Rewarding Learning

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Health and Social Care

Unit A2 1: Applied Research

Content Page

Introduction

The work that goes on in the health, social care and early years' sectors is informed by research that sets out to improve knowledge and understanding of people, society and best practice. Research is the process of investigating, in an organised and systematic way, in order to gather data that improves information and knowledge about any topic.

Important concepts in research

Primary and secondary sources and data

The sources used and the data or information obtained are described as either **primary or secondary. Primary data is information which has been generated by the researcher as a result of research which he or she has personally undertaken (either alone or with the cooperation of a team of researchers).** For example if a student researcher chose to design a questionnaire to investigate the knowledge of young people in his or her own town about skin cancer and how to prevent it, then the findings of this research would be described as primary data as it is obtained from a primary or first-hand source. **The data which a student researcher finds in other sources like books, journals and websites is secondary as someone else has compiled it and made it available for the researcher to access and read.** For example before a student researcher would carry out his or her own primary research to establish the knowledge young people have about skin cancer, he or she would need to read about it to have a clear understanding of any relevant issues – the information he or she would access to do this would be secondary data as it is obtained from secondary sources. Some relevant secondary sources in this example might be DHSSPSNI statistics on the incidence of skin cancer in Northern Ireland, information from a medical journal on different types of skin cancer and health promotion materials from the Public Health Agency on preventative measures.

Quantitative and qualitative research and data

No matter whether data is obtained from primary or secondary sources, it can be described as either **quantitative or qualitative. Information or research data which is numerical and can be displayed using graphs, charts and tables and that can be analysed using statistical methods is referred to as quantitative data.** The number of people with disabilities in an area, the number of people attending day centres in a particular Trust or the percentage of people answering 'yes' to a particular question are examples of quantitative data. In the example above of research on young people's knowledge of skin cancer and how to prevent it, the DHSSPSNI statistics on the number of people diagnosed with skin cancer is quantitative data. **Data which describes people's attitudes, opinions and values such as comments people have made about a topic, or accounts of their feelings about it, is known as qualitative data.** Qualitative data is expressed in words, not numbers, and cannot be analysed and reported using statistical methods. Mothers' descriptions of the experience of breastfeeding or the feelings expressed by older people about moving to live in a care home are examples of qualitative data. In the example above about research on young people's knowledge of skin cancer, the description of the different types of skin cancer from the medical journal is qualitative.

Activity

Identify the type of data (quantitative or qualitative) that is likely to be collected in the examples below.

Research Topic	Type of Data
Numbers of people in Northern Ireland who attend their GP more than 5 times each year	
How people feel about their care in the local hospital	
Older people's experiences of going to a day centre	
The percentage of primary school children who are entitled to free school meals	
Experiences of discrimination by individuals from a minority group and how they felt about what happened	
Trends in the diagnosis of bowel cancer of people in Northern Ireland over the last 10 years	

On the face of it, these are quite easy to categorise as either quantitative or qualitative, but this may not be as obvious as you initially think. For example, you may well have decided that the topic of 'how people feel about their care in the local hospital' will generate qualitative data as patients describe their care and how they felt about it in words, but if a rating scale was used with patients giving the quality of their care a mark between 1 and 5, then this would be quantitative.

Reliability and validity in research

If research is **reliable**, it means the same results would be achieved if the research was to be repeated. If research is **valid** it means it really measures what it says it does, giving a true picture.

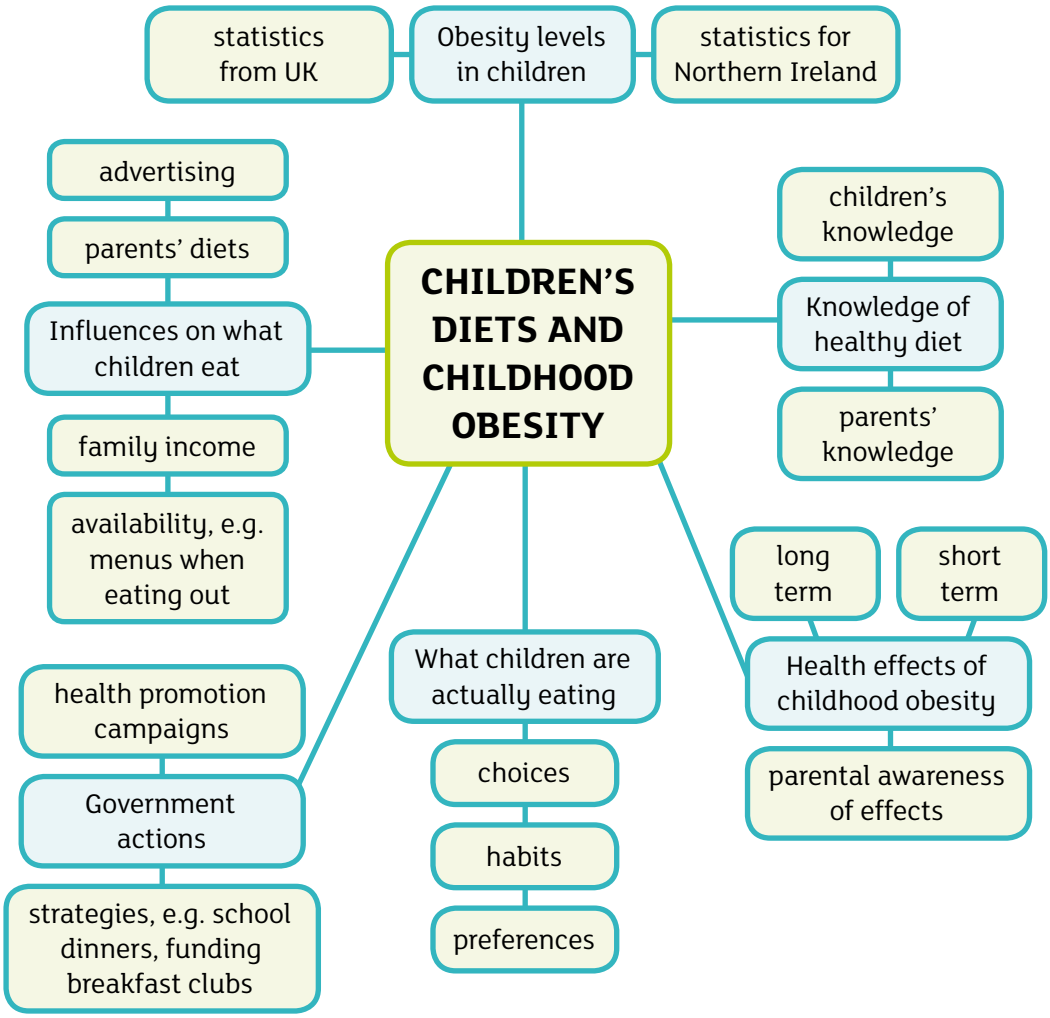
Selecting a research topic

In any student research project, the starting point is to select an appropriate topic for the research. The topic can be anything relevant to health, social care or early years, as long as it is **ethical**, **achievable** within the timescale and with the resources available to a student researcher, and **allows for both primary and secondary sources** to be used.

There may be a number of reasons for selecting a particular topic for student research, but the most important of all is a genuine interest in the research topic and a thirst to learn more about it. For a student, the topic chosen is often based on, for example:

- personal experience, e.g. a health condition or an experience of using health, social care or early years services that the student or a family member has
- something that has been highlighted in the media, e.g. by watching a documentary or by reading a newspaper article on a topic relevant to health a social care or early years
- career interests, e.g. a student who wants to be a social worker may have an interest in doing some research on how or even whether services in the community meet the needs of a particular group of service users
- When referred to in the 'introduction' section of a research report, the reasons for selecting the topic are referred to as the 'rationale'.

Before making a definite decision on a research topic, it is a good idea for researchers to explore some recent and up-to-date secondary sources to get a feel for the availability of information on the topic and the relevant and current issues in the media or published research. One way of noting all the ideas for research on a topic is to create a spider diagram like the example below. In this example, the student researcher is broadly interested in doing research on children's diets and childhood obesity. The spider diagram shows all the aspects of the topic the student thought of at the outset.



Activity

(a) Look at the spider diagram and decide whether primary or secondary sources would be appropriate to find out about each aspect. In some cases you might think both would be useful.
(b) Work in small groups to create a spider diagram like this for the topic selected by each member of the group.

In research, it is very important to be realistic about how many aspects of a topic can be considered in a single piece of research. For student research, probably 3 to 5 objectives is appropriate, and these must allow for both secondary and primary sources to be used.

In the above example, the student chose to focus on statistical trends on childhood obesity, the influence of family income, potential effects of childhood obesity and parents' awareness of the issue and their actions to prevent obesity in their own children.

Therefore the research objectives were to

- Gather statistics on childhood obesity in Northern Ireland in the last 20 years
- Investigate the links between childhood obesity and family income
- Describe the health effects of childhood obesity
- Survey parents about their awareness of childhood obesity.

Having decided on the research objectives, researchers need to decide what they expect to find, based on the reading around the subject they have already done and their own experiences. These expectations are then used to form a **research hypothesis**, or **statement of what the researcher expects to find**.

In the example above, the student researcher's hypothesis was:

"Childhood obesity, which increases the risk of illness and disease in both childhood and adulthood, has increased in Northern Ireland over the last 20 years, particularly in children from lower income families whose parents lack awareness of the problem."

Activity

(a) Use the table below to note your own research objectives and your expectations of what you will find, based on what you have read and your own experiences.

Objectives	Expected Findings

(b) Turn the expectations you noted in the right hand column into a statement- this is your hypothesis.

Literature review

A literature review is a summary of the existing research and information on the topic from secondary sources, with a clear focus on addressing the research objectives.

The sources selected will vary according to the research objectives, but examples of relevant sources of information are:

- Books on the subject
- Academic and professional journals or specialist magazines, for example Community Care
- Government reports
- Research and reports by voluntary organisations
- Information from media such as television documentaries and newspapers

For most of these a good starting point is an online search, including e-libraries, though many students find it valuable to visit a library, where the librarian can help to highlight relevant resources. Some useful sites for government statistics, reports and other information relevant to health, social care and early years include:

- National Health Service (NHS)
- Northern Ireland Executive Publications
- Office for National Statistics (ONS – Health and social care statistics)
- The Department of Health (DOH)
- The Northern Ireland Statistics and Research Agency (NISRA)
- The Public Health Agency (PHA)

A useful directory for voluntary organisations in Northern Ireland is the **Northern Ireland Council for Voluntary Action (NICVA)**.

The BBC website has a section dedicated to **health topics**, which includes written, visual and audio materials. The Guardian has a web page dedicated to **health topics** and one dedicated to **social care**. Many local newspapers, such as the **Belfast Telegraph**, also regularly publish articles relevant to health, social care and early years topics.

When gathering information for a literature review, researchers should be mindful of the validity of the material they select, for example:

- Is it from an expert source?
- Is it up to date?
- Is there any reason to suspect there might be bias in the information provided?

All the information needed for a literature review should be researched before starting to write the review. Sources should be carefully and accurately recorded as **Harvard referencing** is required. It is important to read the information carefully and only select material relevant to the research objectives and hypothesis. It is also very important for students to make notes from their secondary sources using their own words- some carefully selected and accurately referenced quotes will enhance a literature review, but it should be a summary of secondary sources written in the student's own words and not plagiarised.

Once a student researcher has gathered all the information needed from secondary sources to address the research objectives, he or she should spend some time organising the material and planning the literature review. The material should be organised into themes and a good way to do this is to refer back to the objectives listed. In the example discussed above of a research project on childhood obesity, the key themes/subheadings for the student's literature review could be:

- Trends in childhood obesity in Northern Ireland;
- Childhood obesity and family income;
- The health effects of childhood obesity; and
- Parents' awareness of childhood obesity.

When organising the information, it is not unusual to use one source in different sections of the literature review. In this example, a single government report on childhood obesity might provide statistics for the first section of the literature review as well as evidence on the health effects that could be used in the third section.

When writing up the literature review under subheadings, all material must be accurately referenced using short references, whether or not quotations are used. All quotations and statistics must, of course, be specifically referenced. The full references should be included in alphabetical order at the end of the overall research report (not after the literature review). The Harvard referencing system is required.

Activity

(a) Find a minimum of four valid secondary sources that provide information relevant to the research objectives you decided on. Draw up a list of references using the Harvard system.
(b) Make notes and organise the material in preparation for writing your literature review.

Primary research

Primary research methods, designing research tools, using tests of validity and reliability, ethics in primary research and sampling techniques are discussed in CCEA's Fact File on *Primary Research*.

Analyse research results

Having completed the primary research, researchers need to **collate** the results so they can **present and analyse them**. There are computer packages like SPSS that social scientists use for this process, but student researchers at this level are not expected to have access to specialist packages; it is fine for student researchers to collate results by hand by counting responses and using tally charts.

Where there are written descriptions as a result, for example, of including open questions in questionnaires student researchers should try to identify common responses and count how frequently they occur so they can also be tallied. Where preferred, student researchers can use an accessible database like Excel to collate results. Whilst collating and tallying results, researchers take note of any particularly interesting data, such as quotations from participants, that they would like to include in their written analysis. They also make evaluative notes on the primary research, for example noting questions that were not fully understood by participants.

Once results have been collated, researchers need to identify the most appropriate ways to present the data, for example using tables and graphs.

These can also be produced using a package like Excel; instructions are available at **excel-easy.com**. Tables and graphs, produced as a result of the tallying process, should always be numbered, titled and clearly labelled and they should be presented in a logical order so that they can be referred to in that order in the written analysis of the results.

Student researchers need to produce a written analysis of their findings which covers all the data they obtained from the research, including any they have not presented as

graphs or tables. When writing about the results, researchers should refer (by number) to the relevant graph or table, e.g. “As shown in Graph 4 which relates to question 6, 32 of the 50 respondents stated that…”.

Researchers should start by giving details about the respondents who took part in the research, highlighting the number of respondents and, for example, their gender, age and class where relevant. To identify someone’s class, student researchers can apply the Register General’s Classification to the occupations of respondents, with Classes 1 to 3(a) being ‘middle class’ and 3(b) to 5 being ‘working class’.

When analysing results of a questionnaire or structured interview, researchers should take each question in turn and analyse the results. It is not enough to simply state what respondents ticked or what they said; researchers should try to dig down further into the data where possible. For example, suppose a researcher conducted a questionnaire about using primary health care services; if 20 out of 50, or 40%, of respondents stated they visited their GP ‘only once or not at all in the last year’, the researcher should try to see if there are any similarities in the respondents in this group, e.g. are they mostly male? If so, the researcher might suggest a reason for them not visiting the doctor. The researcher might suggest that males are less concerned about health issues than females for a number of reasons: it may be that women take more responsibility than males for the health of other family members, and so health is seen as a ‘female interest’; or perhaps media aimed at women focuses on women’s health and encourages them to have regular check-ups. The researcher could look at other variables too, e.g. if this group actually consists of a good mixture of males and females, age may be a relevant factor. If the data shows these infrequent visitors are mainly in the younger age groups in the research, the researcher could suggest that this is because they are healthier, or that they are more likely to buy drugs ‘over the counter’, and so don’t need to see a GP for a prescription. Perhaps younger people are more knowledgeable about health and therefore more willing to self-diagnose and self-medicate, or perhaps they are of working age and therefore less likely to have time to go to the doctor for a prescription. Please note the language used. Unless the researcher was to go back and do more research, he or she can only make suggestions to explain what is going on. He or she cannot use statements like “this proves”, “this is because” or “this means” but should use phrases/words like “perhaps”, “this suggests”, “it could be argued that” or “this may be attributed to…”.

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As researchers analyse the responses, they can refer, where appropriate, to secondary sources in the literature review. They could note any similarities or differences in their findings to those of other researchers. In the above example a researcher might make statements like “this is similar to the pattern of attendance at GP services found by…” or “this is in marked contrast to statistics published by…”. If there are differences, the researcher can suggest why he or she thinks they occurred like, for example, differences in the populations studied, e.g. rural rather than urban research participants. Student researchers can also look in the literature review for references to back up any suggestions they make, e.g. “This was also suggested by the research conducted by….” or “Smith et al (2016) concluded that…”.

The researcher should draw conclusions on each of his her or her original objectives as set out at the start of the research. These conclusions will be based on the key findings from both primary and secondary sources. The researcher should then state whether the balance of the evidence supports the hypothesis or leads to it being rejected. It may be appropriate to accept one section of the hypothesis, whilst rejecting another or stating that it is not proven by the research conducted.

Activity

(a) Collate the results from the primary research.
(b) Present your results in tables, graphs and/or charts.
(c) Reread your literature review and draw up a plan for the written analysis of the results and for the conclusions.

Evaluation and recommendations

In order to evaluate their research, researchers need to review the validity of their sources. This involves examining both primary and secondary sources.

With regard to **secondary sources**, the researcher could comment on whether or not he or she considered a broad enough range of sources. The researcher should also consider the validity of each source used in the literature review. For example, he or she could comment on the secondary sources in terms of their relevance to the research objectives, their relevance to Northern Ireland, the date of publication (were the sources up to date?), or perhaps whether the study described in a secondary source was on a large enough scale to be reliable. The researcher could consider who the author or publisher of each source was and whether there might be political or philosophical bias in their work. The researcher might make recommendations that other types of secondary source could be used if the research was repeated, for example more government statistics, more local sources, more recent research perhaps reported in journals rather than books.

In terms of **primary sources** the researcher might ask himself/herself questions like:

- How suitable was the **method** employed?
- What could the use of other methods have contributed to the research?
- Might other methods have led to different findings? (e.g. would a method like unstructured interviews have improved the validity of the findings? could triangulation (using more than one method) have enhanced the research?

In reviewing the quality of the primary research tool, a student researcher might mention that he or she used a range of secondary sources (books, journals, websites) to guide its construction and that most questions worked well. The researcher could make reference to the use of tests in the development of the research tool, for example the use of a pilot study aimed at improving validity, explaining any the changes made as a result of it. The researcher might comment on how useful the pilot study was, for example whether it was carried out on a suitable sample. The researcher could recommend the use of other tests of validity or reliability if the research were to be repeated.

The researcher should also comment on any other **sources of error or bias.** For example, he or she should comment on the suitability of the questions asked in a questionnaire or structured interview, or the behaviours counted in a quantitative observation. The researcher should point out any problem questions, for example those that were misunderstood or that failed to generate useful information. Other points the researcher might consider in his or her evaluation include:

- Were there any types of question where the results were difficult to collate or analyse?
- What changes would he or she make to the research tool?
- Were there other sources of error, e.g. did the researcher's presence influence the respondents in any way? If so, how would the researcher handle this differently in future?
- How suitable was the sample size and the sampling technique? Can the results be generalised to the research population?
- What could the researcher have done to achieve a more representative sample? Perhaps he or she would recommend a different type of sampling.
- Did the researcher's gender or background influence the responses made or the researcher's interpretation of them?

- Were there any omissions in the primary research, e.g. questions that should have been asked or behaviours that should have been recorded in order to improve validity.

The researcher can also evaluate the extent to which ethics were considered in the research. He or she might review:

- Whether he/she acted appropriately to ensure ethical principles were adhered to? For example, whether the research could have caused any distress to the participants.
- What improvements could have been made, e.g. to ensure the anonymity of respondents or to achieve informed consent?

As well as making suggestions about how the current research could be improved, the researcher should make some recommendations for future research on the topic.

- Are there any new angles that could be looked at in future?
- Did the findings throw up anything unexpected that might warrant closer investigation?
- Is there another target population that might provide a useful comparison?

Activity

(a) Based on the points made above:
  - review the validity of your own secondary sources
  - review the validity and reliability of your primary research.

(b) Make suggestions for improvement to your own research.

(c) Note down some ideas for future research on your topic.