

# DEVELOPING A RESEARCH PROJECT: A SET OF EXERCISES FOR BEGINNERS

Application is the essence of knowledge. However, there always remains a gap between theoretical knowledge and its application. It is only with practice that this gap can be narrowed. A beginner attempting to apply theoretical knowledge needs direction and guidance. This set of exercises, each one of which is attached to an operational step, has been developed with this belief in mind. Working through them will help you to develop a research project.

The main aim of these exercises is to provide you with a broad framework that is central to the operationalisation of each step of the research process. In most cases, a separate exercise is provided for quantitative and qualitative studies, so it is important that you know before you start which approach you are going to take. Within each exercise, there are brief reminders of some of the key issues relating to the process and a series of questions to help you to think through procedures and provide a framework for the development of your study.

Answers to these questions and awareness of the issues that the exercises outline will put you in a position to complete the framework suggested for writing a research proposal (Chapter 13), and therefore these will also constitute the core of your research proposal.

It is important for a beginner to work through these exercises with considerable thought and care.

Congratulations!

Now you have learnt how to take the first step towards your research journey. By this time you should have a reasonably good understanding about how to formulate a research problem. You should be ready to put your knowledge and skills into practice by actually working through the process of formulating a research problem. This exercise is designed to help you to formulate a research problem of interest to you. Good luck!

## Exercise I: Formulation of a research problem

### Quantitative studies

Now that you have gone through all the chapters that constitute Step I of the research process, this exercise provides you with an opportunity to apply that knowledge to formulate a research problem that is of interest to you. As you know, selecting a research problem is one of the most important aspects of social research, so this exercise will help you in formulating your research problem by raising questions and issues that will guide you to examine critically various facets and implications of what you are proposing to study. The exercise is designed to provide a directional framework that guides you through the problem formulation path. Keep in mind that the questions and issues raised in this exercise are not prescriptive but indicative and directional, hence you need to be critical and innovative while working through them. Thinking

through a research problem with care can prevent a tremendous waste of human and financial resources.



#### TEMPLATE OF EXERCISE I

**A research problem should be clearly stated and be specific in nature. The feasibility of the study in terms of the availability of technical expertise, finances and time, and in terms of its relevance, should be considered thoroughly at this stage. In studies that attempt to establish a causal relationship or an association, the accuracy of the measurement of independent (cause) and dependent (effect) variables is of crucial importance and, hence, should be given serious consideration. If you have already selected a problem, you need not go through this process.**

**Start by identifying a *broad subject* area of interest to you. For example, health, education, crime, immigration, public health, tourism, recreation, parenting, crime, social justice. This exercise is designed to help you to dissect and then select the subarea(s) of interest to you to become the basis of your study. Chapter 4 of this book will help you to work through this exercise.**

Step I: Select a broad area of study that interests you from within your academic discipline.

**Having selected an area, the next step is to ‘dissect’ it in order to identify its various aspects and subareas. For example, suppose your broad area of interest is migration. Some aspects or subareas of migration are:**

- **a socioeconomic-demographic profile of immigrants;**
- **reasons for immigration;**
- **problems of immigrants;**
- **services provided to immigrants;**
- **attitudes of immigrants towards migration;**
- **attitudes of host communities towards immigrants;**
- **the extent of acculturation and assimilation;**
- **racial discrimination in the host country.**

**Or perhaps you are interested in studying a public health programme. Dissect it as finely as possible in order to identify the aspects that could be studied. List them as they come to you. For example:**

- **a socioeconomic-demographic profile of the target group;**
- **the morbidity and mortality patterns in a community;**
- **the extent and nature of programme utilisation;**
- **the effects of a programme on a community;**

- the effectiveness of a particular health promotion strategy.

Or your interest may be in studying delinquents. Some aspects of delinquency are:

- delinquency as related to unemployment, broken homes or urbanisation;
- a profile of delinquents;
- reasons for delinquency;
- various therapeutic strategies.

Step II: 'Dissect' the broad area that you selected in Step I into subareas as discretely and finely as possible. Have a one-person (with yourself) brainstorming session.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

To investigate all these subareas is neither advisable nor feasible. Select only those subareas that would be possible for you to study within the constraints of time, finance and expertise at your disposal. One way to select your subarea is to start with a process of elimination: delete those areas you are not very interested in. Towards the end it may become difficult but you need to keep eliminating until you have selected a subarea(s) that can be managed within your constraints. Even one subarea can provide you with a valid and exhaustive study.

Step III: From the above subareas, select a subarea or subareas in which you would like to conduct your study.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

Step IV: Within each chosen subarea, what research questions do you hope to answer? (Be as specific as possible. You can select one or as many subareas as you want.)

Subarea	Specific research questions to be answered
1a	1 _____ 2 _____ 3 _____
1b	1 _____ 2 _____

- 1
  - (a) \_\_\_\_\_
  - (b) \_\_\_\_\_
  - (c) \_\_\_\_\_
  - (d) \_\_\_\_\_
  - (e) \_\_\_\_\_
- 2
  - (a) \_\_\_\_\_
  - (b) \_\_\_\_\_
  - (c) \_\_\_\_\_
  - (d) \_\_\_\_\_
  - (e) \_\_\_\_\_
- 3
  - (a) \_\_\_\_\_
  - (b) \_\_\_\_\_
  - (c) \_\_\_\_\_
  - (d) \_\_\_\_\_
  - (e) \_\_\_\_\_

**The research questions to be answered through the study become the basis of your objectives. Now you need to formulate your study objectives. In so doing, use action-oriented words. The main difference between research questions and objectives is the way they are written. Questions are worded in question form and objectives are statements referring to the achievement of a task.**

**Your main objective should indicate the overall focus of your study and the subobjectives, its specific aspects. Subobjectives should be listed numerically. They should be worded clearly and unambiguously. Make sure each objective contains only one aspect of the study.**

Step V: On the basis of your research questions, formulate the main objective and the subobjectives of your study.

Main objective (the main focus of your study):

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Subobjectives (specific aspects of your study):

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

Step VI: Carefully consider the following aspects of your study.

Task	What is involved	Time needed	Approx. cost	Technical expertise needed	Gaps in knowledge and skills
Literature review					
Instrument construction					
Data collection					
Data analysis					
Draft report					
Final report					

Now you have developed the objectives of your study. Take some time to think about them. Be clear about what tasks are involved, what time is realistically required and what skills you need to develop in order to conduct your study. Consider these areas carefully again.

Step VII: Double-check:

- **Are you really interested in the study?**  
Yes ☐ No ☐ Uncertain ☐
- **Do you agree with the objectives of the study?**  
Yes ☐ No ☐ Uncertain ☐
- **Are you certain you want to pursue the study?**  
Yes ☐ No ☐ Uncertain ☐
- **Do you have adequate resources?**  
Yes ☐ No ☐ Uncertain ☐
- **Do you have access to an appropriate study population?**  
Yes ☐ No ☐ Uncertain ☐

If your answer to any of these questions is either ‘no’ or ‘uncertain’, re-examine the selected aspects carefully and make the appropriate changes in your objectives.

What, in your opinion, is the relevance of this study to theory and practice? How will your study contribute to the existing body of knowledge, help the practitioners in your profession and assist in programme development and policy formulation?

Relevance to theory:

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Relevance to practice:

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Now that you have formulated your research problem, it is important to examine your objective, research questions and hypotheses to identify if you have used any concepts in their formulation. When you convert concepts into variables an understanding about variables plays a very important role. Concepts are highly subjective as their understanding varies from person to person and, as such, they may not be measurable. Any concept, perception or imagination that can be measured on any one of the four measurement scales (nominal, ordinal, interval or ratio) is called a variable. It is important for concepts used in a study to be operationalised in measurable terms so that the extent of variation in a study population’s understanding of them is reduced, if not eliminated.

At this stage, when you have formulated your objectives, it is important for you to think how you will operationalise any concepts used in the objectives, research questions or hypotheses formulated: what are their indicators and how will they be measured?

The following table suggests how you might operationalise the concept of ‘effectiveness’, in relation to a health education programme on AIDS. It lists the indicators of effectiveness (you can have other indicators), sets out the variables that measure the indicators and describes the unit of measurement for the variables.

Concept →	Indicator →	Variable(s) →	Unit of measurement
Effectiveness	<i>Awareness of AIDS</i>	Extent of change in:	Change in the proportion of the population, before and after the health education programme, with respect to:
	<i>Knowledge about AIDS</i>	Awareness Knowledge practice	Awareness of, and knowledge about, different aspects of AIDS
	Use of contraceptives (practice)		Use of contraceptives for safe sex

**This part of the exercise is designed to help you operationalise the major concepts used in your study. Refer to Chapter 5 for additional information on variables.**

Step VIII: Operationalise your concepts.

Objectives/research questions/hypotheses	Major concepts	Indicators	Variables	Unit of measurement

**It is essential to develop a working or operational definition of your study population. For example, who would you consider to be a patient, an immigrant, a youth, a psychologist, a teacher, a delinquent or a Christian? Working definitions play a crucial role in avoiding ambiguities in the selection of a sample and help you to narrow your study population.**

Step IX: Operationally define your study population.

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Skip this section if you are *not* constructing a hypothesis.

As discussed, some believe that one must have a hypothesis to undertake an investigation; however, in the author's opinion, hypotheses, although they bring clarity, specificity and focus to a research problem, are not essential for a study. You can conduct a valid investigation without constructing a single formal hypothesis. On the other hand, you can construct as many hypotheses as you think appropriate. In epidemiological studies, to narrow the field of investigation, one must construct a hypothesis as to the probable cause of the condition to be investigated.

A hypothesis is a hunch, assumption, suspicion, assertion or idea about a phenomenon, relationship or situation, which you intend to investigate in order to find out if you are right. If it proves to be right, your assumption was correct; hence, you prove that your hypothesis was true. Otherwise, you conclude your hypothesis to be false.

Disproving a hypothesis is as important as, or more important than, proving it. As a hypothesis is usually constructed on the basis of what is commonly believed to be right, your disproving it might lead to something new that has been ignored by previous researchers.

A hypothesis should be conceptually simple, clear and specific, and be capable of verification and being expressed operationally.

There is a specific way of writing a hypothesis, with which you need to be familiar (refer to Chapter 6).

Step X: Construct your hypothesis or hypotheses for each subobjective/research question.

Objectives/research questions	Hypotheses to be tested
	1
	2
	3
	1
	2
	3
	1
	2
	3

## Qualitative studies

As mentioned earlier, the difference in qualitative and quantitative research studies



starts with the way you think about and formulate your research problem. In qualitative studies, it is preferred that the research problem is broad, flexible and continuously formulated as the information is collected. In the process of data collection, if you find something interesting relating to your broad area of study, you add the aspect(s) and change the focus to accommodate the new vision.

This flexibility is an important strength of qualitative research but it is also important that you develop a conceptual framework of issues and questions for your study, as non-specificity about what you want to find out can often create problems for your respondents. Many do not feel comfortable or are not in a position to articulate the multiple aspects of an area without being prompted. For situations like this it is important that you are fully prepared with a framework in mind for your enquiry. No doubt you can develop this framework during data collection, while talking to your respondents, but this may create a problem in terms of completeness and comparability with the information obtained during the early phase of the study. You can minimise some of these problems by developing a conceptual framework in advance. It is also important that you communicate with respondents in specific terms without bias or influencing their thinking.

Remember, these are not the questions that you will ask of your respondents. These are just reminders for raising issues or questions if nothing much is forthcoming from a respondent.

In qualitative research the following would be considered as broad areas of interest:

- What does it mean to have a child with ADHD in the family?
- How resilient is this community?
- What is community responsiveness?
- Living with HIV/AIDS.
- How has a community coped after a major bush fire or tsunami?

Step I: Select a broad area of study that interests you or a question that you want to find answers to through the research study.

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Step II: Having selected your main research question or broad area of study, list all questions to which you want to find answers. Also list all issues that you want to discuss with your respondents. Your literature review, discussions with others and consultation with potential respondents will be of immense help at this stage.

Questions: \_\_\_\_\_

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Issues: \_\_\_\_\_

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