research organisations

Explore the websites of The King's Fund and The Nuffield Trust to find out about each organisation.

1. How do they contribute to health and social care?
2. Investigate one health and social care report from each organisation.

Reports that are based on high standards of research tend to be influential, often giving rise to significant changes in policies that benefit individuals. Influential in health and social care reports include:

- The Beveridge Report 1942
- The Black Report 1980
- The Griffiths Reports 1984, 1988
- The Acheson Report 1998
- The Laming Reports 2002, 2009
- The Darzi Review 2008.

Activity 10: Influential reports

Find out the full titles of these reports and what their key recommendations were.

1. What social policy initiatives have resulted from these reports?
2. What reports relating to health and social care have been published in the last year? Write a summary of what each is about in no more than two sentences.

Functional skills

English: This activity will involve reading to understand key points and ideas presented in the reports.

Publication of many reports on health and care matters is highlighted in public news bulletins. Sometimes reports of research carried out by journalists themselves, and published in newspapers, draw public attention. Green papers are consultation documents in which the government outlines their thinking on policy issues, and these documents can result in the drafting of legislation in a white paper, which is then debated in Parliament.

Did you know?

Not all reports are influential in a beneficial way. In 1998 a report was published in the highly respected medical journal *The Lancet*, which made a link between the MMR vaccine and autism. As a result of the publicity this report received, large numbers of parents refused to have their children vaccinated so that by 2005 the incidence of measles showed a very sudden rise. The scientific evidence for the claim was found to be seriously flawed and, in 2007, the doctors involved were charged with professional misconduct by the General Medical Council. In January 2010, after lengthy investigation, the GMC announced that 30 charges of unethical research practice were proven against the doctors. *The Lancet* had already published an apology regarding the publication of the flawed research in February 1998, and retracted the paper in January 2010. Despite the major flaws in the research that invalidate the findings, some parents still believe there is an association between MMR and autism.

Access to information

Participants in research should have access to all the information held about them (see next section). Also, researchers may consider that some information would be valuable for their research but they may not have the right to see, or access, it. Under the Freedom of Information Act 2000, any individual is entitled to apply to see information held by public authorities but this Act does not apply to information held by private companies. Without access to information that may be important to the research, the validity of the findings could be reduced.

2.4 Legislation, policy and research

The Human Rights Act

The Human Rights Act 1998 embodies in UK law the rights enshrined in the European Convention on Human Rights. The Act makes clear statements about the rights of individuals, which include:

- the right to life
- the right to freedom from torture or degrading treatment
- the right to privacy (and family life)
- the right to freedom of expression.

All research should respect these rights.

The Data Protection Act

Any information held about an individual by others is subject to the Data Protection Act (DPA) 1998. There are greater restrictions on sensitive information, such as ethnicity, beliefs, health and sexual life. Organisations (e.g. employers that hold personal information about individuals) have to register with the Information Commissioner's Office, the public body that enforces the Act. The DPA means that if information is held, it can only be used for specific declared purposes and the information can only be held for a specified period of time. For a researcher, this means that under the DPA:

- only data relevant to the project can be collected
- the data can only be processed according to the stated purpose so a researcher could not use the data collected for one project in another project, unless consent for the second project had also been obtained from each participant
- it would be illegal to change the information so that it is no longer accurate
- the information must be processed in such a way that it does not breach an individual's legal rights, or cause them harm or distress. This would include revealing the person's identity either directly or indirectly. Thus it would contravene the DPA if, in a case study using a pseudonym, the information given still enabled the individual to be identified
- all information gathered from participants should be kept securely
- after the data is analysed, each individual's personal records would need to be destroyed
- the individual data cannot be taken outside the UK unless it is protected (e.g. encrypted).

Any participant could request to see the data you have collected on them under the principle of 'right of subject access' laid out in the DPA. All organisations collecting and using personal information are legally required to comply with these principles and you, as a researcher, should also respect them throughout the period of your project. Once you have completed the project, you should destroy the original records such as the completed questionnaires (e.g. by shredding them). If information relating to an individual's ethnic background, political opinions, religious beliefs, health or sexual life is gathered, you need to be particularly careful about the security and anonymity of the data.

Codes of practice

All professional bodies associated with the health and social care professions have codes of practice. Any researcher in health and social care would be expected to comply with the code of practice of their professional body. All those whose work is in any way associated with the NHS must conform to the NHS National Patient Safety Agency's (NPSA) guidelines for Research Ethics Committee review.

Activity 11: The NPSA

Research the guidance produced by the NPSA, the British Psychological Society and the Medical Research Council regarding their codes of practice for the conduct of ethical research.

Policies and procedures

All research involving staff or individuals using services, either in a health or social care setting or in individuals' own homes, must comply with the policies and procedures of the care organisations involved. In some settings (e.g. early years), parents sign a general consent for staff, including students on placement, to observe children as part of their routine care. However, observations carried out for a research project would require additional specific consent.

Assessment activity 22.2

P2 BTEC

Prepare a piece of writing that discusses how ethical issues influence health and social care research.

Grading tip

P2 Before you complete the task, take part in a discussion or debate with your peers about examples of ethical issues associated with health and social care research. Practical issues, such as how a confused older person could give consent to participate in a research project, or when it might be ethical to withhold information about the research from participants, could also be considered.

PLTS

Independent enquirer: This activity will enable you to independently enquire into the ethical issues associated with health and social care research and consider your own values and beliefs, as well as those of the researchers.

Effective participator: You can show effective participation by discussing different viewpoints and dilemmas about the ethics of research and seeking resolution of these.

3 Understand research methodologies relevant to health and social care

Activity 12: Participating in research

Have any of your class group ever filled in a questionnaire or been interviewed? Use the following questions to explore your experiences:

1. How did the interviewer or person who distributed the questionnaire choose or find you?
2. Did you know what the purpose of the questionnaire was or why you were being interviewed?
3. How did you know this?
4. Did you have an opportunity to agree to being interviewed or to complete the questionnaire (or not to complete it)?
5. How easy was it to understand what was expected of you, e.g. how much to say in response to the interviewer's questions or how to fill in the questionnaire?
6. Did the interviewer or the questionnaire enable you to give the answer you wanted to give, e.g. did the interviewer give you enough time to answer or did the questionnaire give you answer options that enabled you to provide a fair answer?
7. What were your feelings at the end of the interview or after you had completed the questionnaire? Why did you feel this way?

Functional skills

English: This activity requires you to make a range of effective contributions and to listen to those of others, presenting ideas clearly and appropriately for the context of this activity.

3.1 Types of research

Research in health and social care tends to adopt the methods of social science research because the projects often involve investigating people's feelings, perceptions, attitudes etc., which do not lend themselves to investigation by scientific methodology. Laboratory-based research into diseases and disorders, using tissues and chemicals, is likely to be based on scientific method until such time as the research needs to involve people. Your project for this unit is most likely to follow a social science approach.

Quantitative research

Quantitative research involves numbers and measuring quantities or amounts. Scientific method often involves quantitative data – for example, measuring changes in the body's physiology in laboratory analyses of blood or urine samples. Measures of weight and height can be used to calculate body mass index (see Unit 21) to find out whether an individual is a healthy weight.

Key term

Quantitative – Describes information that is directly measurable; quantitative data usually involves number values and units of measurement, e.g. number of breaths per minute or weight in kg.

Activity 13: Measuring health status

List other measurements that may be taken to investigate whether the body systems are functioning normally or not. Identify the units of measurement used for each measure listed.

Quantitative research may also involve finding out, for example:

- frequency or how many times something happens in a given period, usually expressed as per minute, per hour, per day, and so on (e.g. minutes of exercise per day or number of falls per year or population data such as the number of deaths in a year from stroke)
- how many individuals there are in a particularly category (e.g. smokers or non-smokers)
- information involving more complex equipment and processes such as analysing a sample of blood to

measure its haemoglobin content to assess whether a patient is anaemic or not (see also Unit 5 Anatomy and physiology for health and social care).

Quantitative research requires the use of specific measurement instruments. Measurements gathered routinely are sometimes recorded on charts, which can reveal how small variations between individual measurements may add up to a more noticeable change over a longer period. Body temperature, for instance, may change over a day or body weight over a few weeks. Multiple-choice questions, with specific answer options, can generate data that can be analysed quantitatively; questionnaires are often used for this purpose.

Qualitative research

Qualitative research involves gathering data that cannot be easily quantified and instead can only be recorded using language. Qualitative data tends to be collected using unstructured interviews, audio recording of conversations or narrative observations. An individual's feelings or emotions may be evident through observing facial expression (see Unit 1 Developing effective communication) but can really only be fully understood by letting the individual describe how they feel.

Did you know?

Patients who experience a heart attack most often describe the experience of the pain as if someone has clenched their fist around their heart. This description is so often used by patients that it can enable paramedic teams to diagnose the heart attack before they even get to the scene in the ambulance.

In routine practice, health professionals gather both qualitative and quantitative data and use both types of information to make judgements about the individual's care and treatment. Every conscious patient admitted to a hospital ward is interviewed by a doctor, who takes notes about the patient's experience of their illness – their medical 'history'. The doctor may have received information second-hand (e.g. from a GP's letter or from the accident and emergency team) but the doctor who is overseeing the patient's care on a ward needs to hear the patient themselves describe their experience of their illness, even if the doctor supplements this information by obtaining quantitative data from blood samples and other investigations, often called 'tests'. Only the patient can describe their symptoms; pain is only experienced by the sufferer and can therefore only be described by that individual. If the patient is not conscious, then the health worker has to rely on descriptive information provided by relatives or whoever is available.

Key term

Qualitative – Data that cannot be 'measured' quantitatively but can only be described using words.

A doctor interviewing a patient as part of the process of being admitted to hospital. What sort of questions is this doctor likely to ask?

In a research study, researchers often attempt to express qualitative data about individuals and their experiences in quantitative ways. Examples of this might be:

- using a rating scale to quantify the severity of pain
- completing a questionnaire to find out an individual's experience of using a health or social care service
- recording how often a specific event or behaviour happens (its frequency).

Primary research

Primary research involves seeking new knowledge that has not been previously published. The researcher gathers new data from **participants** or by examining objects, materials or data in a different way from previous studies. For example, interviewing individuals in their twenties about their experiences of health education in school as teenagers could help devise a new policy for health education. A study repeating one carried out thirty years previously would be primary research that was relevant to young people now, rather than young people as the world was for an earlier generation. Using a new technique that enables traces of a specific chemical to be identified in blood or urine samples might produce new understanding of a disease.

Primary research in health and social care often involves gathering data from individuals. Surveys using questionnaires and interviews are commonly used techniques and participants may be users of services, staff working in the services or members of the public.

Secondary research

Given that research is about finding out *new* information or understanding, a researcher needs to know what the *existing* information and understanding about the topic is, as published in books, journals and on the Internet. **Secondary research** is essential for any research project. All researchers need to read widely around their subject of interest so that they are aware not just of long-established knowledge but also of new knowledge that is emerging while they are doing their own research. Research carried out by researchers in universities and other research establishments may take several years to complete and report in full. Small-scale research projects can be completed more quickly but need to be clearly defined in order to produce results that can be analysed and reported within a few months.

Did you know?

Sharing research 'publicly' does not necessarily mean that the findings get into the daily newspapers. Research work is often very specialised so reports of the research are therefore published in specialist magazines, or journals, which may only be read by others with a similar specialist interest. University libraries hold stocks of many specialist journals. However, these days most researchers access journals online.

Activity 14: What's in the library?

Go to a library and look at the magazine rack. What specialist publications relevant to health and social care are available? What sort of articles do they contain? Who is writing the articles? You might find different types of publications available in your school or college library compared with those available at a public library.

1. Repeat the exercise looking at the book stock.
2. Can you access any e-books from your school or college library? If so, find out how to use e-books.

Did you know?

A PhD (Doctor of Philosophy) is the post-graduate qualification expected of professional researchers. Usually a full-time PhD student takes three years to complete the research and submit the thesis (i.e. the report of the research) for examination by the university.

Key terms

Primary research – Research that generates new data from sources.

Participant – An individual who contributes information about themselves to a research project; the information may be qualitative or quantitative.

Secondary research – Research in which data is obtained from sources that are already in the public domain, i.e. sources that have been published in journals, books, magazines, etc.

3.2 Primary sources

Research techniques that can be used to generate primary data include questionnaires, structured and unstructured interviews, formal and informal observations, measurements and scientific experiments.

Questionnaires

Research in health and social care often relies on obtaining information from individuals using social research methodologies. Questionnaires are convenient for obtaining information from many individuals in a **survey** and those answering them are sometimes known as respondents. A questionnaire asks questions of participants but, usually, also only enables answers to be given according to options constructed in advance by the researcher using a **response frame**. The response frame usually only allows a limited choice of different responses.

In small surveys, questions may be put to the respondent orally by the researcher, who then ticks a box corresponding to the answer given and also records the responses provided. Market research carried out in the street usually follows this approach. In health and social care, this method may be the only way to capture information from a frail older person about the care they receive, for example.

Reflect

In research about care for older people, what potential ethical issues could arise when asking a frail 90-year-old, who is partially blind, unable to hold a pen or understand the questions to complete a questionnaire? How could the risk of unethical research practice be reduced?

In a self-completion questionnaire, **respondents** fill in the answers themselves. The questionnaire may be distributed to individuals directly by hand, by post or online, provided the organisation or researcher has a means of making contact through an email address or information held on a database.

You may well have been asked to complete a customer satisfaction questionnaire but being asked to complete a questionnaire is not the same as actually doing so. The respondent may ignore it, only answer some of the questions or not return the questionnaire to the researcher. The **response rate** to a questionnaire is an important measure of how representative the responses actually received by the researcher are, compared to the number of individuals originally asked to complete the questionnaire.

Activity 15: Questionnaires

Examine a selection of questionnaires gathered from a range of sources, e.g. those your school or college distributes to learners. What is the purpose of each questionnaire? What sort of information was being sought? How was the questionnaire completed? Do you always complete questionnaires when asked to do so?

The **sample population** should be defined when the research is planned, as it will influence what information can be obtained from a survey. The method for selecting the participant **sample** from the sample population should also be considered at the planning stage.

Some frequently used sampling techniques include:

- random sampling, in which individuals are selected randomly; researchers may use random numbers selected by a computer or from a table of random numbers
- systematic sampling, which involves selection of the individual at a regular interval, e.g. distributing a questionnaire to, say, every sixth student who enters the college canteen, or every other patient who presents with diabetes

Key terms

Survey – A systematic process of gathering information from several people, often using a questionnaire.

Response frame – The menu of answer options to an individual question provided in a questionnaire.

Respondents – The individuals in the selected sample who actually complete the questionnaire and return it to the researchers.

Response rate – The percentage of respondents from the selected sample. For example, a 30 per cent response rate is good in a survey in which individuals are sent a questionnaire by post.

Sample population – The group of individuals in a population who are targeted for investigation, e.g. older people, college students, etc.

Sample – In social research, the individuals selected to participate in the research from the sample population.

- quota sampling, which requires the researcher to select a pre-determined number of individuals from representative groups (e.g. according to age, area of the country, socio-economic profile, male and/or female etc.); opinion pollsters use this method
- opportunity sampling, which involves researchers handing out questionnaires to individuals who happen to be passing by at the time. Standing in a college canteen on a particular day and handing out questionnaires to anyone who will take a copy would be opportunity sampling.

The sampling technique and sample size chosen for a research study affect the validity of the research and the conclusions that may be drawn from it.

Reflect

The more complex or varied the information being sought from the survey sample, the larger the number of respondents that are required to ensure the validity of the data obtained. Why do you think this is?

Who your respondents are could affect the interpretation of the results so it is usual to gather factual information about them that your secondary research has suggested might be significant. Questionnaires usually request information on age, or age group and gender. However, requesting information that is not relevant to the research (e.g. about marital status) would be unethical because it invades individuals' privacy. Ethical approval may involve removing some questions if this were the case.

The simplest questionnaires have response frames that offer only straightforward choices and require all responses to be indicated entirely by ticks. More complex questionnaires may have:

- more questions
- more options in each response frame
- require respondents to provide written comments.

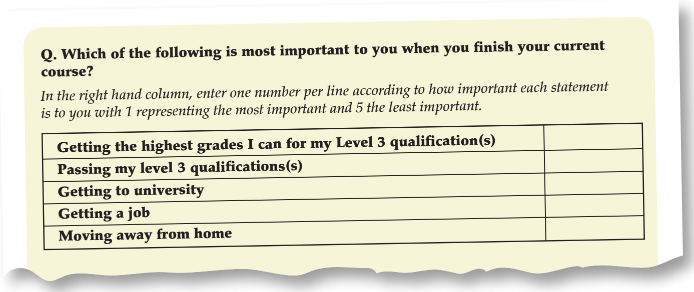
Questionnaires with only closed and open questions are probably the simplest response frame for the researcher to construct but provide more limited data, which can be more difficult to interpret, especially when working with a small sample.

Closed questions only offer two alternative answers: usually 'Yes' or 'No'.

Open questions require the respondent to answer freely, either orally or by writing in a blank space provided on the questionnaire. The respondent has to write the answer (or the researcher, if it is not a self-completion questionnaire).

Other response frames enable more specific and detailed information to be obtained. Examples include:

- ranking scales, which require respondents to rank different statements in an order, often using a number scale, where, for example '1' is very important and '5' is not at all important (see Figure 22.2)



Q. Which of the following is most important to you when you finish your current course?

In the right hand column, enter one number per line according to how important each statement is to you with 1 representing the most important and 5 the least important.

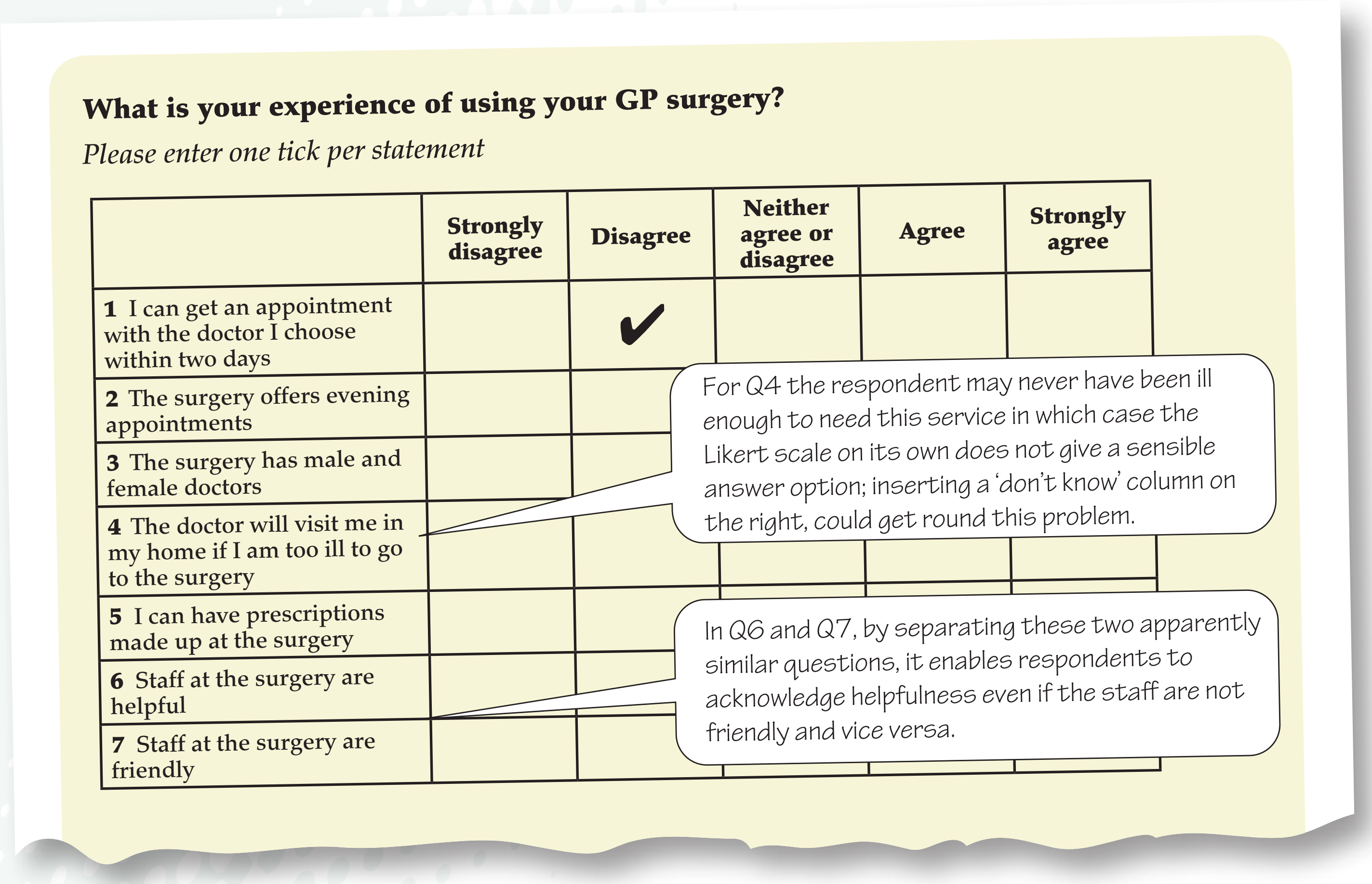
Getting the highest grades I can for my Level 3 qualification(s)	
Passing my level 3 qualifications(s)	
Getting to university	
Getting a job	
Moving away from home	

Fig. 22.2: In this ranking questionnaire the statements assume that the respondent is on a Level 3 programme. Unless the sample population is selected for this reason, how would the response options prevent other respondents from answering the question?

- Likert scale response frames, which gather respondents' opinions of carefully worded statements using a five-point scale such as 'strongly agree, agree, neither agree nor disagree, disagree, strongly disagree'. Other descriptor words may be used (see Figure 22.3).

Examples of other response frames are presented in Figures 22.4 and 22.5 on page 431. Constructing a questionnaire takes time if it is to yield good-quality research information. Questionnaires are very useful when finding out about people's opinions, perceptions, experiences, or to find out how much knowledge and understanding they have of a topic. Surveys undertaken for a student project are likely to focus on this type of information because of the ethical constraints on students regarding research in health or social care settings or with users of services.

The drawback of using response frames is that the answer options offered may not include the answer the respondent thinks is right for them. One way round this is to include an option such as 'none of these', 'all of these' or 'other', with a space for the respondent to provide an alternative answer.



What is your experience of using your GP surgery?

Please enter one tick per statement

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
1 I can get an appointment with the doctor I choose within two days		✓			
2 The surgery offers evening appointments					
3 The surgery has male and female doctors					
4 The doctor will visit me in my home if I am too ill to go to the surgery					
5 I can have prescriptions made up at the surgery					
6 Staff at the surgery are helpful					
7 Staff at the surgery are friendly					

For Q4 the respondent may never have been ill enough to need this service in which case the Likert scale on its own does not give a sensible answer option; inserting a 'don't know' column on the right, could get round this problem.

In Q6 and Q7, by separating these two apparently similar questions, it enables respondents to acknowledge helpfulness even if the staff are not friendly and vice versa.

Fig. 22.3: What other questions could you include in this Likert scale patient questionnaire?

Did you know?

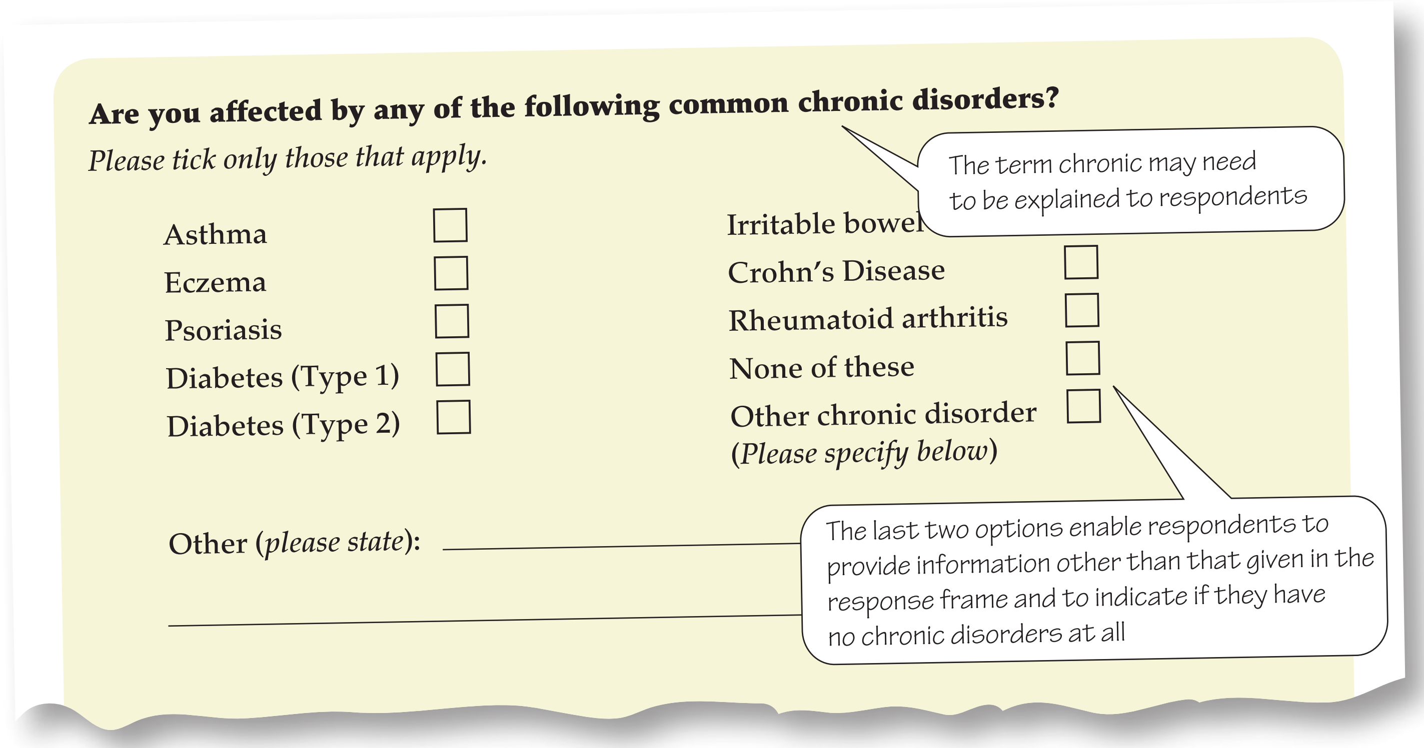
In the UK, the government carries out a survey of all households, called the National Census. It is compulsory by law for Census forms to be completed. The Census has been carried out every ten years since 1851 (with the exception of 1941, when the country was at war). The next Census is due in 2011. The data gathered in the National Census is analysed by government statisticians and computers and provides valuable information about the population that is used to formulate social policy. Census forms are particularly long and complicated questionnaires.

Reflect

Why is it important to hold the respondents' interest throughout the questionnaire, rather than getting them bored or annoyed by the questions and the answer options?

Partly completed questionnaires reduce the quality of the data from a survey and therefore limit the validity of any interpretation and conclusions drawn from the research. Factors to consider when designing a questionnaire include:

- a clear understanding of the contribution the data respondents will make to the research
- the abilities and experience of the respondents, e.g. their understanding (avoid jargon), literacy skills, etc.
- how you will address ethical issues (e.g. providing information about the research)
- what the document looks like; does its layout, font size and style help the respondent complete the questionnaire?
- what instructions the respondent will need to complete the questionnaire
- the order of the questions, e.g. simple questions at the start and more complex ones later; questions probing personally sensitive information are best placed towards the end of the questionnaire



Are you affected by any of the following common chronic disorders?

Please tick only those that apply.

Asthma ☐
Eczema ☐
Psoriasis ☐
Diabetes (Type 1) ☐
Diabetes (Type 2) ☐

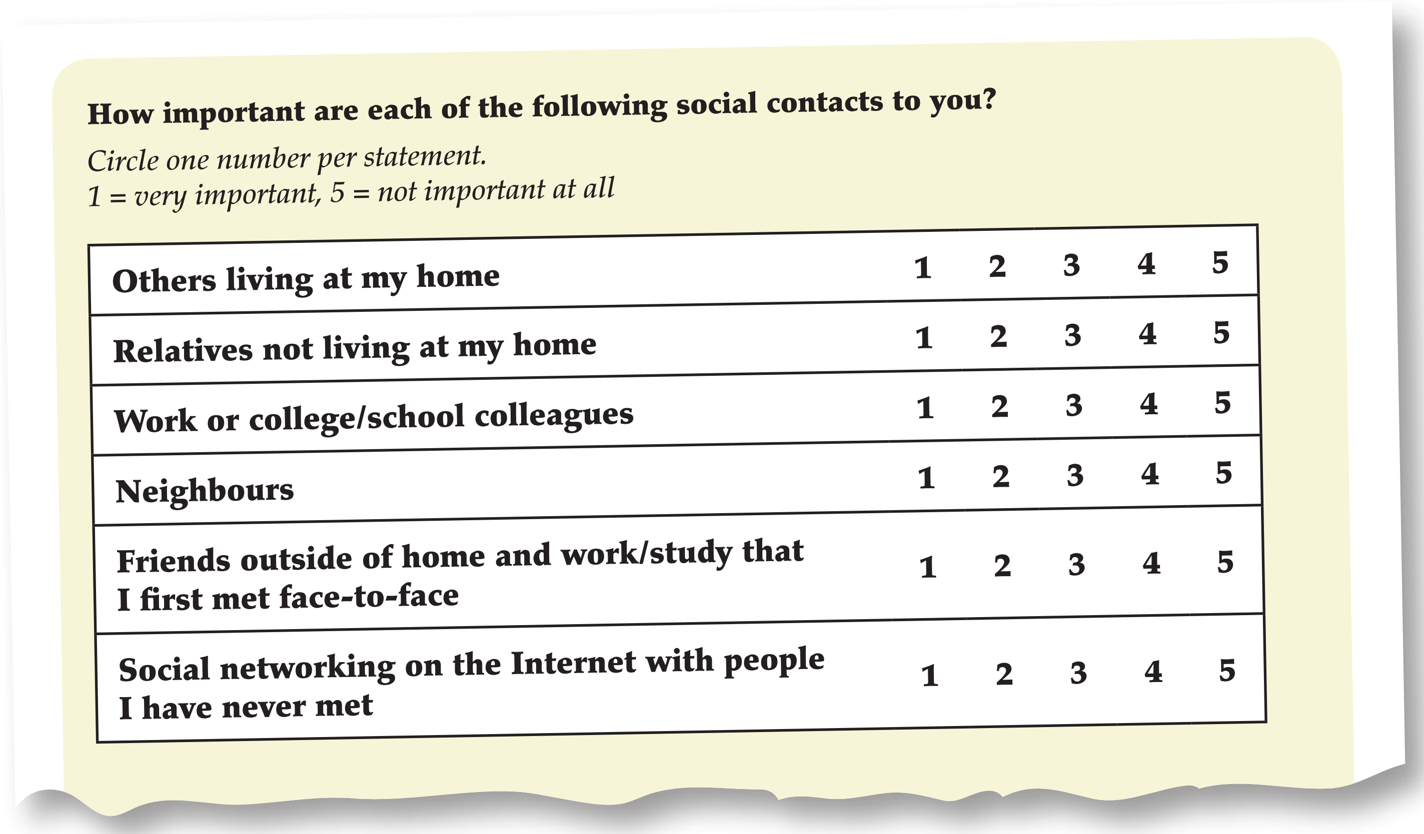
Irritable bowel
Crohn's Disease ☐
Rheumatoid arthritis ☐
None of these ☐
Other chronic disorder ☐
(*Please specify below*)

Other (*please state*): ______

The term chronic may need to be explained to respondents

The last two options enable respondents to provide information other than that given in the response frame and to indicate if they have no chronic disorders at all

Fig. 22.4: This response frame requires respondents only to indicate those responses that apply to them

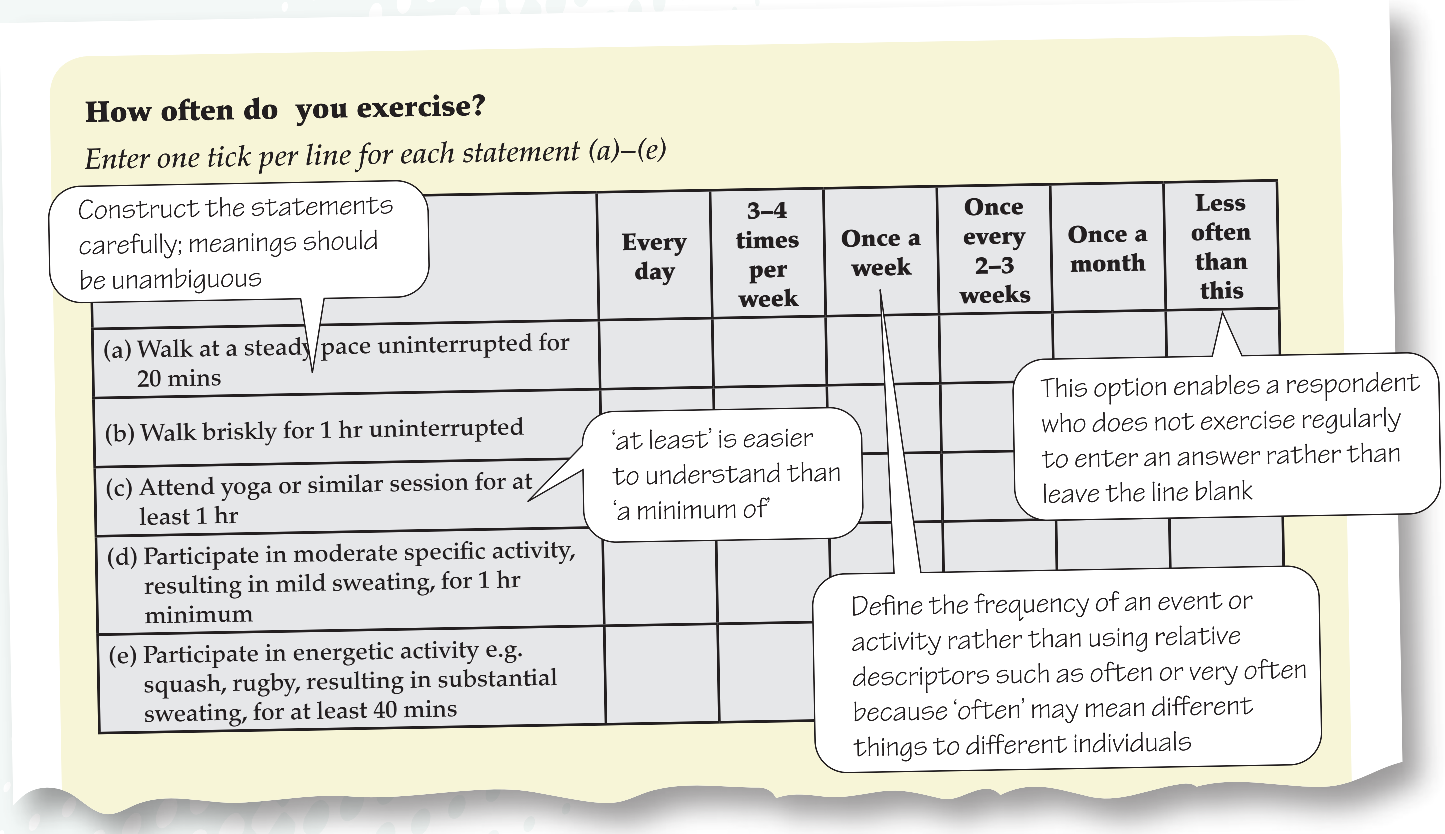


How important are each of the following social contacts to you?

Circle one number per statement.
1 = very important, 5 = not important at all

Others living at my home	**1**	**2**	**3**	**4**	**5**
Relatives not living at my home	**1**	**2**	**3**	**4**	**5**
Work or college/school colleagues	**1**	**2**	**3**	**4**	**5**
Neighbours	**1**	**2**	**3**	**4**	**5**
Friends outside of home and work/study that I first met face-to-face	**1**	**2**	**3**	**4**	**5**
Social networking on the Internet with people I have never met	**1**	**2**	**3**	**4**	**5**

Fig. 22.5: In what ways could you use a response format that enables the respondent to quantify a statement using a numbering system?



How often do you exercise?

Enter one tick per line for each statement (a)–(e)

	Every day	3–4 times per week	Once a week	Once every 2–3 weeks	Once a month	Less often than this
(a) Walk at a steady pace uninterrupted for 20 mins						
(b) Walk briskly for 1 hr uninterrupted						
(c) Attend yoga or similar session for at least 1 hr						
(d) Participate in moderate specific activity, resulting in mild sweating, for 1 hr minimum						
(e) Participate in energetic activity e.g. squash, rugby, resulting in substantial sweating, for at least 40 mins						

Construct the statements carefully; meanings should be unambiguous

'at least' is easier to understand than 'a minimum of'

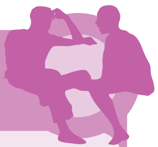
This option enables a respondent who does not exercise regularly to enter an answer rather than leave the line blank

Define the frequency of an event or activity rather than using relative descriptors such as often or very often because 'often' may mean different things to different individuals

Fig. 22.6: How could you use a response frame like this to find out the frequency of other behaviours and lifestyle habits such as diet?

- how you will hold the interest of the respondent so they answer all the questions
- the distribution method and how long the questionnaire will take to complete, e.g. will respondents have a hard surface available for the writing involved?
- how the completed questionnaires will be returned.

Activity 16: Distributing questionnaires



In groups discuss the advantages and disadvantages of different methods of distributing questionnaires for research projects investigating:

a) the alcohol consumption of university students

b) how older people manage their finances

c) the exercise habits of busy professionals.

Distributing questionnaires by email or post means that you need the email or postal addresses of the participants. This information is confidential and may not be known by the researchers. All such information would be subject to the DPA. The aim of any survey is to get as many of the completed questionnaires returned as possible; the **return rate** is an indicator of the reliability of the data generated from the survey. To calculate the return rate, you need to record exactly how many questionnaires are printed and distributed, as well as how many are returned.

Interviews

Interviews involve an interviewer interacting with participants in the research. Sometimes there

Key terms

Return rate – The number of questionnaires returned, relative to those distributed, expressed as a percentage.

Interview – An interaction or conversation between a small number of people for the purpose of eliciting information.

may be more than one interviewer or two or three interviewees. Interviews may take place:

- face-to-face
- over the telephone
- using text messaging
- online
- using video-conferencing facilities so those involved are not in the same location but can see each other
- via social networking websites
- in a focus group, where several interviewees respond to questions.

An interview is a useful research method for example, when:

- detailed information is required
- knowledge and understanding are being sought from a specialist
- the population sample is very small
- participants may have difficulties completing a questionnaire
- a wide range of experience is being investigated
- the information being sought is not sufficiently predictable to be gathered using a structured questionnaire.

Structured interviews

In a structured interview, the interviewer has pre-prepared questions, which are put to the interviewee. The interviewer writes down the answers given by the interviewee, possibly using a structured template, which may involve ticking boxes and recording a summary of what the respondent is saying.

Unstructured interviews

An unstructured interview is not constrained by pre-prepared questions. Instead the interviewer will have identified some broad topics to ask the interviewee about but will then use follow-up questions, according to the answers provided by the interviewee. This approach enables the interviewer to probe specific aspects in detail, to check understanding, return to points already mentioned, etc. Unstructured interviews are therefore time-consuming and it is more difficult to standardise the technique if several interviewers are involved. Also, it is difficult for the researcher to concentrate on what responses the interviewee is giving, if these have to be written down at the same time. It is therefore quite common for such interviews to be audio-recorded but there the interviewee would need to give explicit consent for the interview to be recorded. Alternatively, a scribe could be present solely to record what is said but this may affect the interviewee's responses. After the interview is over, the interviewer listens to the tape again and prepares a **transcript**.

Scientific experiments

The scientific method involves making an investigation to establish factual information. Its origins are in making careful observations of different phenomena in the natural world.

Key term

Transcript – An exact word-for-word written record ('ums' and 'ers' included) of what is said, both by the interviewer and the interviewee, taken from an audio record of the interaction.

On his 1831–36 voyage on *HMS Beagle*, Charles Darwin filled 37 notebooks with observations of thousands of different species and their environment. These detailed records formed the core of the evidence from which Darwin developed his theory of evolution. He eventually published his theory in 1859. This drawing, which he made in an 1837 notebook, is the first sketch of the evolutionary tree.

Whitehouse, Mary, et al. BTEC Level 3 National Health and Social Care: Student Book 1, edited by Beryl Stretch, Pearson Education Limited, 2014. ProQuest Ebook Central, http://ebookcentral.proquest.com/lib/carmel-ebooks/detail.action?docID=4191375.
Created from carmel-ebooks on 2020-10-14 08:02:24.

The scientific method involves testing a **hypothesis**, which is a statement about a phenomenon. The statement is based on prior knowledge and is an 'educated guess' about the relationship between factors influencing an observed phenomenon.

Factors that influence a phenomenon are called **variables**. A scientific **experiment** is a test specifically designed to investigate the nature of the influence of a single variable on the phenomenon.

The phenomenon is the **dependent variable** and the factor influencing it is the **independent variable**. A single experiment is only valid if it tests the effect of just one dependent variable against one independent variable, so making it a 'fair' test. Both variables need to be measurable, as far as possible using quantitative measures.

An experiment may prove or disprove a hypothesis. Either outcome is equally positive. If a hypothesis is disproved, the scientist will analyse and evaluate the results, construct a modified hypothesis and conduct a further experiment to test it. Scientists may pose a hypothesis that requires knowledge and understanding of a whole range of factors or variables. The scientists break up the main hypothesis into individual hypotheses and investigate a single pair of variables for each of these in turn so that the main hypothesis is not fully tested until a series of experiments is completed.

Human beings are complex organisms and their behaviour and physiological responses are influenced by very many variables. Ethical considerations mean that researchers have very limited scope to control these variables, as expected in a scientific experiment. While experimental work is used in some psychology research, much other social science research can only be based on scientific principles as far as is permissible within ethical frameworks. Sometimes the research strategy mixes scientific method and social research. For example, an investigation of the effect of an exercise routine on individuals' health could measure some aspects (e.g. changes in pulse rate, respiration rate, blood pressure, etc.) under scientific conditions but would then have to adopt a social science methodology, such as a questionnaire, to investigate how the exercise made the individuals *feel* about their health.

Key terms

Hypothesis (plural: hypotheses) – A hypothesis is a statement that predicts an association between two variables.

Variable – An entity or factor that can have a range of values that can be measured.

Experiment – A test designed specifically to test the validity (truthfulness) of a hypothesis.

Dependent variable – A variable whose value is dependent on that of another variable. The dependent variable is associated with the phenomenon being measured.

Independent variable – A variable whose value is not dependent on that of another variable. Time and temperature are common independent variables in scientific experiments.

Activity 17: Experiments

In groups, discuss the following questions:

1. What experiments have *you* carried out, and where? The most likely place will have been in a science laboratory.
2. What was the hypothesis?
3. What were the variables in these experiments?
4. Which was the dependent variable and which was the independent variable?
5. Were you measuring quantitative results or making qualitative observations?
6. Did you have a control and, if so, why?

Observations

An observation involves gathering information visually, and is not necessarily dependent on verbal content. Observations are valuable for understanding behaviour, and for recognising the degree of mastery of practical skills and how people interact with each other and their environment and events as they happen. Observations can be made in 'live' situations or from recorded visual media. Consent is always required from the participants who are being observed and, for good practice, from the organisation on whose property the observation is being made. Observations made in public spaces may not need consent, on the grounds that anyone can observe others as a passer-by. Recording events and activities (e.g. on mobile phones or video cameras) for research purposes would also require explicit consent from participants.

If the observer is actively engaged in the event or activity being observed, then they are a **participant observer**. For example, a care worker might be stimulating an individual with profound and multiple learning needs to respond to various stimuli by moving objects, talking and otherwise interacting with the individual and at the same time making a record of the individual's reactions. Alternatively, if *another* care worker was observing the interaction between the carer and the disabled individual and noting the responses, this care worker would be a **non-participant observer** because they would not be involved in the interaction between the two people and would be observing it as an outsider.

Formal observations

Formal observations can provide specific information for a research project. A formal observation is a planned event in which the observer watches a specific activity for a period of time and makes a record of what goes on during that time.

Did you know?

The Early Years Foundation Stage curriculum introduced in England in September 2008 requires early years workers to observe young children regularly to record their progress in meeting specific developmental objectives.

Techniques for making formal observations include narrative, time sampling, checklists, event sampling and sociograms. The observation may be documented on a specific form but should always record the date, time, duration and context of the observation. In childcare, observations are a routine aspect of the early years practitioner's work and information from observations helps the practitioner plan activities to promote the development needs of the children in their care.

Formal observations are not limited to observations of individuals. They may involve observations of staff and of the environment. A health and safety audit is a form of routine research that involves close examination of equipment, décor and furniture to see that it is still in a good state of repair and not a risk to people. The health and safety officer might use a checklist to record what has been observed and note any signs of wear and tear that might be a danger.

Key terms

Participant observer – The individual doing the observation is part of the process being observed.

Non-participant observer – The individual is an onlooker and not part of the situation being observed.

Informal observations

Informal observation is an important aspect of all care. Carers should always be watchful of the individuals they care for. In this context, an informal observation could simply mean noticing changes from normal patterns. For instance, a person might be uncharacteristically aggressive, or quiet and not participating in a group activity, or look pale and unwell. Informal observations are often the only means of gathering information about unplanned events or incidents (e.g. a violent outburst or a patient collapsing). Informal observations may have a place in a research, and they have greater validity if the person making the observation is a health or social care professional.

Reflect

Gathering information through informal observation, i.e. being observant, may provide valuable information. What ethical issues might arise in relation to using informal observation in a research project? How should you present findings acquired in this way in a report of the research to take account of these?

Measurements

Research may be based on changes to the values of measurements. For example, a study exploring levels of stress experienced by individuals may involve measuring their blood pressure and possibly pulse rate. Measurements usually generate quantitative data.

3.3 Secondary sources

In the twenty-first century, information that has already been published can now be obtained through a variety of different media. Books, journals and magazines are traditional sources but, increasingly, researchers use digital media to access secondary sources for their research. However, to do this successfully, researchers need:

- the technological resources to access them (e.g. access to the Internet, to a library that subscribes to online journals, etc.)
- the skills and understanding to use the software required to access and use the resources effectively
- to be able to establish the validity of any secondary source accessed via the Internet
- to understand the legal expectations regarding copyright, confidentiality, etc. when using secondary sources.

Information literacy

Information literacy means understanding the limitations of different information sources so that data from them can be used appropriately to maintain validity for the purpose for which the information is being used. Factors to consider when using secondary sources are highlighted in Unit 6 Personal and professional development page 251.

Secondary sources accessed for a research project are likely to reflect the specialist focus of the research. They may contain advanced text that is less fragmented by headings than a Level 3 textbook and they may discuss complex ideas and detailed factual data. Here are some strategies for making the best use of secondary sources:

- ask yourself what the heading tells you
- skim-read to identify the type of text (e.g. research report, critical analysis, review article) and its structure (e.g. headings, referencing, sources)
- scan-read to identify key words and judge the relevance of the text for your purpose
- target more detailed reading on the abstract/summary (if there is one, it may be in a feature box or sub-heading), conclusions (at the end), discussion (towards the end), introduction (start of main text), results and method, in that order
- make notes in your research notebook
- record all details needed for later referencing.

Reflect

Why would it be particularly important to pay attention to the country to which a secondary source related when carrying out research relating to health, social care or education in your local area or region?

Examples of secondary sources that could be a source of relevant data for a research project include:

- websites
- specialist journals that are relevant to health and social care and the research topic
- media (e.g. newspapers, radio, television, Internet news pages)
- books
- e-books
- government reports
- reports from other reputable bodies (e.g. charities and research foundations).

Websites

Activity 18: Websites

a) Search the websites of:
  - a government department
  - a voluntary organisation
  - your local authority
  - a local primary care trust.

b) Find one document from each website that is relevant to health and social care, open it and summarise what the document is about in no more than 50 words. Share this with your peers.

c) Make a list, with brief notes of the sort of information each website contains, to use later in your research project.

Websites are a useful means of accessing government documents and important reports. The details for the government departments most relevant to health and social care research are listed at the end of this unit. Websites for charities that provide health and social care services or carry out medical research can also be useful sources of data.

The amount of information available on the Internet is vast, and can be accessed via many different websites, which can make it difficult to find an article again at a later date. Good discipline is valuable, not only for your research project, but for all study. Here are some useful tips for Internet research:

- *always* save *all* the details you need to compile a reference list for the research report; these should include a) the URL (*full* web address details as taken from the textbox at the top of your Internet screen), b) the day/month/year date you accessed the webpage and c) if possible, the year the document was posted on the website or published

- save web addresses on the personalised 'Favourites' directory of your Internet Service Provider (ISP) so you can return to the same site with a single click
- download documents you may want to return to later, saving them to a data stick or hard drive on your computer
- avoid printing out whole documents unless they are difficult to read on screen, or contain complex information you wish to annotate or return to repeatedly; sometimes printing selected pages is sufficient, combined with saving an e-copy.

Journals

Journals are specialist publications published at regular intervals for specialist groups such as professionals, scientists and other researchers. Academic journals publish reports of research. The publication of research in a journal is an important aspect of the research process. Indeed, in the UK, government funding of research partly depends upon publication this way and in future will also be dependent on how often other people read the research reports. Some weekly or monthly journals may be available for reading in your school or college library or in placement settings. These days, libraries subscribe to online versions of journals so those registered with the library can access them online.

Media

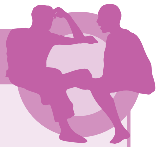
Print and broadcast media can be a valuable source of information, particularly in relation to news but also on other topics of broad interest to the public.

Newspapers

Newspapers are a traditional source of information about what is going on in the world and individual customers tend to purchase the same paper every day. Newspapers can be influential in developing opinions among the public (e.g. about controversial topics or at election time). However, each UK newspaper is written to appeal to its particular group of customers and they can show their bias by:

- what they present as the main news (e.g. on the front page)

Activity 19: Newspapers



Work in a group of 6–8 for this. Each group member should obtain a copy of a different daily or evening newspaper on a day when there is a story relevant to health and social care in the news. Bring the newspapers to class and investigate how each paper has reported the story.

1. Each newspaper will have presented the health and social care news differently. What key message is each putting across in its headlines? What factual information do they present? Where is the story located in the newspaper? Has the paper sought the views of different people? What is the newspaper's opinion? (You may need to look at the 'comments' or 'editorial' page to find this out.) What is the style of writing?
2. When you have compared the way each newspaper has covered the story, you need to think about how the information has influenced your own perspective. What have you learned about the story? Which newspaper do you think has given the fairest (most balanced) coverage to the news story? What are your reasons for this? What is your opinion of the story now? How important do you think the story is in relation to health and social care? What has influenced your judgement on this?
3. Now consider where you may find out more about the story – to check the accuracy of the information you have read in the newspapers. Is there a report that you could read? What does the government say about it? Where could you get other opinions on the story? If you investigate these sources, to what extent does additional information confirm or alter your own opinion and conclusions about the health and social care story?

PLTS

Effective participator: You can participate effectively in this activity by collaborating with other group members when sharing out the tasks across a range of newspapers and enabling each group member to contribute.

- what they decide to write about it
- from what perspective they write (e.g. that of business or the private individual, etc.).

Professionals and researchers should be aware of this when using newspapers as a source of information for research. Some newspaper publishers are beginning to restrict free access to news stories online so that people have to pay a subscription in order to read them.

Broadcast media

Radio and television provide news, information and discussion of different opinions on a wide range of topics. The rigour of the broadcast content can vary across channels but several television and radio programmes frequently discuss topics relevant to health and social care including, for example, long-standing favourites such as *Panorama*, *Horizon* and *Regional News* on television and *The Today Programme*, *You and Yours*, and *Woman's Hour* on Radio 4.

Books

Books are the traditional means of publishing information. Social science theory tends to be published in books, whereas science-based research reports are usually published initially in journals. New knowledge and understanding from research gets incorporated more widely into specialist textbooks later so recently published textbooks have greater credibility than books published several years ago. In health and social care, continual policy change can mean a textbook is soon out of date. However, a book published a long time ago may be the original book written by a particular theorist. When quoting the theory in your own writing, you need to reference the source in such a way that it is clear whether you have read the original book or journal article or just read about the theory (or research) in a more recently published textbook.

Reflect

Can you think of some famous theories you have studied (in other units) that were originally published a long time ago?

School, college or university libraries tend to stock textbooks and other books for study. In contrast, public libraries tend to stock books of more general interest, including books about specific disorders and health and care issues.

e-resources

Apart from the Internet itself and online academic journals and newspapers, an increasing number of books are available as e-books, either by direct purchase or if you are a member of a library.

Activity 20: e-books

Find out what e-books you can access through your school, college or public library that could be relevant to your BTEC course. Arrange to view an e-book and experiment with the software capabilities for using the book for study.

Literature review

The literature review is carried out at the start of a research project to enable the researcher to find out what is already known about the topic so that the research does not simply repeat work already done by others. The review involves reading around the immediate topic of the research to acquire knowledge and understanding relating to the context of the research. A literature review also helps to narrow down the research topic and identify the specific aspects that will be the focus of the research project.

The review is likely to involve accessing a range of secondary sources. It is important to be systematic in recording all the details needed to construct a reference list from every source used. The details you need to record are listed on page 444. You could expand a literature review by following up items from bibliographies and reference lists in the sources you have already viewed. Sources where sufficient information is provided to make a judgement about their reliability should be used in preference to poorly validated sources, such as online encyclopaedias, or where there is no named author or other identifier to enable reliability or validity to be established. It is usual to return to the literature review and sources used when writing up the report of research.

Once you have established the usefulness of a source, you can go back and read it more carefully.

Table 22.3: Stages in a literature review

Extracting information	• skimming and scanning for preliminary judgement on relevance • identifying key words for exploration in text • establishing type of information, e.g. research report, essay, comment, quantitative/qualitative, etc. • detailed reading in order: 1 Abstract or summary; 2 recommendations; 3 introduction; 4 discussion; 5 results and methodology
Interpretation	• understanding what is being said in the source • understanding the reasons for the interpretation presented • how objective is the interpretation? • identifying the relationship with research topic/your purpose
Analysis	• what are the arguments presented in the source? • to what extent are they supported by valid and reliable evidence? • what **assumptions** are being made? • what are the similarities to, and differences from, your own research? • how does the source compare with other secondary sources? • who are the participants? • what methodology was used? • how objective is the data? • exploring other factors relating to the data, e.g. when and where it was collected
Synthesis	• bringing together the knowledge and data from all the sources to develop a new or different perspective on the topic • possibly identifying gaps in the knowledge • acknowledging similarities and disagreements between your own findings and information in the literature • possibly suggesting explanations, influences, etc. • defining the limitations of the source in relation to your own project

Analysis

Analysis means a detailed exploration of a text to better understand different aspects of the information it contains. Analysis involves dissecting the text of the source, or breaking it down, by exploring and discussing each detail. An important part of analysis is to identify any **arguments** being proposed by the authors. Strengths and weaknesses in the evidence or arguments should be discussed as part of a critical analysis.

Key terms

Assumption – Conditions that apply to a situation but which are not investigated in the research. It is good practice to be explicit about the assumptions being made.

Argument – A point of view that aims to persuade others to the same view by presenting supporting evidence. An argument is more than a statement of fact.

Synthesis

Synthesis is the process of constructing or developing a new/different argument or perspective, based on the issues revealed by the preceding analysis. Once each source in the literature search has been critically analysed individually, the researcher will have a different perspective on the research topic and be able to identify more specifically how further research could contribute new knowledge and understanding. The researcher can then decide on exactly what aspect of the topic to research, formulate a suitable hypothesis or research question and plan their project.

Data

Quantitative data, in the form of graphs, tables and statistics, often features in health and social care research.

Tables enable data to be viewed systematically, without the need for a lot of text. They are most frequently used to present numerical data, but can also

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be used to summarise qualitative information concisely and for clarity.

Graphs and charts present quantitative data visually, which usually assists interpretation of the data. They also enable large quantities of data to be presented in a manageable format.

Reflect

How confident are you about reading and interpreting quantitative data presented within text, in tables or in graphs and charts? Discuss any concerns you have with your tutor who may be able to arrange specialist support during your project.

Demographic statistics collected by government departments or agencies, local authorities and health trusts are valuable for comparison with data gathered in your project.

The Office for National Statistics (ONS) publishes a range of demographic statistics that are categorised under health, social care, education, etc. They provide national data as well as a breakdown of the data for each of the UK regions. They also present comparisons with similar data from earlier years.

The ONS website has several reports that present health and social care data through its link to the NHS Information Centre. Statistical information may be presented in various formats such as tables, graphs and charts.

Activity 21: Statistics

Go to the ONS website (www.statistics.gov.uk) and note the type of data that can be retrieved from each site and the different types of graphs and charts used to present the data.

Note all the information provided with the data, e.g. headings, keys, scales, units, etc.

Select one table and two different types of chart, all unrelated to each other and describe orally to each other, the results shown in each. You could do this activity in pairs. Use questioning to each other to clarify any uncertainty or misunderstanding you have in interpreting the data.

Check your own interpretation of the statistical data by reading the descriptions of it given in the text accompanying the visual representations of the data.

Functional skills

Mathematics: This activity enables you to demonstrate your understanding of statistical information presented in different formats and communicate this to others.

Key term

Demographic statistics – These are statistics relating to populations. In the UK, statistical information is collected continuously by various agencies but particularly by government departments through information about UK residents gathered from e.g. tax collection, driving licences, passports, the ten-yearly Census, schools, GPs' records, etc.

Assessment activity 22.3

P3 BTEC

Present a comparison of different research methodologies as they might be used in health and social care research.

Grading tip

P3 You could present your comparison in a summary form, e.g. as a detailed table, giving examples of where each method could be used in health and social care research, and submit it with the evidence for your research project plan.

PLTS

Creative thinker: The questions you ask in order to make the comparisons will demonstrate your creative thinking skills.

4 Be able to plan for a research project

Please note: you may wish to cover the content in Section 5, Topic selection (pages 443–447) first, before covering this section on Planning.

4.1 Planning

Methodology

The methodology is the overall approach you select to conduct your research – for example, whether you will use a scientific or social science methodology. It includes the specific methods you will use and the literature search to contextualise your project within existing knowledge and understanding of the subject.

Activity 22: Selecting your subject

Once you have selected your research topic, carry out some further reading. At the same time, you should start to compile a reference list of the sources you use.

Draw a mind map to break down the subject into different aspects and decide:

- whether your research will be based on a research question or a hypothesis and then what it will ask or propose
- which information could be gathered qualitatively, which quantitatively, and what questions you could ask to generate relevant data.

Consider whether you could gather relevant data from formal and/or informal observations.

These decisions should be influenced by the knowledge and understanding you have gained from your literature search, supported by advice from your tutor and, at this stage, the aims and the hypothesis proposed or research question posed. Designing a questionnaire that is **fit for purpose** is very time-consuming and you should therefore allocate sufficient time in the action plan to do so.

If you have time, you may be able to trial your questionnaire to see whether the questions, and instructions for answering them, enable respondents to complete the questionnaire as fully as you intended. This is a **pilot study**, which is good practice in research. A few, carefully worded questions and well-thought through response frames may provide more valuable and reliable data than several, poorly thought out questions consisting only of closed answer options.

You should indicate in your action plan if you intend to carry out a pilot study and should get any amendments made checked by your tutor before starting the full-scale study.

Action plan

Once you have decided on your methodology, you can construct a detailed plan for your project. The action plan you will submit for your research project may follow a similar format to the action plan for personal development you prepared for Unit 6. The plan should be sufficiently detailed to give you all the time needed for different tasks. If the plan is not detailed, it is more likely that the time needed will be seriously underestimated and you will get behind with your overall plan.

The details of your action plan should include time needed for the literature search, gaining ethical approval, developing the research tools, gathering the data, interpreting it, and preparing your report on the findings. Ethical approval for your project will be organised internally at your centre and you should follow your tutor's instructions. The approval process could be part of the assessment process for P4.

Timescales

Most professional research projects are time limited. In this unit, the timescale will be determined by the submission date set by the unit tutor. You will need to work backwards from this deadline to plan how you

Key terms

Fit for purpose – A product or object that performs its intended function well.

Pilot study – An initial, small-scale (perhaps only 10 per cent of the full sample number planned) exercise, in which you use your research tools to see if they are fit for purpose. It is acceptable to make small amendments to improve the reliability and validity of the data gathered in the main, full-scale study.

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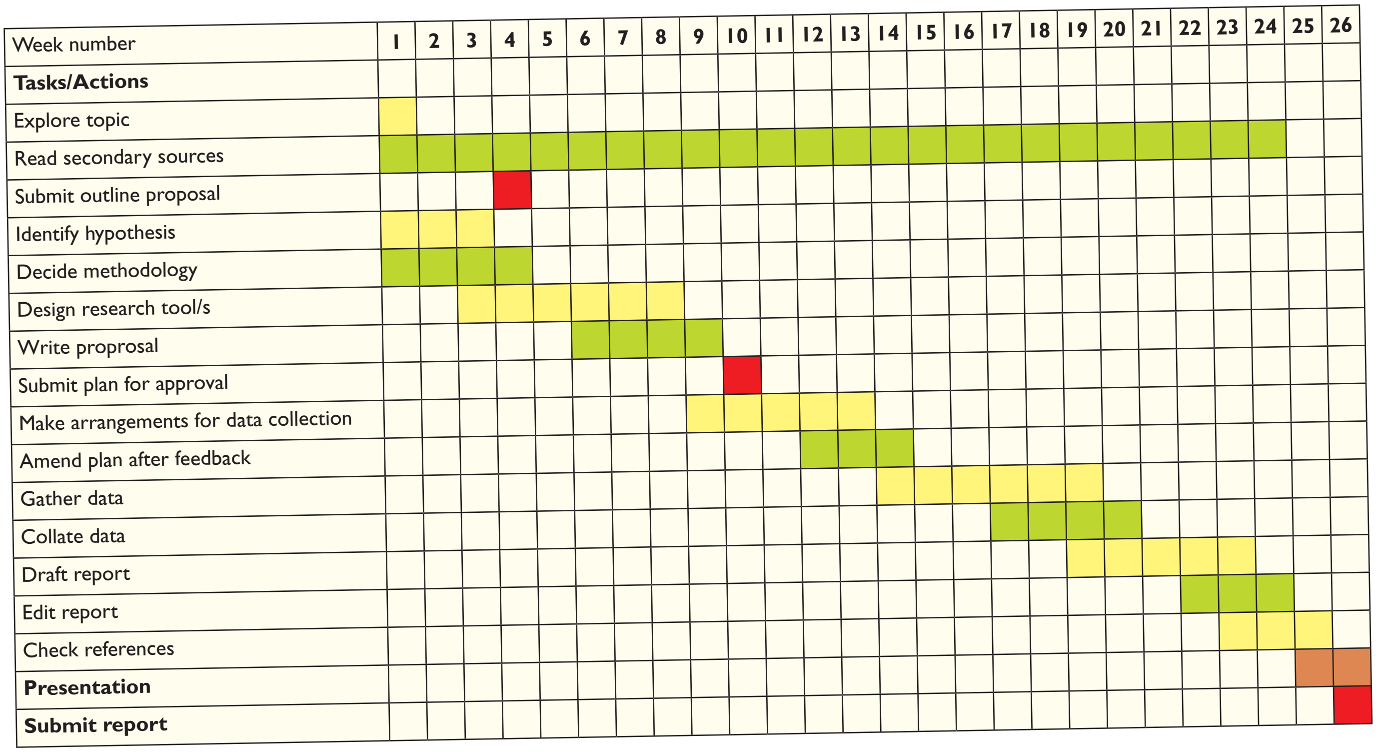


Week number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Tasks/Actions																										
Explore topic	🟨																									
Read secondary sources	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩		
Submit outline proposal				🟥																						
Identify hypothesis	🟨	🟨	🟨																							
Decide methodology	🟩	🟩	🟩	🟩																						
Design research tool/s			🟨	🟨	🟨	🟨	🟨	🟨																		
Write proprosal						🟩	🟩	🟩	🟩																	
Submit plan for approval										🟥																
Make arrangements for data collection									🟨	🟨	🟨	🟨	🟨													
Amend plan after feedback												🟩	🟩	🟩												
Gather data														🟨	🟨	🟨	🟨	🟨	🟨							
Collate data																	🟩	🟩	🟩	🟩						
Draft report																			🟨	🟨	🟨	🟨	🟨			
Edit report																						🟩	🟩	🟩		
Check references																							🟨	🟨	🟨	
Presentation																									🟧	🟧
Submit report																										🟥

Fig 22.7: Would you use a project action plan like this to identify and monitor the overall goals, deadlines and outcomes of the project and the practical tasks required to meet them?

will use the time available. This means you need to allocate time for each of the actions you identify in your action plan. Developing a questionnaire that has well-focused, clear questions and carefully constructed answer frames takes time, especially if you carry out a pilot test on it. If you aim to have a large participant sample, then you may need to factor in time for printing the questionnaire. Depending on the overall timescale, you may be able to build in some slack time to allow for the slippage that often occurs when planning over several weeks and months.

Target group

The target group is the sample population from which the participant sample is selected. As you are a student on a course that in itself does not lead to a professional qualification, in almost all cases it would be unethical for your participants to be sampled through contacts in health or social care settings. To do so would require ethical approval from external organisations such as the local strategic health authority, something which is unlikely to be granted, given your unqualified status.

It is ethically acceptable to involve your peers as participants in a student project. Since most students on a BTEC Level 3 course will be studying in a college or sixth form, their peers would be fellow students at the same institution. However, you should be aware that only students over the age of 16 years should be included in your sample because involvement of individuals younger than this would require written consent from their parents/guardians. If based in a college, you may need to consider this, as some learners at Key Stage 4 may also attend college.

It might be possible to include friends, family and acquaintances as participants *provided* they know you through your private life rather than through work or a college placement *and* you can interview them away from a setting. Sampling from the general public in a public space could expose you to personal risk, and your centre would be unlikely to give consent for this method of accessing participants.

Consent

In addition you need to plan how you are going to gain informed consent from each individual participant and be explicit about this in your project plan. You also need to consider how your questionnaires will be distributed so that participants have privacy while they complete them. Peers may ridicule respondents, which would be a form of harm. They may also influence their responses, which would greatly reduce the accuracy of the data and the validity of any findings.

You will need consent or approval from your school or college to carry out the overall project and this consent should be included with your project plan. You should always remember to gain consent for the project *before* you involve *any* participants in the research.

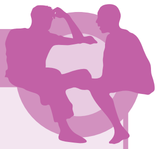
This would also apply for any pilot study to trial your research tools. Remember too that you should obtain written consent from an appropriately senior manager to hand out questionnaires or carry out observations on the premises of any other organisation apart from your school or college.

Informal observations of general practices and behaviours observed in placements or in public spaces might be included but, because the information has not been collected formally, it has only limited validity in a research project. However, data collected this way may be better than having no data. Informal observations (e.g. from placements) may support the rationale for selecting the topic of the project in the first place.

5 Be able to conduct research relevant to a health and social care context

5.1 Topic selection

Activity 23: Narrowing down a topic



1 List *five* aspects of health and social care that interest you.

2 For each topic, draw a spidergram to highlight anything at all related to it.

3 In groups of 2–3, quiz each other about each topic and discuss possible primary methods you could use to investigate each.

4 After 20 minutes' discussion, narrow down your choice of topics to *three* and justify your selection to your group.

Now work in your group to consider the following:

1 What factors influenced your selection of three topics from the original five? To what extent did each member of your group identify similar or different influences?

2 Have the discussions with your group altered your selection? If so, why?

3 What possible project topics have other groups explored? What factors influenced their choices? Has the class discussion altered which three topics you have chosen? If so, why?

4 Spend no more than 60 minutes in total conducting a preliminary search for information on each of the three topics.

5 Which *one* topic do you think is the most appropriate one to select for your research project? Why? Record your reasons in a notebook.

Subject

The subject, or focus, of your research project will be the specific aspect of the topic you eventually decide to investigate. Selecting a suitable subject can be likened to a filtering process. Some of the factors that should be considered when selecting a topic are summarised below.

- Ethical constraints on who participants can be
- Accessibility of secondary sources in the subject and appropriate for Level 3 study
- Access to a sample population to whom you can distribute questionnaires
- How the topic relates to health and social care

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http://ebookcentral.proquest.com/lib/carmel-ebooks/detail.action?docID=4191375.

- What hypothesis or research question could you propose?
- Can you test the hypothesis or is the question answerable?
- Time scale for duration of project and planning it
- Is the scale (breadth and depth) of the topic manageable with the time and other constraints?
- Sensitivity of topic for participants
- Making the data you can collect, given the constraints, relevant to the topic
- Travel accessibility e.g. to conduct interviews, time and cost factors
- Access to specialist equipment and resources
- Personal safety when doing the primary research.

Some of the influences may be specific to the circumstances of your school or college. For example, if you are in a rural area, the cost of transport when making visits to interview a specialist might be more of an obstacle than if you lived in an urban area.

Some of the factors to record when reviewing the topic for your research project and carrying out a literature search are:

- full surname (last name) plus first name initials of *every* author
- if an edited book, *also* note full surname and first name initials of all the editors
- year of publication or day/month/year for newspapers and broadcasts
- full title of the book (as on the cover), journal, Internet/newspaper article or broadcast programme
- if using/referencing an edited book, full title of book, *plus* the title of the chapter read, *plus* its start and end page numbers
- town/city of publication (books)
- name of publisher or broadcasting company
- for all sources from the Internet
  - – the day/month/year accessed
  - – full URL reference copied from the box at the top of Internet screen.

Note: you should include all the relevant information from each source used in a literature review and project report.

Your literature search will have highlighted different aspects of the topic you are interested in but you need to analyse the topic closely. Drawing a detailed mind map of the different aspects of the topic can help narrow your focus on a specific aspect that is sufficiently small to be manageable in the time you have available.

Research question

A research question is used when the research aims to investigate a topic without making any prediction as to what the research might discover. It enables the research to be broader than when testing a hypothesis. An example of an 'open-ended' research question might be 'How do college students cope with stress?'

Hypothesis

If you plan to test a hypothesis in your research, you will need to identify measurable variables and distinguish between the independent and dependent variable. You will then need to design a test to see whether the hypothesis is true (i.e. proven) or not (i.e. disproved). For example, you might want to find out whether people's drinking habits varied across the days of the week. The days of the week would be the independent variable and the alcoholic drinks they consumed on each day would be the dependent variable. You then need to construct a statement that identifies an association between the two variables. Your hypothesis might be, for example, '*people drink more alcohol at the weekend than they drink in the week*'. However, before setting up the test you would need to consider the statement more carefully.

- Who are the 'people'? This might be determined by what participants you can include in your sample. Would it be interesting to compare the drinking habits of different age groups, e.g. young people/young adults compared with older adults with family responsibilities and a mortgage to pay? How could you distinguish between the different groups? By age? By gender? By whether they are a parent or not? How will you find this information out?
- Are you going to ask the respondents to tell you whether they drink more on particular days? Do you think they would know this reliably? Could you ask a less direct question that would enable you to calculate how much they drank? Would it still be valuable to ask the question because there is often a mismatch between people's *perceptions* of what they consume and what they *actually* consume. And would this mismatch be interesting to investigate in its own right?

Case study: Nazrul

Nazrul is interested in doing a project on lifestyle choices and health because he is aware that lifestyle factors have a negative impact on the health of his own family and community. He creates a spidergram that identifies diet, smoking, alcohol consumption, exercise and relaxation as relevant lifestyle factors. Starting with diet, he thinks of different aspects of the topic he could look at. He adds five-a-day, school lunches, omega 3, vitamins, obesity, BMI, dieting and food allergies around the word 'diet'. He ends up with over 30 different topics about lifestyle.

Nazrul chooses school lunches, thinking he could go into his younger sister's school to do his primary research. However, his tutor points out that it would not be ethical for him to carry out a survey of schoolchildren and instead he can only survey his fellow students at college. Nazrul then finds some government statistical data on the Internet and an organisation called the School Food Trust, which has lots of information. He still wants to investigate school meals but is not sure what relevant information he can get from his college friends when they are no longer at school. He wants to test the hypothesis 'school meals are unhealthy'. His tutor asks him lots of questions such as 'What does being "unhealthy" mean?', 'How will you measure it?', and 'How are you going to get hold of school meals to make a measurement?'

After some discussion with his tutor and a group of his classmates, Nazrul decides it would be better to use a questionnaire to find out what his fellow college students eat at lunchtimes and then draw his own conclusions as to whether or not they eat healthily. He also decides to interview the catering manager about the college's lunchtime menus and a practice nurse who is a friend of his mum's to find out about dietary issues affecting young people's health in the local area.

1. How have ethical constraints affected Nazrul's original idea for his project?
2. Can you think of a suitable hypothesis for Nazrul to test in his project?

- Could you recall what you drink (alcoholic or non-alcoholic) each day? If you cannot, then are your respondents likely to remember? Could you ask them a more specific question or, rather, give them some answer options that enabled them to give you more accurate information about their drinking habits?
- What do you mean by an alcoholic drink? Do all alcoholic drinks contain the same amount of alcohol? Does it matter? Do you need to know what people drink more specifically? How could you get this information from your survey questions? Do you need to know the size of the drink as well as what type it is (e.g. wine can be served in a range of different-sized glasses)?
- What about students who are under 18? It is illegal for them to consume alcohol other than in their home. Does this mean you should ask respondents where they drink their alcohol? Do you think under-18s might not give you a truthful answer because they are drinking illegally? Do you think people might not give you a truthful answer because they are aware they probably drink too much? How could you ask the questions so that you reduced respondents' concern about giving you this information? What are the ethical issues that might be relevant here specifically?
- What is 'the weekend'? Friday, Saturday and Sunday nights or just Saturday and Sunday? Would a different combination of days be more representative of the days when you suspect people drink most? Do you think all your respondents will think of the weekend as being the same days? How could you make sure in your questionnaire that there was no confusion about how you were defining a 'weekend'?

This sort of questioning can be relevant to any project but it is important to be clear about what you are actually measuring when testing a hypothesis, otherwise the validity of the test may be considerably reduced. For example, you may end up with an amended hypothesis such as 'people consume most alcohol at the end of the week'.

Rationale

The rationale is the reason why you have selected the topic and the particular aspect of it that you have chosen to investigate – for example, the research question posed or the hypothesis proposed. Explaining the reason for your choice by referring to a wider context would be helpful. Maybe your research has been triggered by current interest in the media, your wider reading or a specialist interest or because you wanted to follow up in more detail something studied in another unit. For a more complete justification, good practice would be to support your explanation by referring to some secondary data from your literature search.

Relevance to sector

Your project should be relevant to health and social care and the research could be relevant because it relates to health care needs, raises awareness of health risks from particular behaviours, or relates to changing policies and practices.

Identifying relevance at this stage can support your rationale and aid interpretation, analysis and evaluation of your results in your project report.

Achievable and realistic

In order to make your project manageable, so that you can obtain sufficient results to enable you to meet all the grading criteria within the time limits set for you, it is important to establish clear boundaries for the project. This means defining what it is you *are* going to investigate and also what you are *not* going to research. If you identify the boundaries at the planning stage, then it is much easier to stay within them as you conduct your literature search and develop your research instruments. In this way your research project should be achievable within the time and using the resources available to you.

A project that does not have a clear focus tends to generate such a wide range of data that it becomes difficult to analyse and evaluate your results and draw valid conclusions. This could make it difficult to meet the higher-grade criteria.

Assessment activity 22.4

P4 M2 D1 BTEC

Produce an action plan for a research project investigating an aspect of health and social care that interests you.

Justify why you have chosen the research methods identified in your plan and rejected others.

Assess the value of different research methodologies in ensuring the validity of findings from health and social care research.

Grading tips

P4 Make sure your actions follow SMART principles (see Unit 6).

Remember that your research project needs to enable you to meet not just P4 but also P5, P6, M3, M4 and D2 so the plan you submit for P4 could consider *how and when* you are going to carry out the research, report the findings, and analyse and evaluate your findings and methods *as part of the plan*. However, you will not present the evidence for the other criteria until later in the project.

Keep a research notebook in which you record all notes and details regarding your project

M2 Support your reasoning with reference to literature on research methods and the specific subject chosen for your research project. You should consider a good range of reasons, to justify your choice of methods for your project, and present your arguments logically and clearly.

D1 In the first instance, you may find it easier to consider the value of the methodologies you are planning to use in your own project in ensuring validity, as you will already have thought about this in some detail and the evidence could be integrated with that for M2.

If your project does not enable you to assess all the methodologies, then you could consider health and social care research more generally if it enables you to make a more thorough assessment regarding their influence on the validity of research findings.

PLTS

Reflective learner: You will be demonstrating your sk as a reflective learner when planning the project and setting the aims of the research itself and success criteria and when you review your progress.

5.2 Conduct research

Secondary sources

The range of secondary sources and their use in the literature search have already been discussed. While you will start the literature search as you decide the topic of your research, and produce the written literature review at the same time as you research your action plan, you should also continue reading about your research topic while the project is ongoing. As you get more involved in the research, you will gain a better understanding of the subject and, by re-reading a source, you will understand more of the detail in the sources and therefore adapt your interpretation of it, possibly realising that it is more relevant than you originally thought, or less relevant. You may need to find new sources to support an unexpected finding from your primary data.

Data collection

It is now increasingly easy and economic to use information technology (IT) as a tool to make routine tasks easier. A mobile phone may be able to execute several useful functions to help you process data from your project, whether this is simple arithmetic on a calculator function, taking a photograph of your equipment as set up to take measurements, or possibly other functions such as recording an interview or accessing the Internet. You may also use specialist equipment that incorporates technology, e.g. a pedometer to record walking activity or an electronic counter to record a particular behaviour observed in people in a public space, etc.

Monitoring

An important aspect of any research project is to continually monitor your progress against your original research plan. There are two reasons for this: firstly to keep focused on the purpose of the research as stated in the research question or hypothesis; and secondly to monitor your progress against your action plan so that you complete the different stages of the project by the deadlines set. Research rarely proceeds exactly as planned. Regular monitoring of your progress against your plans should enable you to identify variations from the plan promptly so that you can make changes to overcome any problems before you have lost too much time.

As already discussed, disproving a hypothesis has as much validity as proving it. After you have gathered the data, you may realise that you are in fact testing a different hypothesis from the one you originally intended. If this is the case, then this adjustment should be justified through the analysis and evaluation of the research when you write the report. If results from a pilot study indicate there is a problem, then it may be acceptable to make adjustments at this preliminary stage, before you commence the full primary research study, provided this is discussed with your tutor first. It is not acceptable to change your methodology after the pilot stage because any change will reduce the reliability of your results, severely limit valid comparisons between data and make it difficult to draw any conclusions. The validity of all findings will be reduced and it is better to persevere to the end and then address the issues in the evaluation (see pages 453–454). The risk of encountering such problems can, of course, be reduced by carrying out a pilot study to test the experimental method first.

Modification

Examples of possible changes to your project plan that may be necessary might include revising the order/sequencing of tasks, adjusting the timescales, altering how equipment is used so that measurements are more reliable, or even amending the scope of the study by amending the range or depth of detail that you investigate. If your primary research reveals more interesting results than anticipated, you may not have time to analyse them all before the end of the scheduled period for reporting on the project. Your tutor can advise you in these circumstances. However, it would be better to keep the project more narrowly focused from the start.

Reflect

What are the ethical implications associated with not using all the primary data gathered from your participants?

Assessment activity 22.5

P5 BTEC

Carry out your research according to the approved action plan.

Grading tips

P5 Remember to monitor your progress against the plan and record this on the plan.

Use your research notebook to record all the details relating to your project and summarise the main changes and progress points on your plan.

Record on the plan any amendments made to the research methodology. You will discuss these later and include the reasons for any amendments and the consequences for reliability of the data and validity of the interpretation, as part of M3.

Initial and date all monitoring and amendments made on the plan, according to good practice.

6 Be able to interpret research findings

6.1 Methods of analysis

In this section you will examine the data gathered from your research. Firstly, you will place all the original records from your primary sources in an order that will enable you to return to them easily at any time. Next, the data can be transferred (if necessary) into systematic formats as the 'results' of your research. Then you can interpret the data to find out whether your project has met its aims in answering the research question or testing the hypothesis.

Use of IT software

You may have used IT (e.g. a digital counter linked to a computer or an ergometer that produces a trace of an individual's responses to exercise) in which case you will need to download the relevant files to your own data stick or hard drive. However, remember that the DPA demands a higher order of security on electronically stored data, so do not store it on a shared drive on a networked system.

Once you have collated your raw data, you may have generated quantitative data that lends itself to being entered onto spreadsheet software. This will enable easy conversion of the data into an appropriate format for your report on the findings from your project.

Collecting data

The notes you make throughout the project from your literature research, records of measurements, experimental results, observations and interviews, as well as completed questionnaires, comprise the **raw data** from your research. The raw data needs to be sorted, collated and ordered systematically so that you can interpret all your findings.

Raw data may be collected in different forms, for example:

- as handwritten figures from a laboratory experiment entered on to a pre-designed tabulated template
- as graphical printouts from equipment, e.g. ergometers
- as images, e.g. scans, X-rays, photomicrographs, photographs (but not of individuals, for ethical reasons)

- digitally organised according to a specifically designed computer program, e.g. responses to online questionnaires
- on CD, an MP3 player, e.g. used as a pedometer.

A tally chart is the best way of collating data from the responses to each question on completed questionnaires. This could be done using a blank copy of the questionnaire. You should go through each questionnaire in turn and enter a tally of each response option the respondent has made. The numerical totals from the tally chart can then be entered onto a spreadsheet. If you have used an electronic questionnaire, this is done automatically. Responses to open questions should be transposed into a single location so they can be compared. You should also record where respondents have not entered answers.

For interviews that have been recorded, it is usual to make a transcript so you can study it more easily and include it as evidence The full transcript would be appended to a research report and this is expected for unstructured interviews. For structured or semi-structured interviews, a copy of the questions/prompts used and contemporaneous records of responses would probably be sufficient for this research study.

Collectively, your organised and collated data are your **results**.

Spreadsheets

Spreadsheets can be used in a variety of ways. They are most appropriate for collating numerical data because the software makes it easy to perform calculations involving the data, to rearrange data (e.g. in ascending or descending order of size, etc.) and to convert the data into charts and graphs. Which of these capabilities you use will depend on the data you have gathered and the way you interpret the data.

Presentation of data

There are conventions regarding the presentation of data, which should be followed, particularly within a research report. Data may be presented in a table, chart, graph or other diagram such as a flow chart, as already discussed. A set of data collected from a single experiment or from a group of individuals under the same conditions is called a **data set**.

Data may be either continuous or discrete. Time, weight and temperature are examples of **continuous data** because they can have any value. UK shoe sizes are **discrete data** because they only come in definite and separate values e.g. 5, 5½ or 6 with no values in between. It is important to recognise which is which because this will determine what type of chart or graph should be used (see page 451).

Triangulation

Interpreting results from any research should be based on rigorous analysis and evaluation of your results. This is done by comparing the primary data you obtain with data from secondary sources accessed in your literature search. Good practice would be to make comparisons with several different sources, a process known as triangulation. In your project, you should aim to include at least one published source. However, it is acceptable to triangulate using two different types of primary data. For example, you might say that analysis of the survey data suggests that respondents had little accurate knowledge of the dangers of excessive alcohol consumption and this was confirmed by comments made by the nurse you interviewed, as well as by statistical data you found in a government report.

Graphical presentation

This is explored in the next section.

6.2 Data representation and interpretation

Interpretation of data involves understanding the raw data collected in the primary research in the context of either the research question or the hypothesis. Visual

Key terms

Raw data – Consists of the records of data collected from research in the form they were originally generated.

Results – Results from research are the data collected and collated into tables, graphs and charts.

Data set – A series of quantitative measurements of the same variable, recorded under the same conditions.

Continuous data – Data that can have any value. Weekly changes in body weight or changes in body temperature over a day would both generate sets of continuous data.

Discrete data – Factual information presented in numerical form; the data can only have specific values, e.g. male or female, smoker or non-smoker, those born in 1980, those born in 1981, etc.

Whitehouse, Mary, et al. BTEC Level 3 National Health and Social Care: Student Book 1, edited by Beryl Stretch, Pearson Education Limited, 2014. ProQuest Ebook Central, http://ebookcentral.proquest.com/lib/carmel-ebooks/detail.action?docID=4191375.
Created from carmel-ebooks on 2020-10-14 08:02:24.

formats for presenting data help to reveal patterns in the data that are difficult to identify just by looking at the raw data.

Tables, graphs and charts

Tables, graphs and charts (e.g. pie charts and histograms) are often used in data interpretation. The features of each of these formats are summarised in the table on the next page.

It is important to remember that, when presenting data in any format, including within the text of a report, it should be presented in accordance with mathematical conventions. The conventions ensure that all the necessary information required to interpret the data is provided within the table, graph or chart. This information is as follows.

- An overall heading, which identifies the format either as a 'table' or as a 'figure'. The item is numbered and followed by words describing the data presented in the item. For example, note how all tables and diagrams are titled in this book.
- Each column in a table should have a heading to identify what the data in that column is measuring. If it is a number, it will have no units. If it is a measurement, then the units should be given once only, in the heading title. The data should then be entered into the column *without repeating the units*.
- In graphs and charts, *both* the horizontal (x) axis and the vertical (y) axis should be labelled with a descriptive title and, as for columns, with the correct units if the variable is a measurement. If it is a number, then the axis will state 'number of …'
- A key should be provided to differentiate between different colours, shading, codes or any other visual device used to contrast the data presented.

You should remember to use all these conventions in every graph, chart or visual image you include in your project report, oral presentation or appendix.

Mean, median and mode

As indicated in Table 22.4, many biological measurements tend to follow a standard pattern called a normal distribution similar to that shown in Figure 22.8. The spread, or distribution of the measurements in a data set, is an indicator of how much the measurements vary from each other. The height of the histogram indicates how many measurements fall into each category or data group.

The mean, median and mode are different types of average.

- The mean is the arithmetical average of all of the actual measures making up the data set.
- The median is the middle value of all the individual measures when they are ranked, i.e. listed in increasing size order (lowest first and largest last).
- The mode is the value which occurs most frequently in the data set, (the most popular value).

Understanding the different ways in which data may be presented and analysed gives you a range of possible approaches for interpreting your primary data. Secondary sources may also include quantitative data and accompanying analysis, and comparing your data with independent data is helpful when evaluating your research to draw conclusions from it.

Activity 24: What can I learn from my data?

In groups of two or three, discuss your findings from the research each of you have carried out.

1. How could you present the primary data to help you understand what it means?
2. Construct tables, graphs and charts as appropriate and get a friend to check that you have presented each of these correctly.
3. Describe in words what each table, graph and chart shows, using the language introduced in this unit and especially in this section. In class, discuss each form of presentation with a partner.
4. To what extent does your data interpretation enable you to answer your research question or hypothesis?
5. How does your data compare with data from your literature searches? What are the similarities and differences?

Functional skills

Mathematics: You will be selecting and applying a range of mathematical solutions to your data, checking accuracy and interpreting the data in this activity.

Table 22.4: Features of different forms of data representation

Presentation	Features
Tables	• may be used for qualitative as well as quantitative data • can organise data systematically • may record several sets of measurements for one set of variables • may enable trends to be identified • can organise quantitative data in order of increasing or decreasing size • data may be continuous or discrete
Graphs (line graphs)	• for plotting continuous data only • for plotting changes in a dependent variable against a dependent variable (often time) • the dependent variable is usually plotted on the vertical axis and the independent variable on the horizontal axis • the values of individual measurements of each variable are plotted and joined together using straight lines (not a best-fit line) • can reveal trends, e.g. how the variable changes over time
Bar charts	• bars have identical width and vary in height/length • each bar is separated by a small space (the bars do not touch) • bars are usually drawn vertically but can be drawn horizontally • in complex bar charts, each bar may show more than one measurement • used to plot discrete data, e.g. data for males and data for females
Pie charts	• used to represent different categories within a larger group (segments of a pie) • each segment of the 'pie' is proportionate to the percentage of the whole that the category represents • each category of the 'pie' is calculated as a proportion of the whole group represented, i.e. as a percentage of a circle (360°)
Histograms	• a special type of bar chart with vertical bars with no spaces between bars (see also below) • used for large data sets of the same variable, usually of at least 50 measurements, e.g. blood pressure of 100 students • groups of possible values of the measurement are defined, each the same size • the possible measurement of the variable are categorised into equal sized groups, e.g. 1–4, 5–9, 10–14 etc., and each measurement recorded is allocated to the group in which the measurement falls and counts as 1 in that category • the boundaries for each category should not overlap • when all the measurements have been categorised into the right group, the numbers in each group are totalled • the totals in each category can be 0 or a whole number only • when drawing the histogram, the y axis is the number of measurement and the x axis shows each category of the measurement, all the same size • if no measurements are within the range of a group/category, then no bar is drawn and the space is left empty • histograms are useful to show the average and spread (range) of the values measured in the data set – the **distribution of data**

Key term

Distribution of data – An indication of the range or spread between the lowest and highest value of actual measures in a data set measuring the same variable.

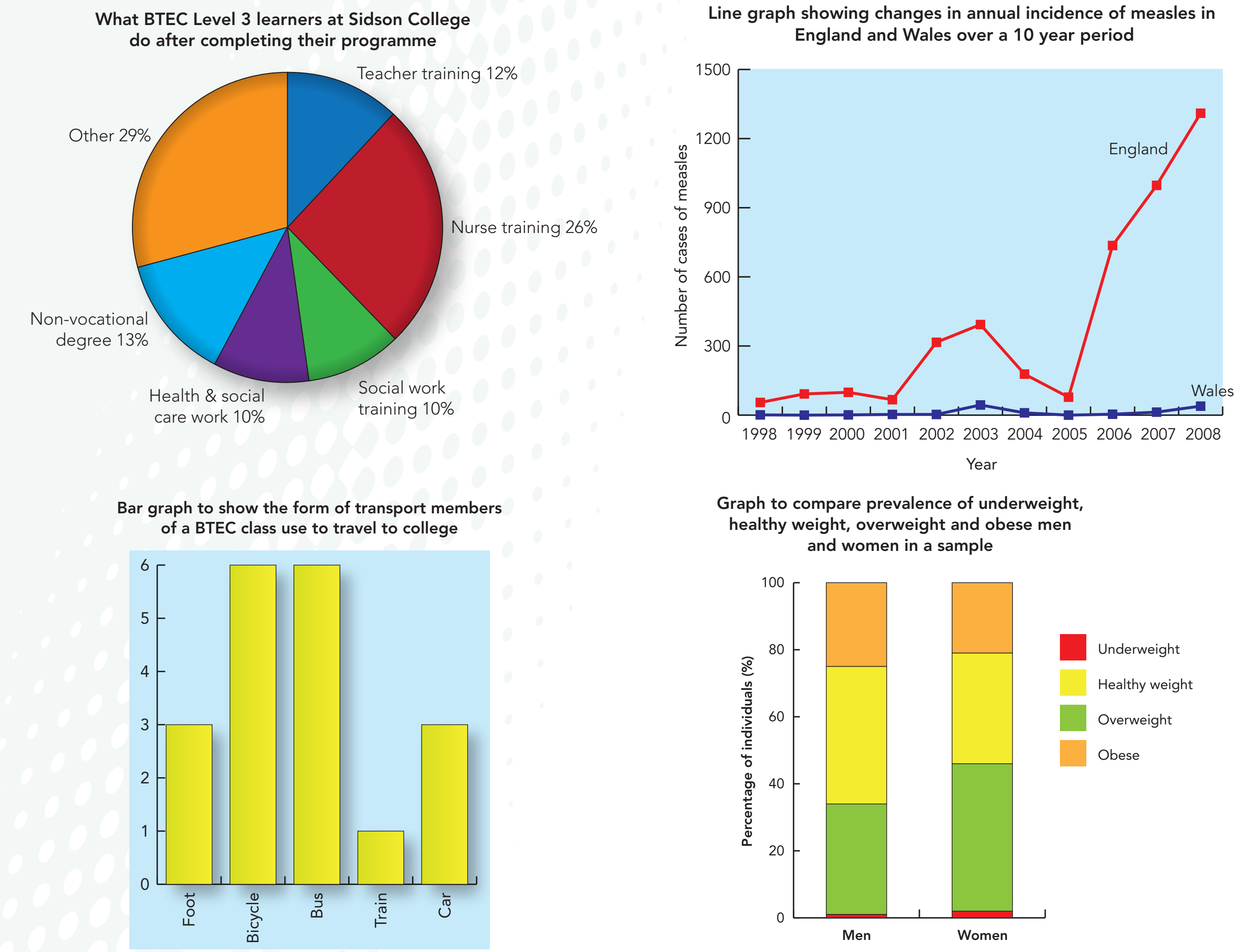

Fig 22.8: How could you use the various forms of charts and graphs to present your quantitative data?

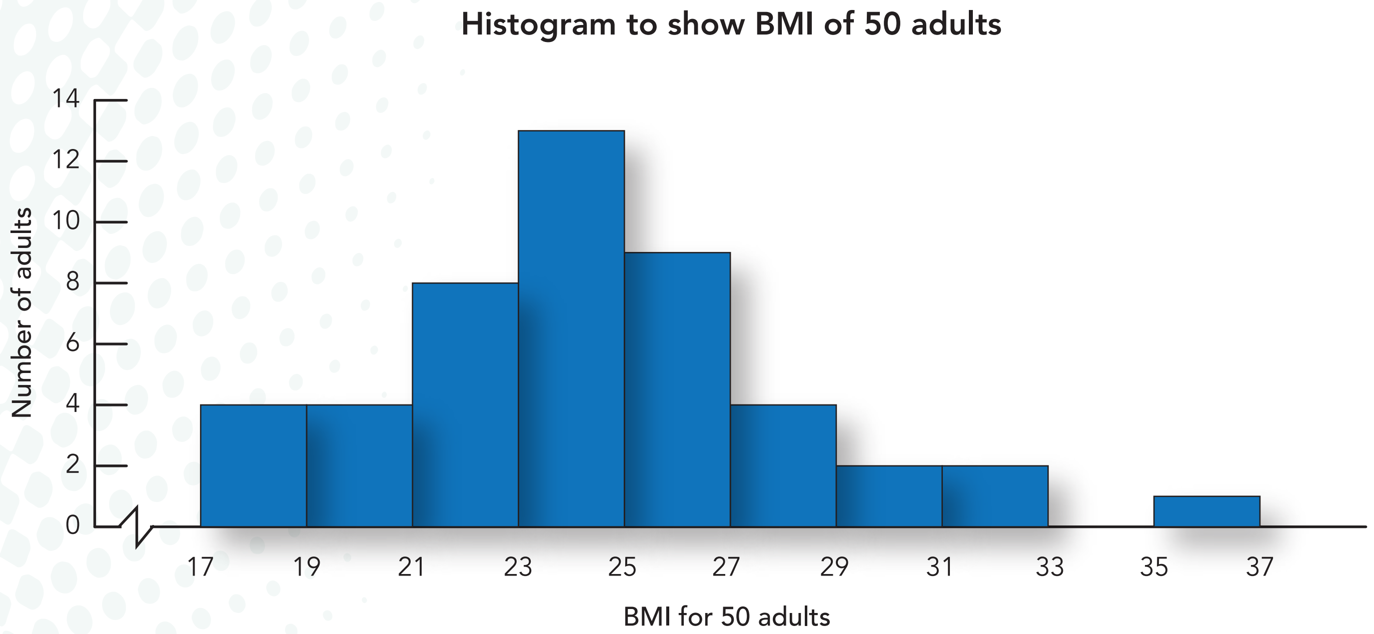

Fig 22.9: What information about distribution and frequency can be shown using a histogram?

6.3 Evaluation

Evaluation requires you to make a judgement about the worth, or value, of your research, based on the evidence you have generated from your primary and secondary sources and already interpreted. An evaluation involves examining *critically* all aspects of the work you have done on your project. This process should enable you to identify any weaknesses in your methodology that may have affected your results so you can estimate the reliability (see Section 2, pages 421–422) of your data, both primary and secondary. This evaluation is an essential part of the research because the critical review of the whole process enables you to place the results of the research in a context, and so formulate the **findings** of the research in your overall conclusions to the project.

Key term

Findings – The overall conclusions of an investigation.

Activity 25: Sources of error

- What are the possible sources of error in your data?
- What is the reason for each of these errors?
- How do the errors affect your interpretation of the results?

Comparison with the research aims

This aspect of the evaluation should analyse the extent to which the original aims of the research, as presented as part of the research plan, have been met. The focus will be the research question or the hypothesis. You should present arguments based on the evidence from your project to judge whether these have been fully addressed or only partly so.

Bias and error

Errors and bias occur in all research but it is important to examine how the errors and bias have arisen and assess the extent of their influence on the overall findings from the research. Errors can arise from, for example, weaknesses or flaws in questions or response frames that limit your ability to analyse and interpret the data. Bias might come from factors such as inadvertently including a lot of sports students in your participant survey for a project investigating student fitness.

Activity 26: What are the findings?

- What are the main findings from your primary data?
- How do these compare with your aims?
- To what extent does the secondary data validate the primary data?
- What reservations would you acknowledge about your findings and conclusions?
- Identify three conclusions you can draw from your research.
- What recommendations would you make for further research?

Functional skills

Mathematics: This activity could enable you to calculate the impact of the errors and bias on your data and draw conclusions about its reliability.

Ethical considerations

Because ethical considerations are so important in all social science research, and particularly when researching health and social care, your evaluation should include a thorough analysis of the steps taken to ensure that the research was conducted ethically. However, despite these measures, unforeseen issues may have arisen during the research, and discussion of how these were dealt with should also be included.

Relationship with current research

Your research report should include references to secondary sources throughout, as appropriate. Your ability to identify and discuss the extent to which your findings are supported by, or differ from, secondary evidence from your literature review should be particularly evident here, as well as in the introduction to the report, data interpretation and discussion.

Limitations of research

All research projects have limitations imposed upon them by external circumstances. Limitations may arise

Whitehouse, Mary, et al. BTEC Level 3 National Health and Social Care: Student Book 1, edited by Beryl Stretch, Pearson Education Limited, 2014. ProQuest Ebook Central,
http://ebookcentral.proquest.com/lib/carmel-ebooks/detail.action?docID=4191375.

from practical difficulties, although you should have considered these at the planning stage. Limitations can arise, for instance, because of more restricted access to sources or more participants than anticipated. A small sample size or low return rate in a survey is a common limitation. Any factor that affects the validity of the research findings limits their value and this could be discussed here.

Strengths and weaknesses

Assessing the overall strengths and weaknesses of your research will mean reviewing all aspects of the project, including the planning stage. Firstly, identify the factors that contributed to the success of the project. You should discuss practical aspects, considering factors such as time, the sequencing of actions, communication limitations, as well as advantages and limitations that you have highlighted in earlier parts of the evaluation. Your assessment could be supported by evidence of similar experiences encountered by other researchers.

Areas for improvement

This aspect of the evaluation will be closely related to the previous section. Clearly any weaknesses, limitations arising from ethical considerations, methodological errors and bias should enable you to identify aspects of the project that you would do differently if you were to carry out a similar study again.

Implications for the sector

It may be appropriate to link your comments back to the research aims and the findings from the project when discussing the relevance of the project to health and social care for practice, individuals, service provision and topics that you have explored in other units. You could also discuss the extent to which the findings enable generalisations to be made about the limitations of the study. For example, your study is likely to involve your student peers and, depending on the nature of your project, it might not be realistic to suggest that the findings could also apply to older people, although they may apply to other young adults. By this stage of the evaluation you should have discussed the overall validity of your research data, as this is a significant influence on the conclusions that can be drawn from your findings. Your comments should be analytical and evaluative and could make an appropriate ending to your evaluation.

Conclusions

Conclusions identify concisely the main findings from your project and should be linked very clearly to the arguments and judgements made in the evaluation. They should only be statements, should not include any discussion and certainly not introduce new ideas. The conclusions should primarily be about the research subject but it may be appropriate to have one or two conclusions that relate to the methodology.

Recommendations

Recommendations relate to how the research findings could be used in the future. They may include suggestions of what further research is required, for example, to provide more robust evidence in order to fulfil the original aim of the project. There may also be general recommendations in relation to health and social care practice.

Reporting research findings

Reporting the findings of research is an important part of the research process because it enables your findings to be scrutinised by others. Research is reported using a formal report structure, which usually includes the following items.

- A title page with the project title, author name and the date of the report.
- A contents page (number the pages of the report).
- Abstract (usually only about 300 words) providing a summary of the key findings being reported.
- Introduction, including the literature review, updated.
- Methodology presenting a detailed description, with reference to sources that have influenced the methodology and preferably supported by a justification of why the methods were appropriate. (For assessment in this unit, the methodology and Introduction sections may be submitted in advance of the rest of the report.)
- Results described in the text and supported by tables, graphs and charts.
- Discussion – a substantial section presenting the analysis and the evaluation.
- Conclusions, which should be an obvious outcome from the discussion; no interpretation or new ideas should be introduced in this section. Conclusions should be succinct and to the point and may relate to the results and methodology,

- Recommendations – 3–5 recommendations that could be related to health and social care practice.
- References, presented in alphabetical order by surname of first author, preferably using a recognised academic style.
- Acknowledgements – optional, but a place to make a brief statement to thank participants publicly (but anonymously) as well as others who may have supported you.
- Appendices – number will vary but one should be a blank version of any questionnaire distributed (not the completed ones). Transcripts and context statements might also be appended. All appendices included should be there only because they are referred to in the text of the report.

It is usual for the researcher to answer questions on their research, often face to face, following a brief oral presentation of the findings. This scrutiny will involve critical analysis and evaluation from other perspectives apart from your own and so provides another check on the validity of your results. However, research presented as a written report has greater validity.

Another reason for reporting your research publicly is that it enables other researchers to benefit from your results. From the information in your report, they may be able to repeat your research using your exact methodology, or take into account any weaknesses you have discussed so they can avoid the same problems in their research. This will have the effect of producing new, more reliable data from which future claims could be made with greater certainty. Also, the recommendations you make could help improve practice for individuals in health and social care. Thus your research report may become a secondary source for another research project.

Did you know?

Professional researchers aim to publish their research in professional or academic journals. Publication in peer-reviewed journals is highly regarded because the report is scrutinised by experts in the same field before it is published. If the quality of the research is not of a good standard then the report will not be published. Some researchers publish the results of their research in books so they may only be reviewed by experts who review the book after it is published.

Assessment activity 22.6

P6 M3 M4 D2

Write a report of the findings from your research.

Examine the strengths and weaknesses of the methodology of the project in addressing the research question or hypothesis.

Analyse your findings from the research in relation to answering the research question or proving/disproving the hypothesis.

Finally, evaluate how you could have improved the project.

Grading tips

P6 Present all the evidence for this assessment activity using a formal report format, as advised by your tutor, and including a reference list and appendices.

Remember that findings are based on an evaluation and that there are several aspects to consider when evaluating a research project.

M3 When examining the methodology, consider the type of research, the primary research techniques and secondary sources used and how well they enabled you to meet the project aim or test your hypothesis.

Consideration of errors and bias, ethical considerations and limitations on the research should also be included.

M4 The focus here is an analysis of whether the findings enabled you to prove or disprove your hypothesis or answer your research question.

Remember to take into account the aim of the research and its relevance to health and social care when discussing your findings, drawing conclusions and making recommendations.

D2 Your evaluation should be a thorough examination of all aspects of the project, with particular attention to errors, bias and weaknesses throughout.

Improvements should be clearly linked to the judgements made in your evaluation.

PLTS

Effective participator: Collating, interpreting and evaluating your research data and organising it effectively to present it in the research report will allow you to demonstrate your effective participation skills.

Functional skills

English: You will be preparing a formal report in which you will present information relating to your findings concisely, using formal English to express complex ideas.

Mathematics: The report will require tables, graphs and charts to present the results from your research.

ICT: You will develop a complex document using your ICT skills to produce the report, containing text and imported objects from a range of different files and applications.

Resources and further reading

Bell, J. (2005) *Doing Your Research Project — A guide for first time researchers in health, social care and early years* Maidenhead: Open University Press

Bowling, A. (2002) *Research Methods in Health: Investigating Health and Health Services* Maidenhead: Open University Press

Denscombe, M. (2006) *The Good Research Guide: For Small-scale Social Research Projects* Maidenhead: Open University

Lawrence, J. (2009) "*Thalidomiders": still fighting for justice', The Independent Online*, Tuesday 26th May 2009

Michie, V. Baker, L. Boys, D. & McLeavy, J. (2008) *BTEC National Health and Social Care Book 2* Cheltenham: Nelson Thornes

Pears, R. Shields, G. (2008) *Cite them right: the essential referencing guide*, seventh edition, Durham: Pear Tree Books

Sennika, D. (2009) *'Incidence trends for childhood type 1 diabetes in Europe during 1989–2003 and predicted new cases 2005–20'. The Lancet*, Early Online Publications

Silverman, D. (2006) *Interpreting Qualitative Data*, third edition, London: Sage Publications

Smith, K, Todd, M. & Waldman, J. (2009) *Doing your undergraduate social science dissertation* Abingdon: Routledge

Stretch, B. & Whitehouse, M. (2007) *BTEC National Health and Social Care Book 1* Oxford: Heinemann

Walsh, M. (2001) *Research Made Real: A Guide for Students* Cheltenham: Nelson Thornes

Useful websites

Association of Medical Research Charities (AMRC) www.amrc.org.uk

BBC News http://news.bbc.co.uk/

Cancer Research UK http://info.cancerresearchuk.org

Channel 4 www.channel4.com

Daily Telegraph www.telegraph.co.uk

Department of Children, Schools and Families www.dcsf.gov.uk

Department of Health www.dh.gov.uk

The Guardian www.guardian.co.uk

Independent www.independent.co.uk

The King's Fund www.kingsfund.org.uk

Medical Research Council www.mrc.ac.uk

National Research Ethics Service www.nres.npsa.nhs.uk

NHS Direct www.nhsdirect.nhs.uk

Statistics Agency www.statistics.gov.uk

The Times www.timesonline.co.uk

UK government and public services www.direct.gov.uk

Just checking

1 What is research?
2 Identify five different purposes of research and give a specific example for each.
3 Why is ethical committee approval required to carry out a health and social care research project?
4 Distinguish between:
  - **a)** validity and reliability
  - **b)** results and findings
  - **c)** continuous and discrete data
  - **d)** analysis and evaluation.
5 What is:
  - **a)** a hypothesis?
  - **b)** a variable?
  - **c)** triangulation?
  - **d)** bias?
6 How does legislation affect research?
7 Explain when it is appropriate to use:
  - **a)** a pie chart
  - **b)** a histogram
  - **c)** a line graph.

Assignment tips

1 Make use of knowledge and understanding developed in Unit 6 because there are several links between these two units, e.g. planning, being organised and study skills.

2 At the start of this unit, create a Word document called 'References' on your data stick and every time you use a new secondary source type/copy and paste all the details needed for a reference list, including the access date if it is an online resource. Back it up regularly.

3 Get a spiral-bound A4 notebook (about 50 pages) to keep all your records for your research in one place. Date every entry and make notes on class discussions, observations, interviews, and more detailed ones from each of your secondary sources. Scan, copy or type up notes from it weekly as a back-up.

4 Do not be tempted to make your project too large. Have a well-defined aim and keep to it.

5 Test your questionnaire when you think you have a reasonable draft by distributing it to 5–10 members of your chosen sample population. Get them to complete it independently. Examine their responses and see whether all the questions have been answered as you intended. If there are gaps, errors or unexpected answers, review the questions, response frames and order of the questions, and make improvements before distributing the final version to the full participant sample.