

# **Module 12 Action Research**

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## **Unit 12.3      Research Methodology**

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# Introduction

## About this unit

Welcome to the unit on the research methodology

We hope that you will find the study of this topic to be informative and interesting.

This unit introduces the concepts of data collection, sampling techniques, the research design and the data analysis. It lays the groundwork for its application in Chapter 3

## How to use this manual

The manual is designed to facilitate the development and application of research and writing skills. You should work through it at your own pace in the order presented.

This unit includes **activities**. These are designed to reinforce the information and to enable you to develop and practise the content.

**Answers** to the activities are provided at the back of this manual. Check your responses as soon as you complete an activity.

An **assessment task** is provided at the end of the unit. It is designed to assist you in the achievement of the learning outcomes for this unit.

## How you will be assessed

Assessment of this unit will take the form of: a **written assignment** that will cover the content outlined in this unit.

This should be completed with guidance from your tutor. In addition, this assignment will enable you to apply the skills discussed in this unit.

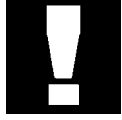
Please contact your tutor when you are ready to start the assessment.

## Finding your way

As you work through the text you'll see symbols in the left margin of some page. These 'icons' guide you through the content.



Read



Important- take note!



Activity



Assessment task



## Competency

The resources for the TVET curriculum are competency based. The competency for each unit is expressed as a number of learning outcomes and assessment criteria. The assessment criteria specify what you must be able to do to show you have gained the knowledge, skills and attitudes needed to achieve each learning outcome.

Each unit has specified assessment criteria. **Recognition of prior learning** is encouraged. If you feel confident you have the necessary level of competence to successfully complete the elements shown below, you may be able to take the assessment.

## Learning outcomes

When you have completed this unit you will be able to:

- State the techniques of data collection.
- Explain sampling techniques.
- Explain the process of questionnaire design.
- Distinguish between qualitative and quantitative analysis.
- Follow the procedure for the treatment and analysis of data.
- Apply requirements for Chapter 3 of the action research project.

## Assessment Criteria

- State three techniques of data collection.
- Explain three sampling techniques.
- Demonstrate the process of questionnaire design
- Demonstrate the procedure for the treatment and analysis of data.
- Develop the research methodology that is specific to Chapter 3 of the action research project.

## Other resources you may find useful

- Altrichter, Herbert, Posch, Peter and Somekh, Bridget. (1993). Teachers Investigate Their Work, Routledge.
- Cohen, L & Manion, L. (1985). Research Methods in Education. London: Croom Helm.
- McNiff, Jean (1992). Action Research: Principles and Practise. Routledge.
- Winter, R. (1996). Some Principles and Procedures for the Conduct of Action Research in O. Zuber-Skerritt (Ed.) New Direction in Action Research. London: Falmer Press.





# Section 1



## Research Methodology

### Data collection

Data collection involves gathering information from sources, such as people. The larger group we wish to learn about is called a ***population***; the smaller group we actually study is called a ***sample***.

*Example:*     *Adolescent boys in a school – **population***

*Adolescent boys in the class who study woodwork – **sample***

You must decide upon suitable methods for data collection. Your data will:

- enable you to answer your research questions
- provide insights into the problems or concerns
- suggest changes that should be made

*Sampling techniques* – the procedure for selecting data sources may be done ***randomly*** or ***systematically***. The random method involves selecting a sample from the population in an indefinite pattern. The systematic method is an ordered procedure e.g., every 'nth' person will be selected.

Data collection may be obtained through the following means:

- interviews
- discussion groups
- questionnaires
- portfolios
- journals and diary notes
- narratives
- checklists
- group work
- structured observations
- student reports
- case studies
- anecdotes

## The Letter of consent

For ethical reasons, a letter of consent for data collection must be presented to each person sampled. It is designed in the format of a form with the following headings:

- Title of study
- Agreement statement
- Purpose of the study
- The nature of the data
- Agreement to maintain confidentiality
- Agreement to make relevant information available e.g., results
- Signature of parent/guardian (for minors)
- Participant's signature and declaration of understanding the stated terms and conditions.



### Activity 1 Data Collection

Consider the following questions:

1. From whom will you collect data?
2. How do you plan to interact with them?
3. How do you plan to manage the data collection process?
4. What resources do you plan to use in this activity?
5. Draft a letter of consent.

***Discuss your responses with your tutor.***



## Research Design

The research design may be ***quantitative*** or ***qualitative***.

Quantitative methods take the form of:

- questionnaires
- interviews
- test scores
- report cards

In the quantitative mode, *statistical tests* e.g., measures of central tendency – mean, median, standard deviation etc, are applied to the data and inferences are made.

Qualitative methods are more commonly used in action research. They present the body of information in *a verbal format* to establish discoveries and interpretations, linkages or relate causes and effects.

Documentation procedures include:

- detailed descriptions of people and events
- journals
- memos
- minutes of meetings
- transcriptions
- portfolios
- films
- photographs
- tape recordings

## Data Analysis

The analysis and interpretation of data gives it meaning within the context of the action research.

Your research questions are at the forefront in this analysis. In addition, you should:

- Avoid bias by ensuring ***reliability*** or ***consistency***.
- ***Validity*** – what we want to measure. This is obtained when there are multiple perspectives.

- Have at least three data sources. This is referred to as **triangulation**. Data is compared and contrasted.
- Patterns, trends and associations are observed.
- The results are interpreted and conclusions are drawn.
- The findings are inferred.
- All inferences should be grounded in the data.



## Activity 2 Research Design

Consider the following questions:

1. My research questions are \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. Some research methodologies that I can use are \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. The methodology that I have chosen is \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. My reasons for choosing it is \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. Sources of data are \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

***Discuss your answers with your tutor.***



## Requirements for Chapter 3

With the research questions as the central point of focus:

**Step 1** Identify the population.

**Step 2** Decide which sampling technique will be implemented.

**Step 3** Select the research design.

**Step 4** Write the letter of consent.

**Step 5** Collect the data from the sampled population.

**Step 6** Analyse the data.

**Step 7** Explain the process from Step 1 to Step 6 in the fullest detail.



### Activity 3

#### Procedural steps of the research design.

For each of the procedural steps outlined above, write short statements to justify its function.

Procedural Steps	Justification
Reflect on the research questions	
Identify the population	
Decide on the sampling technique	
Select the research design	
Write the letter of consent	
Collect the data from the sampled group	
Analyse the data	
Explain the entire process	

Turn to page 13 for suggested answers to this activity.



## Summary

In this section we focused our attention on the research methodology.

***Population*** is the entire group of people.

***Sampling techniques*** are the procedures for selecting data sources – either randomly or systematically.

***Data collection*** is the method used to obtain information from those sampled.

***Quantitative Research Design*** – statistical tests are applied to the data and interpretations are made of the results.

***Qualitative Research Design*** – verbal presentation of information. Meanings and discoveries are established.

***Data Analysis*** - the interpretation of the results.

### Chapter 3 Requirements

- reflect on the research questions
- identify the population
- select the sampling technique
- select the research design
- write the letter of consent
- collect the data
- analyse the data
- explain the process followed – Step 1 to Step 6.



#### **Activity 4**

#### **Check your progress**

Develop the research methodology (Chapter 3) for your action research project. Follow the steps outlined above.

1. The research questions are \_\_\_\_\_

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2. The population is \_\_\_\_\_

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3. The sampling technique is \_\_\_\_\_

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4. The research design is \_\_\_\_\_

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5. The letter of consent contains the following items of information:

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6. Data collection procedures are \_\_\_\_\_

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7. Data analysis involves \_\_\_\_\_

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8. Incorporate the respective sub-headings into an essay format as a draft version of Chapter 3 of your action research project. A maximum of 400 words or two (2) word processed pages.



## Suggested solutions to activities

### Activity 1 Draft of a letter of consent –page 6

There are no suggested solutions to this activity. You should discuss your responses with your tutor or a colleague to get their opinion.

### Activity 2 Sources of data – page 8

There are no suggested solutions to this activity. You should discuss your responses with your tutor or a colleague to get their opinion.

### Activity 3 – page 9

Justify the procedural steps of the research design.

Justifications for the placement of each procedural step within the research design.

Procedural Steps	Justifications
Reflect on the research questions.	Identifies what data will be collected and the method of collection.
Identify the population.	The sources of information – data, what people are involved.
Decide on the sampling technique.	The method of data collection.
Select the research design.	Minimisation of bias, explore all possibilities.
Write the letter of consent.	For ethical reasons.
Collect the data from the sampled group.	The data gathering process – must be complete.
Analyse the data.	Look for significant patterns, trends, relationships and differences.
Explain the entire process.	The feedback process.

### Activity 4 Check your progress – page 11

Discuss your answers with your tutor.



## **Assignment No. 12.3-1**

You are now required to do the Assignment 12.3 – 1 that will be found at the end of this unit or distributed by your tutor.



## Assignment No. 12.3-1

**To be completed and returned to your tutor for assessment.**

**This is an open book assignment and you may refer to whatever references you have at your disposal.**

**Name:** \_\_\_\_\_ **Due Date:** \_\_\_\_\_

1. Write a letter of consent.
2. Write the research methodology - Chapter 3. Aim for a maximum of 400 words or two (2) word-processed pages – double-spaced.