Your Dissertation in Education

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2nd Edition

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How do I get started?

By the end of this chapter you will be able to answer the following:

- What is the problem?
- Why do I need to review literature?
- What are the main concepts?
- What about indicators?
- What are the main variables and values?
- How do I state the research problem?
- Why use a research aim and objectives?
- What should I do now?

What is the problem?

Writing a dissertation is not like writing a novel. You cannot just sit down and start writing whatever comes to mind; you need to do some preparation work first. By now you will have decided the subject area and done some background reading to get information and explore aspects of the subject. Now it is time to build on this and to focus more clearly on the direction of your intended study. To start with, it is best to define your research problem as clearly as possible in order to provide a focus for all your subsequent work. It sounds easier than it actually is, so do not worry if you agonise over it for a few days and alter your ideas several times over. Only by grappling with the issues can you forge some clarity in your thinking.

The purpose of the dissertation task is to get you to do some individual research. To do research you need to identify a problem or an issue that you will

focus on in your investigations. After selecting your subject area and deciding on the issues that are of the greatest interest to you, the next step is to define the research more closely so that it can be expressed as a specific research problem. You will get to the point, when you are clear and decided, that you can explain the nature of your research problem in one or two sentences.

It can be quite difficult to decide on and to define your research problem. So what should you look for in your subject in order to generate a focus for your dissertation? It is not as if problems were hard to find: in fact, we are surrounded by problems. Take for example social problems such as poverty, crime, unsuitable housing and uncomfortable workplaces, and their impact on education. Alternatively take organisational problems that impact on education such as the inception of new policies and methods for teaching. In many subjects there may be a lack of knowledge that prevents improvements being made, for example, the influence of parents on a child's progress at school, or attitudes in the relationship to policy implementation between the government and teachers.

It is important to note that real-life problems are not the only subjects to choose. Many issues are worthy of investigation but present no threat to anyone. How about investigating the little-known works of a key educationalist, a historical study of an aspect like playground games, or the use of language in particular contexts? The possibilities are endless. The difficulty lies more in devising a specific research problem that will be suitable in scale and character as the subject of a dissertation.

So, what are the necessary features of a dissertation research problem?

- It should be of great interest to you. You will have to spend many weeks or even months investigating the problem. A real interest in the subject is a great incentive to keep you going. If you have some choice in the subject you choose, then do yourself a favour and investigate something you wanted to find out about anyway.
- The problem should be significant. It is a waste of time and effort investigating a trivial problem or repeating work that someone has already done. Although you are not obliged to break new ground and extend the boundaries of knowledge, you will at least be expected to throw some new light on existing knowledge.
- It should be delineated. You do not have much time, even if it seems that you do at first. As you have to learn so many things in order to complete a good dissertation, you will take longer than you might think to do the necessary tasks. Hence the topic must be kept manageable, with restricted aims. Work out how much time you have got to complete the study, taking into account all the other commitments you have. How much detail do you need to go into? You can cover a wide field only superficially, and the more you restrict the field, the more detailed the study can be. Also consider the cost of necessary travel and other expenses.
- You should be able to obtain the information required. Obviously, you cannot carry out research if you cannot collect the relevant information needed to address your problem.

Can you get access to relevant documents or other sources, and/or can you obtain the co-operation of individuals or organisations essential to your project?

- You should be able to draw conclusions related to the problem. The point of asking a question is to find an answer. The problem should be one to which the research can offer some solution, or at least the elimination of some false 'solutions'.
- You should be able to state the problem clearly and concisely. A precise, well-thought-out and fully articulated sentence, understandable by anyone, should normally be able to explain clearly just what the problem is.

For this search you need to have an enquiring mind, an eye for inconsistencies and inadequacies in current ideas and practice, and also a measure of imagination. It often helps to pose a simple question, for example, '*Does playing classical music help develop creative writing?*', or '*Does exercise help improve behaviour?*', or '*What makes a successful young children's play area?*' At this stage, the nature of the question will give some indication of the type of research approach (or approaches) that could be appropriate. Will it be a historical study, a descriptive inquiry, an analysis of correlations or an experimental exercise, or a combination of more than one of these?

Note though that seemingly simple questions are riddled with ambiguities that must be cleared up by careful definition. For example, in the above questions, how can creativity within 'creative writing' be assessed, what sort of 'behaviour' is envisaged, and are all types of 'young children's play area' included? It is likely that the problem is too broad if you can state it in less than half a dozen words: refer back to the forest analogy of identifying an area.

A few additional questions posed against each word can help to delineate the problem: where, who, what, which, when, why? Break the problem down into short sentences, not worrying at this stage about the overall length of the problem statement. It is a useful trick to put each sentence on a separate slip of paper, so that they can be ordered in different sequences. When the best logical progression from sentence to sentence is achieved, the statement can be edited into a more elegant form.

Most research problems are difficult, or even impossible, to solve without breaking them down into smaller problems. The words used during the problem formulation period can give a clue to the presence of sub-problems. Does one aspect have to be researched before another aspect can be begun? For example, in one of the research questions asked above – '*Does exercise improve behaviour?*' – what exercise programme needs to be considered: one that is competitive or co-operative? Perhaps exercise which increases the heart rate above a certain level? What is meant by 'behaviour' and how is this measured? By defining the sub-problems, you will be able to delineate the scope of the work.

Why do I need to review literature?

Once you have defined a research problem, you will be able to make a much more focused review of the literature. You will be able to learn more about existing research on aspects of your research problem, and how it has been carried out. You will also be able to make more in-depth investigations into the factors that are important in your subject. Look for the following information in order to help you get started on your own research:

- Results of previous research, which can form a springboard for your own investigations
- Concepts, indicators and variables used (see below for details of these)
- Ideas on how to gather data
- Data presentation techniques
- Methods of data analysis
- Instrumentation which has been used
- Methods of argument and the drawing of conclusions
- Success of the various research designs of the studies already undertaken.

This exercise should not take too long, as you will be able to home in on the relevant research quite quickly using the key words from your research problem and question(s). Do reference everything relevant that you find, and make notes with comments about how the information relates to what you are intending to do (see Chapter 10 for specific instructions on note taking and referencing). This will be really useful stuff to put into your research proposal and the introduction and background section of your dissertation, to demonstrate that you have really investigated the present situation of research into your particular topic.

The words you use in your problem statement are loaded with meaning. You must have carefully chosen them from many other words to precisely indicate the main components of your investigation. Let us now look more closely at these words, or concepts, and how they are used.

What are the main concepts?

First, what is a concept? It is a general expression of a particular phenomenon, e.g. cat, human, anger, speed, alienation or socialism. Each one of these represents an idea, and the word is a label for this idea.

We use concepts all the time, as they are an essential part of understanding the world and communicating with other people. Many common concepts are shared by everyone in a society, though there are variations in meaning between different cultures and languages. For example, the concept 'respect'

will mean something different to a streetwise rapper than to a noble lord. There are other concepts that are only understood by certain people such as experts, professionals and specialists, for example dermatoglyphics, milfoil, parachronism and anticipatory socialisation. Sometimes common phenomena can be labelled in an exotic fashion, often in order to impress or confuse, for example, a 'domestic feline mammal' instead of a 'cat'. This is called jargon, and should be avoided.

Any kind of enquiry requires a set of concepts that communicate the elements being studied. It is important to define concepts in such a way that everyone reading the work has got the same idea of what is meant. This is relatively easy in the natural sciences where precise definition is usually possible, for example acceleration, radio waves and elements. In education this may be much more difficult. Human concepts such as behaviour, learning, play, enthusiasm and so on are difficult to pin down accurately, as their meanings are often based on opinions, emotions, values and traditions. Hence the importance of carefully formulated definitions when using concepts that are not precise in normal usage.

You will be able to find definitions of the concepts that you are planning to use in your investigations from your background reading. Although definitions for non-scientific and non-technical concepts can vary in different contexts, you may have to decide on which meaning you want to give to those concepts. Rarely, you might even have to devise your own definition for a particular word.

What about indicators?

As you can see, many concepts are rather abstract in nature, and difficult or even impossible to evaluate or measure. Take 'frustration' as an example, considering the link between learning something and the resultant success or failure. How will you detect this in a child? The answer is to look for indicators – those perceivable phenomena that give an indication that the concept is present. What might these be? Think of the signs that might indicate frustration: agitated demeanour, spluttering, shouting, wide-open eyes, stamping, reddened face, increased heartbeat, increased adrenaline production, and many others. Again, you can see what indicators are used in previous studies – much easier and more reliable than trying to work them out for yourself.

What are the main variables and values?

If you want to gauge the extent or degree of an indicator, you will need to find a measurable component. In the case of frustration as above, it would be very difficult to measure the redness of a face or the degree of stamping, but you

could easily measure a person's heartbeat; yet how would this be conducted within a class setting? You could even ask the subject how frustrated he or she feels. The values used are the units of measurement. In the case of heartbeat, it would be beats per minute; level of anger felt could be declared on a scale from 1 to 10. Obviously the precision possible will be different depending on the nature of the variable and the type of values that can possibly be used.

To summarise then, there is a hierarchy of expressions – from the general to the particular, from abstract to concrete that make it possible to investigate research problems. The briefest statement of the research problem will be the most general and abstract, whilst the detailed analysis of components of the research will be particular and concrete. The terms introduced are linked as follows:

- Concepts: the building blocks of the research problem, which are usually abstract and cannot be directly measured
- Indicators: the phenomena which point to the existence of the concepts
- Variables: the components of the indicators which can be measured
- Values: the actual units or methods of measurement of the variables.

Note that each concept may have several indicators, each indicator several variables, and each variable several values. To clarify these terms consider the following, which gives only one example of each term:

- Concept: learning
- Indicator: achievement
- Variable: success or failure on a task
- Values: instances of success over time.

Try to think of more indicators, variables and values related to the concept of learning.

Being aware of these levels of expression will help you to break down your investigations into manageable tasks. This will enable you to come to overall conclusions about the abstract concepts in your research problem based on evidence rooted in detailed data at a more concrete level.

How do I state the research problem?

Central to your dissertation are your research aims and objectives; however, these can really only be posited after you have stated what your research problem is. There are a variety of ways of how to state your research problem and these will depend on how you will go about your investigation. Over the following pages are some of the most common ways of presenting the research problem, with examples to show how they work. These are:

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- Research questions
- Hypothesis
- Proposition
- Statement of intent.

Research questions

The method of investigating the problem may be expressed through asking a question or a series of questions, the answers to which require scrutiny of the problem from one or more directions. This is a very direct and open-ended way of formulating your investigations. Your aim is to provide some answers to the questions. It is your judgement, and that of the examiner's, whether your answers are sufficient and based on enough evidence. Here is an example of this form of presentation:

- The subject of this dissertation is 'Learning styles in mathematics'.
- The main research question is 'How are different learning styles incorporated in mathematics lessons?'
- Three interrelated research sub-questions are raised:

  - 'What are the predominant learning styles displayed by children in mathematics?'
  - 'How do teachers account for the variety of learning styles when teaching mathematics?'
  - 'How do different published mathematics schemes account for the variety of learning styles?'

Obviously, the question or questions should be derived directly from the research problem, give a clear indication of the subject to be investigated, and imply the methods that will be used. As above, the form of the questions can be a main question, divided into sub-questions that explore aspects of the main question. The main question is very general: you could probably devise other sub-questions to explore different aspects of this question. However, by being so specific in your choice, you can limit your research to only those issues that you think are important, or that you have interest in pursuing.

Hypothesis

The use of hypotheses is the foundation of the hypothetico-deductive approach to research, so it is important to know what makes good hypotheses and how they can be formulated. When used in a rigorous scientific fashion, there are quite strict rules to follow. Important qualities distinguish hypotheses from other forms of statement.

According to Kerlinger (1970), a hypothesis:

- Is an assertion (not a suggestion)
- Is limited in scope
- Is a statement about the relationships between certain variables
- Contains clear implications for testing the relationships
- Is compatible with current knowledge
- Is expressed as economically as possible using correct terminology.

The objective of the method is either to reject the hypothesis by finding evidence that contradicts it, or to support it (you will not be able to prove it) by presenting evidence that underlines it. It might also be possible to modify the hypothesis in the light of what you have found out.

Actually, hypotheses are nothing unusual – we make them all the time. They are hunches or reasonable guesses made in the form of statements about a cause or situation. If something happens in our everyday life, we tend to suggest a reason for its occurrence by making rational guesses. For example, if the car does not start in the morning, we might hypothesise that the petrol tank is empty or that the battery is flat. For each hypothesis, a particular action taken could support or reject it. If the petrol gauge indicates 'full', then the hypothesis of an empty petrol tank can be rejected, and so on. When a particular hypothesis is found to be supported, we have got a good chance that we can take the right action to remedy the situation. If, for example, we hypothesise that a wire to the starter motor has become loose, and then we find such a loose wire, fixing the wire back might result in the car starting again. If this was not the result, further hypotheses would be needed to suggest additional faults. Although these examples may seem banal, many of the greatest discoveries in science were based on hypotheses: Newton's theory of gravity, Einstein's general theory of relativity, and a host of others.

In order to formulate a useful researchable hypothesis, you need to have a good knowledge of the background to the subject and the nature of the problem or issue that you are addressing. A good hypothesis is a very useful aid to organising the research effort. It specifically limits the enquiry to the interaction of certain variables; it suggests the methods appropriate for collecting, analysing and interpreting the data; and the resultant confirmation or rejection of the hypothesis through empirical or experimental testing gives a clear indication of the extent of knowledge gained.

You need to formulate the general hypothesis on a conceptual level, in order to enable the results of the research to be generalised beyond the specific conditions of the particular study. This is equivalent to the general research question. Then, you normally need to break down the main hypothesis

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into two or more sub-hypotheses. These represent components or aspects of the main hypothesis and together should add up to its totality; they are equivalent to the sub-questions. It is one of the fundamental criteria of a hypothesis that it is testable. However, a hypothesis formulated on a conceptual level cannot be directly tested: it is too abstract. It is therefore necessary to convert it to an operational level. This is called operationalisation. The operationalisation of the sub-hypotheses follows four steps in the progression from the most abstract to the most concrete expressions by defining in turn the concepts, indicators, variables and values. Each sub-hypothesis will suggest a different method of testing and therefore implies different research methods that might be appropriate. The various research methods for collecting and analysing data are explained in some detail later in this book.

Although the term 'hypothesis' is used with many different meanings in everyday and even academic situations, it is advisable to use it in your research only in its strictest scientific sense. This will avoid your being criticised for sloppy, imprecise use of terminology. If your research problem does not lend itself to being formulated in a hypothesis, do not worry: there are plenty of alternatives, many of which involve a completely different research approach to that of the hypothetico-deductive method.

Proposition

Focusing a research study on a proposition, rather than on a hypothesis, allows the study to concentrate on particular relationships between events, without having to comply with the rigorous characteristics required of hypotheses. Consider this example:

- The title of the research is 'Outdoor play in the Early Years'.
- The main research problem is formulated in the form of three interrelated propositions:

  o 'Outdoor play for children in the Early Years has been increasingly recognised as a fundamental part of their education and development.'
  o 'Provision for outdoor play is seldom given priority, owing to a lack of resources.'
  o From these two propositions follows the third: 'There is a mismatch between the intentions of suitable provision for outdoor play owing to a lack of resources.'

Statement of intent to critically investigate and evaluate

Not all research needs to answer a question or to test a hypothesis. Especially in undergraduate dissertations or in smaller research studies, a more exploratory approach may be used.

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You can express the subject and scope of the exploration in a statement of intent. Again, this must be derived from the research problem, imply a method of approach, and indicate the outcome. Here are four examples of this form of research definition:

- The intention of this study is to identify contributing factors in developing user-friendly, distance-learning computer-based activities for post-compulsory students.
- This study examines the problems in offering effective after-school provision, assessing the needs of children and parents compared to the resourcing implications.
- In this study it is intended to consider the implications of individualised learning, through comparing and contrasting the teacher and pupil perspectives.

Why use a research aim and objectives?

When you have successfully formulated the various detailed research problems, questions, statements and so on, you will need to indicate what measures you will take to do the investigation. You can do this by defining the research aim and objectives, and indicating how the research objectives will be achieved. This is a first step to planning your project, and will enable you to check back to see if the objectives fall in line with your preferences for the type of research that you were interested in doing. It must be noted that guidance provided by some institutions may only require you to state your aim and objectives; some may only ask you to specify your research questions, or your hypothesis, or the proposition or statement of intent. From an academic perspective, the aim and objectives provide a structured framework that keeps the research focused and will be adopted to demonstrate how your dissertation can be developed from this foundation. The difference between the aim and objectives are:

- The aim of the study is the overarching purpose of the research.
- The objectives are precise statements of intent, indicating exactly how the aim will be addressed.

As an analogy, the aim and objectives could be viewed as an archway: the aim is the 'keystone' (the central stone which keeps the arch together); the objectives are the 'voussoirs' (the other wedge-shape stones on either side of the keystone) (see Figure 5.1). This may be demonstrated by the following example, which takes one of the previously cited areas on after-school provision.
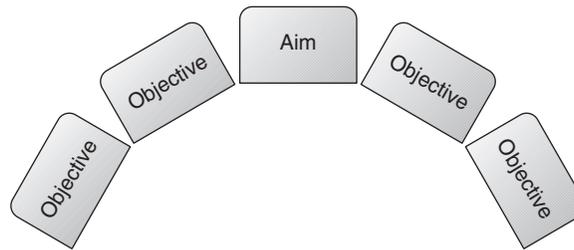
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FIGURE 5.1 The aim and objectives 'archway'

- Aim: An investigation into after-school provision at a large rural primary school.

- Objectives
    - To systematically explore the issue of after-school provision through conducting an extensive, critical review of the literature.
    - To critically analyse the needs of parents through a paper-based questionnaire.
    - To investigate the perspectives of children in relation to after-school provision, through conducting a focus group with Year 5 and 6 children.
    - To examine the resource implications of after-school provision through conducting semi-structured interviewing with the senior management team.
    - To synthesise differing perspectives from staff, children and parents on after-school provision in an attempt to propose feasible solutions.

Notice how there is an argument behind the build-up of the research problem and the definition of objectives. Briefly, it goes like this:

- According to the background research there is a problem, an issue, a lack of information, or an unanswered question about such-and-such. This provides the necessary motive for defining the aim.
- The first objective expands on the aim, stating that a literature review will be conducted to explore the theoretical and research literature background to the topic.
- Subsequent objectives specify the data to be collected, detailing *what* you intend to find out, *how* you intend to collect the data (your method), and from *whom* or *where* (your sample, for example, Year 7 pupils).

Each objective has three clear parts to it: the first part indicates *what* needs to be completed to help answer the question; the second indicates *how* this is to be completed; and the third indicates from *whom* or *where* you will obtain the data.

There are a number of key verbs you can use to help structure your aim or objectives as highlighted by Oliver (2004: 105):

- To discuss (an idea)
- To examine (a proposal)
- To analyse (some data)
- To synthesise (several ideas or propositions)
- To explore (an issue)
- To reflect on (a theoretical model)
- To investigate (a range of concepts)
- To propose (a possible explanation)
- To systematise (some initial idea)
- To test (a hypothesis).

The important things to keep in mind are that the objectives are clear and make logical sense, and that the aim and objectives are central to your dissertation, providing the framework on which to base your work. If you can spend some quality time on refining these, perhaps bouncing them back and forwards with your supervisor in order to ensure they are just right, your dissertation will unfold gracefully. This is paramount to the structure of your dissertation as you are really setting your own criteria for what you will be assessed against. By this, if you stated that you would investigate a specific issue yet end up exploring something on the periphery of this, your work will appear unfocused. Furthermore, in order to thread it together into a coherent discussion of an issue, if your objectives do not develop in such a way, neither will your dissertation! Consequently these are crucial to the spine of your dissertation, as previously illustrated in Figure 1.4.

Once you have got this far, you will have a good idea of what you are planning to undertake, with your aim and objectives setting a sequential series of tasks to complete.

What should I do now?

Now is the time to make some decisions about how you will formulate your research problem(s) so that you can make the first steps in embarking on planning your dissertation. If you take the following steps, you will form a good foundation for all the work ahead:

- Once you have decided on the particular research problem you will focus on, test it against the list of necessary features given in Chapter 4. If it conforms to all of these you can be assured that you have got a good one.
- Consult the notes you have made during your background reading, or delve back into the books that are relevant to your research focus. Now search for what has already been done in this field, how it was carried out, and what the main components were of

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the work. Look at what terminology has been used, what factors have been studied, and what methods have been used. This will help you enormously in deciding on what you could do, and in expressing your intentions in the appropriate language.

- In order to do this you should decide how you will state your research problem. Will you pose a question, formulate a hypothesis, suggest a proposition, or make a statement of intent? Perhaps try out more than one way to see which works the best. Formulate it as succinctly as possible.

Now you should be in the situation where you will be able to put down in writing just how you will tackle the research problem. Break it down into 'doable' components, and clarify just what your objectives will be. Check that you will actually be able to reach the objectives; be practical, as it is you that has to do it! Check also, when you have written it down, that the argument you make is sound (read more about argument in Chapter 11).

References to more information

By following the information in this book and using the appropriate exercises, you should be able to start working on your dissertation from the outset. The books mentioned in the previous chapters would also help you to develop a starting point. More specific guidance on the writing process can be obtained from the following books.

Buzan, T. (2010) *The Mind Map Book: Unlock your Creativity, Boost your Memory, Change your World*. Harlow: BBC Active.

Goldman, L. (2012) *The No Rules Handbook for Writers (Know the Rules So You Can Break Them)*. London: Oberon Books.

Kunego, C. (2015) *Meditation and the Art of Writing: Learn to Control your Brain-waves, Unlock your Creative Muse, and Conquer Writer's Block Forever!* Manlius: What the …?!? Publishing.