

**NATIONAL OPEN UNIVERSITY OF NIGERIA**

**RESEARCH METHODOLOGY**

**DES 311**

**FACULTY OF SOCIAL SCIENCES**

**COURSE GUIDE**

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## **Table of Contents**

Table of Contents	i
Introduction	1
Course Content	1
Course Aim	2
Course Objectives	2
Working Through the Course	3
Course Material	4
Study Units	4
Textbook and References	5
Assignment File	7
Presentation Schedule	7
Assessments	7
Tutor-Marked Assignments (TMAs)	8
Final Examination and Grading	8
Course Marking Scheme	9
Course Overview	9
How to get the most from this course	11
Tutors and Tutorials	14
Summary	15
MODULE ONE	16
INTRODUCTION TO RESEARCH IN THE SOCIAL SCIENCES AND DEVELOPMENT STUDIES	16
UNITS	16
CONTENTS	16
1.0 Introduction	16

2.0	Module Objectives	17
3.0	Main Content	17
3.1	The Meaning and Types of Research	17
3.1.1	<i>Purpose of Research in the Social sciences</i>	21
3.1.2	<i>Processes of Social Research</i>	23
3.1.3	<i>Types of Social Research designs</i>	27
3.1.4	<i>Characteristics of Research in the Social sciences</i>	35
3.2	Quantitative research: Designs and methods	35
3.3	Qualitative research: Designs and methods	36
3.4	Appraisal of Mixed Methods in Research	38
3.4.1	<i>Types of Mixed Methods research Designs</i>	40
3.4.2	<i>Advantages and Disadvantages of Mixed research Methods</i>	41
4.0	Conclusion	42
5.0	Summary	43
6.0	Tutor-Marked Assignment	44
7.0	References/Further Readings	44
	MODULE TWO	48
	FIELD WORK AND DATA COLLECTION	48
	UNITS	48
	CONTENTS	48
1.0	Introduction	48
2.0	Module Objectives	49
3.0	Main Content	49
3.1	Types and Sources of Data	49
3.1.1	<i>Types of Data in Social research</i>	51
3.1.2	<i>Sources of Research Data</i>	54

3.2	Instrument design and Data collection techniques	56
3.2.1	<i>Data collection techniques: Questionnaire</i>	58
3.2.2	<i>Data Collection techniques: Interviews</i>	66
3.2.3	<i>Data Collection techniques: Observation</i>	70
3.2.4	<i>Data Collection techniques: Focus Group Discussion</i>	72
3.2.5	<i>Data Collection techniques: Experimental research</i>	74
3.2.6	<i>Validity and Reliability of Research instruments</i>	75
3.3	Population, Sample and Sampling techniques	77
3.3.1	<i>Sample, Sample size and Sampling techniques</i>	78
3.3.2	<i>The purpose of Sampling</i>	81
3.4	Brief description of Big Data	83
3.4.1	<i>Characteristics of Big Data</i>	83
4.0	Conclusion	85
5.0	Summary	85
6.0	Tutor-marked assignment	86
7.0	References/Further readings	86
	MODULE THREE	89
	DATA PROCESSING AND DATA ANALYSIS	89
	UNITS	89
	CONTENTS	89
1.0	Introduction	89
2.0	Module objectives	90
3.0	Main Content	90
3.1	Data Processing in Social research	90
3.1.1	<i>Types and levels of data processing</i>	92
3.2	Hypothesis testing and Data Analysis	93

3.2.1	<i>Data analysis techniques</i>	94
3.3	Statistical applications for data analysis	97
3.4	Presentation of findings	98
4.0	Conclusion	100
5.0	Summary	100
6.0	Tutor-Marked Assignment	101
7.0	References/Further reading	101
	MODULE FOUR	103
	RESEARCH REPORTS AND PROPOSAL WRITING	103
	MODULE	103
	CONTENTS	103
1.0	Introduction	103
2.0	Module objectives	104
3.0	Main content	104
3.1	Writing research reports and Proposals	104
3.1.2	<i>Writing Research proposals</i>	109
3.2	Significance and Challenges of research in social sciences	111
3.3	Ethical considerations in social research	116
3.3.1	<i>Ethical issues in social research</i>	116
3.3.2	<i>Objectives and Advantages of Research ethics</i>	120
3.4	References and Referencing Styles	121
3.4.1	<i>Types of referencing and Referencing styles</i>	123
3.4.2	<i>Importance of referencing in social research</i>	124
4.0	Conclusion	125
5.0	Summary	125
6.0	Tutor-Marked Assignment	126



## **Introduction**

Welcome to **DES 311 – *Research Methodology***. The course, Research Methodology, with code DES 311, is a three (3) unit core course for students in the department of Development studies, Faculty of Social Sciences, National Open University of Nigeria (NOUN). It is also available as an elective course for undergraduate and post-graduate students pursuing other programmes in related departments in the Faculty of Social Sciences and the University as a whole. DES 311 is a practical course designed to expose students to the fundamental principles, concepts, methods and processes of research in the social sciences. This course guide will discuss the essential topics in research methodology such as the meaning and purposes of research, research types and research designs, methods of data collection, data analysis techniques, statistical tools for data analysis, report writing, presentation styles, as well as the contemporary concerns in social research, including the problems of ethics and integrity in social research and the application of research methodology in development studies. Also included in this course guide are instructions on how to make the best out of this course and how to tackle the embedded tutor-marked assignments (TMA). The course is also carefully designed to accommodate tutorial sessions during which a facilitator will take the class through the intricate areas of the course and ensure extensive comprehension. Knowledge from this course expected to increase a student's capacity in areas of critical thinking, data collection and data mining, data analysis, and report writing; all of which are valuable skill sets in the field of academics as well as in the corporate world.

## **Course Content**

This course will focus on key research methodology topics such as: The Meaning and definitions of Research; Types of Research; The Purpose of Research; Research Ethics and Integrity; Processes of Operationalization and Measurement in Social Research; Hypothesis Testing; Instrument Design; Field Work and Data Collection; Data Analysis; Statistical tools for data Analysis; Presentation of Findings; Quantitative Research processes: Introduction to Quantitative Research; Study



Designs and Methods; Analysis and Interpretation of Quantitative Data, Critical Appraisal of Quantitative Research; Qualitative Research: Introduction to Qualitative Research, Study Designs and Methods, Analysis and Interpretation of Qualitative Data, Critical Appraisal of Qualitative Research; Mixed Methods Research: Introduction to Mixed Methods Research, Study Designs and Methods; Analysis and Interpretation of Mixed Methods Data; Critical Appraisal of Mixed Methods Research; Brief Description of Big Data; References and Referencing Styles.

### **Course Aim**

Basically, the course aims to give students an in-depth understanding of the principles, methods and processes of academic research in the Social Sciences, while enhancing student's understanding of the conceptual and theoretical aspects of research methods in the social sciences.

### **Course Objectives**

At the end of the course period, students are expected to develop the capacity to:

- Define, describe and use basic concepts in research methodology such as: variables, hypothesis, theories, data, sampling, research design, and fieldwork.
- Define and explain the processes of research, as well as the purposes and significance of research;
- Identify the different typologies of research, particularly the quantitative and qualitative research and their implications in conducting research;
- Use the various data collection skills in social research;
- Explain how to write a good research proposal;
- Understand the different types of research designs and know how to use them;
- Explain the functions of measurement and the main types of measurement;

- Use the Likert scale of measurement in drafting a questionnaire;
- Explain what a population and sample are in conducting a survey;
- Explain what a sample size is, and how to select one;
- Understand the meaning and types of sampling techniques;
- Explain the different types of questionnaires and how to use them in conducting a survey;
- Identify the characteristics of a good questionnaire;
- Understand the features of interview schedule and Focus Group Discussion in conducting a survey;
- Understand the application of descriptive and inferential statistics in proving and testing hypotheses.

It is important to note that these objectives serve as a guide to studying this course material, such that students could assess their level of assimilation as they work through course. It is thus advisable that students read them well before working through the adjoining modules and units. There are also objectives attached to every unit to help students gauge their achievements and assess how much they have learnt as they progress through the courses. It is also important to check these specific objectives attached to each of the modules/units. This way, you can be sure you have done what was required of you by the unit.

### **Working Through the Course**

To successfully complete this course, you are required to read the study units, referenced books and other materials on the course. Each unit contains self-assessment exercises called Student Assessment Exercises (SAE). At some points in the course, you will be required to submit assignments for assessment purposes. At the end of the course there is a final examination. This course should take about 16 weeks to

complete. Some components of the course are outlined under the subsection below titled ‘course material’.

### **Course Material**

The major component of the course, what you have to do and how you should allocate your time to each unit in order to complete the course successfully on time are listed follows:

1. Course guide
2. Study unit
3. Textbook
4. Assignment file
5. Presentation schedule

### **Study Units**

There are four (4) modules of sixteen (16) units in this course; all of which should be studied carefully and diligently to acquire a complete understanding of the content of the course.

### **MODULE ONE: Introduction to Research in Social sciences**

- Unit 1: The Meaning and Types of research
- Unit 2 Quantitative Research: designs and methods
- Unit 3: Qualitative Research: designs and methods
- Unit 4: Appraisal of Mixed Methods in Research

### **MODULE TWO: Field work and Data collection**

- Unit 1: Types and sources of Data
- Unit 2: Instrument Design and Data collection techniques
- Unit 3: Population, Sample and sampling techniques
- Unit 4: Brief description of big data.

### **MODULE THREE: Data processing and Data analysis**

- Unit 1: Data processing in Social Research
- Unit 2: Hypothesis Testing and Methods of Data analysis
- Unit 3: Statistical Applications for data analysis
- Unit 4: Presentation of Findings

### **MODULE FOUR: Research reports and Proposal writing**

- Unit 1: Writing Research Reports and Proposals
- Unit 2: Significance and Challenges of research in social sciences
- Unit 3: Ethical considerations in social research
- Unit 4: References and Referencing Styles

Each study unit will take at least two hours, and includes the introduction, module objectives, main content, self-assessment exercise, conclusion, summary and reference. Other areas border on the Tutor-Marked Assessment (TMA) questions. Some of the self-assessment exercise will necessitate discussion, brainstorming and argument with some of your colleges. You are advised to do so in order to understand and get acquainted with details and basics of each of the topics.

There are also textbooks under the reference and other (on-line and off-line) resources for further reading. They are meant to give you additional information if only you can lay your hands on any of them. You are required to study the materials; practice the self-assessment exercise, and the tutor-marked assignment (TMA) questions for greater and in-depth understanding of the course. By doing so, the stated learning objectives of the course would have been achieved.

### **Textbook and References**

The following textbooks and references are considered useful for this course; thus, students are encouraged to access them and use them to study this course.

- Abu, O.P & Nwakanma, E (2018) Elements of Scientific thinking and Social Science Research Methods. Port Harcourt: Amajov & Coy Publishers.
- Babbie, E. (2013). Practice of Social Research (14th ed). Belmont, California: Wadsworth, Cengage Learning
- Bhattacharjee, A (2012) Social sciences research: Principles, methods and practices. Textbook collection: Book 3. Accessed from <http://scholarcommons.usf.edu/oa-textbooks/3>
- Christensen, L.B., Johnson, R.B., & Turner, L.A. (2014). Research Methods, Design, and Analysis (12thed.). Boston, MA: Allyn and Bacon.
- Creswell, J.W. (2008). Educational Research: Planning, conducting, and evaluating quantitative and qualitative research (3rd ed.). Upper Saddle River: Pearson
- Devlin, A.S. (2006). Research Methods: Planning, Conducting, and Presenting Research. Belmont, CA: Thomson/Wadsworth
- Frankfort-Nachmias, C. & Nachmias, D. (1996) Research Methods in the Social Sciences. Fifth Edition, Arnold, London
- Gall, M.D., Borg, W.R., & Gall, J.P. (1996). Educational Research: An Introduction (Sixth ed.). White Plains, NY: Longman.
- Godwill, E.A (2015) Fundamentals of Research Methodology: A Holistic Guide for Research Completion, Management, Validation and Ethics. Nova Science Publishers, Incorporated. ISBN: 1634827058, 9781634827058
- Harmon, R.J., Morgan, G.A., Gliner, J.A., & Harmon, R.J. (1999). Definition, Purposes, and Dimensions of Research. Journal of the American Academy of Child & Adolescent Psychiatry, 38(2), 217–219. doi:10.1097/00004583-199902000-00023
- Kumar, R. (2011) Research Methodology: A Step-by-Step Guide for Beginners. 3rd Edition. Sage, New Delhi
- Neuman, W.L. (2012). Basics of Social Research: Quantitative and Qualitative Approaches. (3rded.). Boston, MA: Pearson.

- Patton, M.Q. (1990). *Qualitative Evaluation and Research Methods*. (2nd ed.). Newbury Park, CA: Sage.

## **Assignment File**

Assignment files and marking scheme will be made available to you. This file presents you with details of the work you must submit to your tutor for marking. The marks you obtain from these assignments shall form part of your final mark for this course. Additional information on assignments will be found in the assignment file and later in this Course Guide in the section on assessment.

There are four assignments in this course. The four course assignments will cover:

- Assignment 1 - All TMAs' question in Units 1 – 4 (Module 1 and 2)
- Assignment 2 - All TMAs' question in Units 5 – 8 (Module 2 and 3)
- Assignment 3 - All TMAs' question in Units 9 – 12 (Module 3 and 4)
- Assignment 4 - All TMAs' question in Unit 13 – 16 (Module 4).

## **Presentation Schedule**

The presentation schedule included in your course material gives you the important dates for the completion of tutor-marking assignments and attending tutorials for this course. Remember that you are required to submit all your assignments by due date. Hence, it is important you guard against falling behind in your work.

## **Assessments**

There are three types of the assessments in this course guide. First are the self-assessment exercises; second are the tutor-marked assignments; and the third is the final examination written at the end of the semester.

The self-assessment exercises will be found at the end of each module, and are provided to help students assess how much they have learnt in the module. The tutor marked assignments (TMA's) are essentially used to assess students' learning through

the semester, and account for 30% of the entire score for the course. While the final examinations will account for 70% of the total score for the course.

In attempting the assignments, you are expected to apply information, knowledge and techniques gathered during the course. The assignments must be submitted to your tutor for formal Assessment in accordance with the deadlines stated in the Presentation Schedule and the Assignments File. The work you submit to your tutor for assessment will count for 30% of your total course mark. At the end of the course, students will sit for a final written examination of three hours' duration. This examination will also count for 70% of a student's total mark for the course.

### **Tutor-Marked Assignments (TMAs)**

There are four tutor-marked assignments in this course. You will submit all the assignments. You are encouraged to work all the questions thoroughly. The TMAs constitute 30% of the total score. Assignment questions for the units in this course are contained in the Assignment File. You will be able to complete your assignments from the information and materials contained in your set books, reading and study units. However, it is desirable that you demonstrate that you have read and researched more widely than the required minimum. You should use other references to have a broad viewpoint of the subject and also to give you a deeper understanding of the subject. When you have completed each assignment, you are to send it, together with a TMA form, to your tutor. Make sure that each assignment reaches your tutor on or before the deadline given in the Presentation File. If for any reason, you cannot complete your work on time, contact your tutor before the assignment is due to discuss the possibility of an extension. Extensions will not be granted after the due date unless there are exceptional circumstances.

### **Final Examination and Grading**

The final examination will be of three hours duration and have a value of 70% of the total course grade. The examination will consist of questions which reflects the types of self-assessment practice exercises and tutor-marked problems you have previously

encountered. Note that all areas of the course will be assessed. Students are to revise the entire course material using the time between finishing the last unit in the module and that of sitting for the final examination. You might find it useful to review your self-assessment exercises, tutor-marked assignments and comments on them before the examination. This is because the final examination for this course will cover information from all parts of this course guide.

### **Course Marking Scheme**

The Table presented below indicates the total marks allocated for this course. In this course, assignments will constitute 30% of the total scores, while an end of semester examination will constitute 70%, making a total of 100%.

<b>Assignment</b>	<b>Marks</b>
Assignments (Best three assignments out of four that is marked)	30%
Final Examination	70%
<b>Total</b>	<b>100%</b>

### **Course Overview**

The Table presented below indicates the units, number of weeks, and assignments to be taken by students to successfully complete the course, Research Methodology (DES 311). The course is expected to run for sixteen (16) weeks within which each of the units in the four (4) modules will be treated. After the sixteen weeks, students will be required to attempt the attached assignments and sit for examinations. It is important to note that students are expected to score at least 40% to pass the course.



<b>Units</b>	<b>Title of Work (Course Guide)</b>	<b>Week's Activities</b>	<b>Assessment (End of unit)</b>
<b>Module 1: Introduction to Research in Social sciences</b>			
1	The Meaning and Types of Research	Week 1	Assignment 1
2	Quantitative Research: designs and methods	Week 2	Assignment 1
3	Qualitative Research: designs and methods	Week 3	Assignment 1
4	Appraisal of Mixed Methods in Research	Week 4	Assignment 1
<b>Module 2: Field work and Data collection</b>			
1	Types and sources of Data	Week 5	Assignment 2
2	Instrument Design and Data collection techniques	Week 6	Assignment 2
3	Population, Sample and sampling techniques	Week 7	Assignment 2
4	Brief description of Big Data	Week 8	Assignment 2
<b>Module 3: Data processing and Data analysis</b>			
1	Data processing in Social Research	Week 9	Assignment 3
2	Hypothesis Testing and Methods of Data analysis	Week 10	Assignment 3
3	Statistical Applications for data analysis	Week 11	Assignment 3
4	Presentation of Findings	Week 12	Assignment 3
<b>Module 4: Research reports and Proposal writing</b>			

1	Writing Research Reports and Proposals.	Week 13	Assignment 4
2	Significance and Challenges of research in social sciences.	Week 14	Assignment 4
3	Ethical considerations in social research.	Week 15	Assignment 4
4.	References and Referencing Styles.	Week 16	Assignment 4
	<b>Total</b>	<b>16 Weeks</b>	

### **How to get the most from this course**

In distance learning the study guide replaces the university lecturer. This is one of the great advantages of distance learning; you can read and work through specially designed study materials at your own pace and at a time and place that suit you best.

Think of it as reading the lecture instead of listening to a lecturer. In the same way that a lecturer might set you some reading to do, the study units tell you when to read your books or other material, and when to embark on discussion with your colleagues. Just as a lecturer might give you an in-class exercise, your study units provide exercises for you to do at appropriate points.

Each of the study units follows a common format. The first item is an introduction to the subject matter of the unit and how a particular unit is integrated with the other units and the course as a whole. Next is a set of learning objectives. These objectives let you know what you should be able to do by the time you have completed the unit.

You should use these objectives to guide your study. When you have finished the unit, you must go back and check whether you have achieved the objectives. If you make a habit of doing this you will significantly improve your chances of passing the course and getting the best grade.

The main body of the unit guides you through the required reading from other sources. This will usually be either from your set books or from a readings section. Some units

require you to practicalize what you have learnt over time as a better way to assimilate them and achieve a hands-on experience of the techniques and methods of social research. You will be directed by your tutor when you need to embark on such exercises and will also be guided through the tasks you must do.

Furthermore, Self-assessments exercises are also interspersed throughout the units, and answers can be found in the course content. Working through these assessments will help you to achieve the objectives of the unit and prepare you for the tutor-marked assignments and the examination. You should do each self-assessment exercises as you come to it in the study unit. Also, ensure to master some major historical dates and events during the course of studying the material.

The following is a practical strategy for working through the course. If you run into any trouble, do consult your tutor. Remember that your tutor's job is to help you get the best from the course. Therefore, when you need help, do not hesitate to call and ask your tutor for assistance.

1. Read this Course Guide thoroughly.
2. Access the suggested texts and materials for this course for intensive and extensive study.
3. Organize a study schedule. Refer to the 'Course overview' for more details. Note the time you are expected to spend on each unit and how the assignments relate to the units. Important information, e.g., details of your tutorials, and the date of the first day of the semester is available from study centre. You need to gather together all this information in one place, such as your dairy or a wall calendar. Whatever method you choose to use, you should decide on and write in your own dates for working breach unit.
4. Once you have created your own study schedule, do everything you can to stick to it. The major reason that students fail is that they get behind with their course work.

5. If you get into difficulties with your schedule, please let your tutor know before it is too late for help.
6. Turn to Unit 1 and read the introduction and the objectives for the unit.
7. Assemble the study materials. Information about what you need for a unit is given in the 'Overview' at the beginning of each unit. You will also need both the study unit you are working on and one of your set books on your desk at the same time.
8. Work through the unit. The content of the unit itself has been arranged to provide a sequence for you to follow. As you work through the unit you will be instructed to read sections from your set books or other articles. Use the unit to guide your reading.
9. Up-to-date course information will be continuously delivered to you at the study centre.
10. Work before the relevant due date (about 4 weeks before due dates), get the Assignment File for the next required assignment. Keep in mind that you will learn a lot by doing the assignments carefully. They have been designed to help you meet the objectives of the course and, therefore, will help you pass the exam. Submit all assignments no later than the due date.
11. Review the objectives for each study unit to confirm that you have achieved them. If you feel unsure about any of the objectives, review the study material or consult your tutor.
12. When you are confident that you have achieved a unit's objectives, you can then start on the next unit. Proceed unit by unit through the course and try to pace your study so that you keep yourself on schedule.
13. Attempt the self-assessment exercises and confirm your answers using the study guide.

14. When you have submitted an assignment to your tutor for marking do not wait for it return before starting on the next units. Keep to your schedule. When the assignment is returned, pay particular attention to your tutor's comments, both on the tutor-marked assignment form and also written on the assignment. Consult your tutor as soon as possible if you have any questions or problems.
15. After completing the last unit, review the course and prepare yourself for the final examination. Check that you have achieved the unit objectives (listed at the beginning of each unit) and the course objectives (listed in this Course Guide).

### **Tutors and Tutorials**

There are some hours of tutorials (2-hours sessions) provided in support of this course. You will be notified of the dates, times and location of these tutorials. Together with the name and phone number of your tutor, as soon as you are allocated a tutorial group. Your tutor's responsibility is to mark and comment on your assignments, monitor your progress, identify difficulties you might encounter when taking the course, and provide assistance to you during the course. You must mail your tutor-marked assignments to your tutor well before the due date (at least two working days are required). They will be marked by your tutor and returned to you as soon as possible. Do not hesitate to contact your tutor by telephone, e-mail, or discussion board if you need help. The following might be circumstances in which you would find help necessary. Contact your tutor if:

- You do not understand any part of the study units or the assigned readings,
- You have difficulty with the self-assessment exercises,
- You have a question or a problem with an assignment, with your tutor's comments on an assignment, or with the grading of an assignment.

You should try your best to attend the tutorials. This is the only chance to have face to face contact with your tutor and to ask questions which are answered instantly. You

can raise any problem encountered in the course of your study. To gain the maximum benefit from course tutorials, prepare a question list before attending them. You will learn a lot from participating in discussions actively.

### **Summary**

On the successful completion of this course, students would have developed critical thinking skills and the capacity for efficient and effective application of research skills for Social Science. It is also important that students read both intensively and extensively, including texts and materials from other academic fields, to gain a broader understanding of Research methodology.

## **MODULE ONE**

### **INTRODUCTION TO RESEARCH IN THE SOCIAL SCIENCES AND DEVELOPMENT STUDIES**

#### **UNITS**

- Unit one: The meaning and types of social research
- Unit two: Quantitative research: designs and methods
- Unit three: Qualitative research: designs and methods
- Unit four: Appraisal of mixed methods in research

#### **CONTENTS**

- 1.0 Introduction**
- 2.0 Module Objectives**
- 3.0 Main Content**
  - 3.1 The meaning and types of social research**
  - 3.2 Quantitative research: Designs and methods**
  - 3.3 Qualitative research: Designs and methods**
  - 3.4 Appraisal of mixed methods in research**
- 4.0 Conclusion**
- 5.0 Summary**
- 6.0 Tutor-Marked Assignment**
- 7.0 References/Further Reading**

#### **1.0 Introduction**

This module is designed to introduce students to the foundational issues in Research methodology, such as the meaning of research, the history of social research, the application of science and other methods of knowing in research, the purpose of social science research, and the various types and methods of social research. The four units presents the introductory aspect of studies in Research methodology. Research is a

very vast academic area that cuts across different academic spheres. However, each discipline has its own peculiar method and principles that guides its research activities. In the social sciences, research focuses on the society; human social behaviour, social groups, and social institutions. As such, the discipline employs methods, strategies, methods and processes that make it possible to efficiently conduct social researches. In this unit, the basic concepts in research methodology will be discussed, the various types of research and approaches to research will be discussed, and the quantitative and qualitative methods in research will also be discussed. In the end, an appraisal of the mixed methods in social research will also be touched on.

## **2.0 Module Objectives**

At the end of this module, students are expected to be able to explain research; its processes, methods, types, and significance. Particularly, students should be able to:

- Explain the concept of Research and discuss the underlying principles of research in the social sciences,
- Discuss the various types and approaches to research in the social sciences,
- Explain the purpose and characteristics of social researches,
- Explain the basic concepts and terminologies in research methodology,
- Explain the strategies and application of quantitative and qualitative approaches in social research, and
- Understand the processes and application of the mixed research method.

## **3.0 Main Content**

### **3.1 The Meaning and Types of Research**

Since the beginning of the world humans have been faced with countless geographic, public health, economic, social, and political challenges. Man, from time immemorial,



has had course to contend with different challenges including occurrences such as disasters like earthquakes, famines, and droughts; crime, conflict, overpopulation, social disorder, and many other natural and manmade challenges, all of which require an investigation into their causes, implications and possible solutions. Research provides the means for accumulating such knowledge and reliable explanations for human experiences and observation in the world.

Generally, research is a process of systematic inquiry that entails the collection of data; documentation of critical information; analysis data, and interpretation of findings to generate valid explanations for events in man's environment. The Organisation for Economic Co-operation and Development, OECD (2003) defines research as "any creative systematic activity undertaken in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this knowledge to devise new applications".

It is important to note that research is only one of several ways of 'knowing'. Other recognized forms of knowing include: divination, intuition, common sense, authority, tradition, sensory perception, and rationalism. However, what differentiates these sources of knowledge from research is that the latter follows are empirical observations, rigorous processes of investigation and data analysis, and systematic verification of claims. For instance, *divination* is based on predictions, foretelling, and the supernatural explanation of material occurrences. As noted by Cohen, Manion, and Morrison (2011), whereas this method of inquiry is strongly accepted by some persons as a source of knowledge, divination has proven not to be a reliable way of knowing, particularly as it is greatly subject to confirmation bias, personal delusion, fabrication, and a host of other challenges that affects its reliability and consistency. *Intuition* is also believed to be a veritable source of knowledge. Intuitive knowledge takes the form of perception, belief and premonition. Some persons have over time learnt to trust their feelings and instincts probably because it may have, by chance, turned out correct; however, as noted by Godwill (2015), the challenge with intuition remains that it is largely influenced by our mood and sentiments. These factors make it

unreliable, subjective and a weak source of valid and reliable knowledge. *Common sense* knowledge is based on the vague notion of ‘obviousness’ and the assumption that humans have certain basic knowledge and access to common facts. The challenge is that common sense is not entirely common, and cannot be relied upon as a valid source of knowledge (Bhattacharjee, 2012; Frankfort-Nachmias & Nachmias, 1996).

*Authority* is also mentioned as a way of knowing. Authority refers to information generally accepted as correct based on the reputation and importance of its source. Sometimes people accept some information as truths primarily because of the reputation of the source without attempting to interrogate the source of the givers’ information. This type of knowing can also be said to be defective as the ‘authority’ in question may be relying on personal feelings, speculations and bias (Abu and Nwakanma, 2018; Bhattacharjee, 2012).

*Traditional knowledge* refers to those established beliefs about how reality works. In traditional method of inquiry, truth is considered correct or factual simply because it is common knowledge that everyone ‘already’ believes in. Traditional knowledge is largely based on culture and superstitions which are oftentimes fallacious or delusional.

Knowledge from *sensory perception* is dependent on the five human body sense organs, namely: the nose (sense of smell), the ears (auditory sense organ), the skin (sense of touch) and the tongue (taste organ). These sense organs are relied upon to provide knowledge about the physical environment; but like previously stated ways of knowing, the knowledge generated from this source can be influenced by factors such as ailments, mood, poor assessment, and bias. Research on the other hand provides knowledge which is based on demonstrable, objective facts which are determined through observation and experimentation.

Research follows a methodology and intends to provide verifiable knowledge. It is explained as the organised and systematic method of finding answers to questions about the environment, human behaviour and social phenomena. It is ‘systematic’

because it is a process with clear steps that lead to reliable conclusions. It is also considered ‘organised’ because there is a planned structure or method that must be followed to ensure objectivity, repeatability and reliability. Creswell (2008), defines research as a process used to collect and analyze information with the aim of increasing human understanding of a topic or issue. This process consists of three major steps: (1) research questions, (2) data collection to find answers to the question, and (3) presentation of findings or answer to the question. In other words, research is a systematic process of investigation, analysis and interpretation of problems confronted by humanity, experimentation, and generating solutions to problems.

The word “research” is originally derived from the old French word “*recherchier*”, meaning to ‘go about seeking’ for something. It literally implies repeatedly searching for something until more reliable explanations are arrived at. This implicitly assumes that the earlier search was not exhaustive or complete; thus, there is the need to re-investigate until improved knowledge is revealed. Research is commonly used to mean searching for knowledge. However, beyond just searching for knowledge, research is a rigorous and systematic process aimed at generating reliable and valid information on a specific observation. The Advanced Learner’s Dictionary of Current English concludes that research means “a careful investigation or inquiry especially through search for new facts in any branch of knowledge”.

Definitions by early scholars also provides a basis to understand the nature and scope of research in the social sciences. For instance, Redman and Mory (1923:17) defines research as ‘a systematized effort to gain new knowledge about an existing phenomenon’. For Woody (1927), research comprises of defining and redefining problems, formulating hypothesis or suggested solutions; collecting, organizing and evaluating data; making deductions or reaching conclusions; and at last, carefully testing the conclusions to determine whether they fit the formulating hypothesis. Slesinger and Stephenson (1930:31), in the Encyclopedia of Social Sciences, defined research as “the manipulation of things, concepts or symbols for the purpose of

generalizing to extend, correct or verify knowledge, whether that knowledge aids in construction of theory or in the practice of an art.”

Today in the Social sciences, research is essentially conducted to identify, explore, describe, understand, explain, evaluate, and predict social phenomena. Social research involves the application of scientific methods to evaluate the validity of a hypothesis about the society; to generate questions about social events; and to assemble a body of substantive knowledge through rigorous processes of investigation (Godwill, 2015; Kumar, 2011). As opined by Bhattacharjee (2012), social researchers are primarily concerned with developing explanations about the nature, dynamics and connotations of human social behaviour. Social research relies on testable tools and techniques that ensure objectivity and reliability, and instigates inquiries into various social issues, such as: interpersonal relationships, intergroup relations, group behaviour, power relations, culture and social arrangements (Abu and Nwakanma, 2018, Bhattacharjee, 2012; Cohen, Manion, & Morrison, 2011).

### ***3.1.1 Purpose of Research in the Social sciences***

Research evolves from a genuine desire to know more, and to the quest to expand knowledge and find new definitions or explanations for an event. As Bhattacharjee (2012) had noted, social researches are concerned with developing explanations about observed social phenomena. It relies on testable tools and techniques for measurement and ensures objectivity and reliability. Social research, as an academic endeavour, employs the scientific method in its investigations into different phenomenon in the society. Social researches are interested in understanding the nature, dynamics and connotations of human social behaviour. For specificity, the following has been outlined as key purposes of research in the social sciences:

- a) Research helps in the proper measurement, understanding and prediction of human social behaviour,
- b) Through research, knowledge of the society and the cultural behaviour of a people is developed as a way to guide social planning and development,

- c) Social research provides the basis for all government policies in respect to economic system,
- d) Research is equally important in seeking answers to various emerging social problems and outcomes of social changes.

For Paton (1990), the purpose of research is basically to enhance society by advancing knowledge through the development of scientific theories, concepts and ideas, and this can be further explained in four different ways:

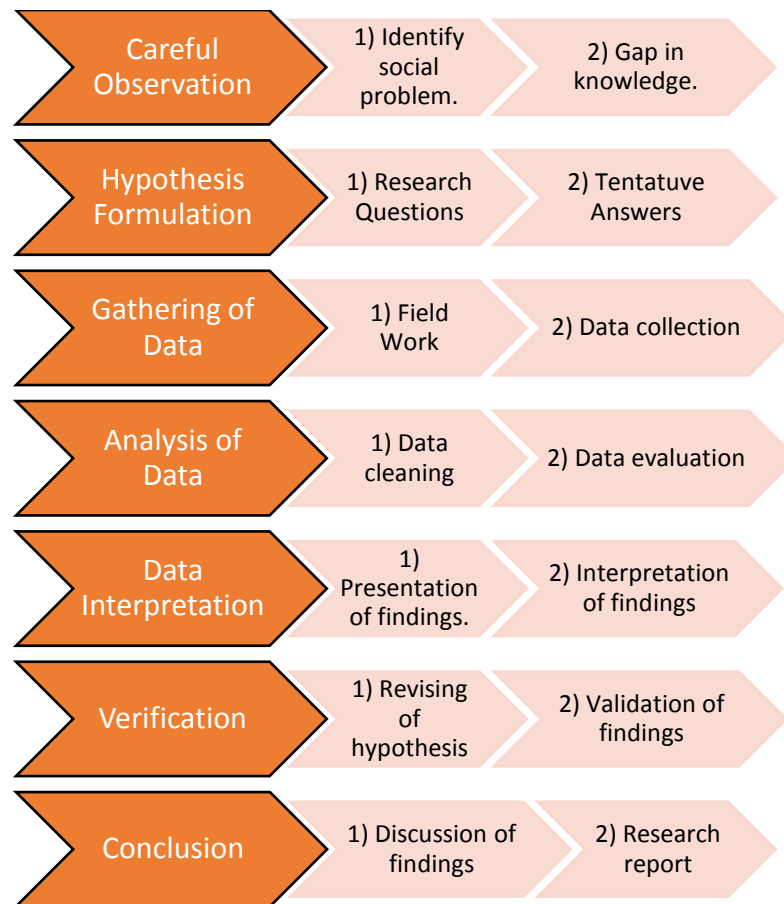
1. **Basic Research:** Basic researches are performed simply to gain new knowledge. It usually takes the form of theory formulation basically to provide explanations and contribution to knowledge. As noted by Paton (1990), the purpose of basic researches is mainly to understand and explain social issues, i.e., the formulation and testing of theoretical constructs and propositions in relation to how they explain reality across time and space. For example, studying how children acquire new languages, or why good governance is important for development, etc, may just only expand the understanding of these issues.
2. **Applied Research:** The purpose of this research is to help people understand the nature of human problems so that human beings can effectively control their environment and solve emerging problems. In other words, this type of research pursues potential solutions to human and societal problems. This research is more prescriptive in nature, and focuses on the 'how' questions. A typical example of applied research is an investigation to improve workplace commitment. The aim of such research is to develop a practical and empirical measure to improve employee workplace commitment.
3. **Evaluation Research** (*Otherwise known as summative and formative researches*): Evaluation research studies the processes and outcomes of attempted solution aimed at certain social issues. The purpose of formative research is to improve human intervention within specific conditions, such as

activities, time, and groups of people; while summative researches try to judge the effectiveness of a program, policy, or product.

4. **Action Research:** Action research aims at solving specific problems within a program, organization, or community. The research design in action research tends to be more informal, and the people in the situation are directly involved in gathering information and studying themselves.

### ***3.1.2 Processes of Social Research***

Research process consists of series of steps or procedure necessary to effectively conduct research and achieve the desired objective outcomes. Research in the Social sciences is understood to follow a structural procedure that helps it attain objectivity, precision and reliability. These procedures which enhances data gathering, evaluation, and the production of new knowledge is termed **methodology**. Though the steps may vary in order depending on the subject matter and researcher, the following steps are usually part of most social science research:



*Fig. 1: Processes of Research in the Social sciences. Source: Author's illustration*

1. Careful Observations and Identification of problem: Every research begins with a careful observation and an identification of specific problems that require examination. Identification of research problem refers to the sense of awareness of a prevalent social problem, a social phenomenon or a concept that is worth study – as it requires to be investigated to understand it. The researcher identifies such a research problem through his observation, knowledge, wisdom and skills. Problem Identification in research involves recognizing the problems common in an environment and the possible ways it impacts on the peace, comfort and lives of people. Problem identification can also take the form of observing the specific issues, difficulties, contradictions, or gap in knowledge that requires attention and contribution.
2. Hypothesis formulation: A major step in social researches is the formulation of hypotheses. Hypotheses are tentative answers or testable predictions that

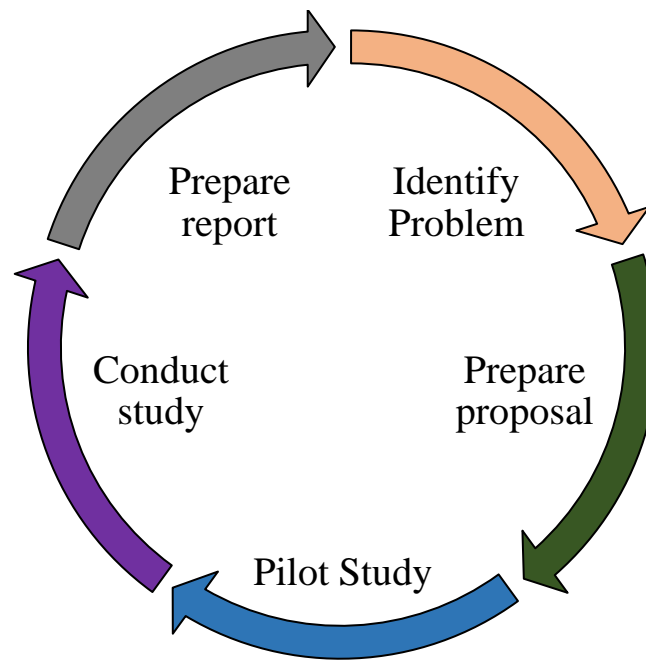
explains the ‘how’ and ‘why’ of occurrences in human environment. Through hypothesis formulation, researchers are able to generate possible explanations that can be further tested and verified.

3. **Gathering of data:** Data gathering, or data collection as it is commonly referred to, consists of identifying the target population and selecting samples from it, gathering information from or about these samples by using specific research instruments, and collecting useful data from them. This is the field work aspect of social research where the investigator sources for data to use in the verification of earlier stated research hypotheses and assumptions.
4. **Analysis of data:** Data remains disorganized and, thus, meaningless if not adequately analysed. Data analysis involves the sorting, collation and processing of raw information into data, and breaking down the individual pieces of the data in order to draw conclusions.
5. **Data Interpretation:** Data interpretation is connected to data analysis, and involves the presentation of data in formats that make it easier to understand and inform conclusions. Data in the Social sciences is usually represented through tables, figures, charts and pictures, and then described in words.
6. **Verification or revising of hypothesis:** Verification in social research involves double-checking evidences against observations and confirming outcomes against assumptions. It is an important step in the processes of social research in that it helps the researcher confirm if the outcomes of the research are consistent with assumptions that preceded it.

Gall, Borg, and Gall (1996) have also argued that academic research, especially in the social sciences, should follow five (5) key steps, which includes: the identification of a research problem, preparing a proposal, conducting a pilot test, conducting the main study and preparation of a report for the public.



1. *Identify a significant research problem:* As noted by Gall, Borg, and Gall (1996), in this stage, investigators are expected to document the common social issues affecting the population or a gap in knowledge that requires investigation.
2. *Prepare a research proposal:* After identifying the issues or gaps in knowledge, the investigator is to develop a proposal detailing the significance, aims, and methods that can be adopted to conduct the research. A research proposal usually consists of sections such as an introduction, literature review, theoretical framework, research design, research method, data analysis techniques, and timeline.
3. *Conduct a pilot study:* A pilot study is essentially a preliminary study conducted with the aim of evaluating the feasibility, duration, cost, and adverse effects of the main study. The purpose of a pilot study is to improve upon the procedures for the actual or full-scale research project.
4. *Conduct a main study:* The main study here explains the research; that is, the actual investigation aimed at the finding and interpretation of facts, the revision of accepted theories in view of emerging facts, or the practical application of such new findings.
5. *Prepare a report:* The general aim of research is to generate knowledge that can aid the expansion of the frontiers of knowledge or help humanity solve natural and manmade problems. As such, research outcomes are usually documented for public consumption. Research reports present the results or findings of formal investigations. A *research report* is a document that outlines the processes and findings of a systematic investigation. A research report becomes a medium to communicate findings of a research work with relevant people and also to preserve research work for future references.



*Fig. 2: Gall, Borg and Gall's Research processes. Source: Author's illustration*

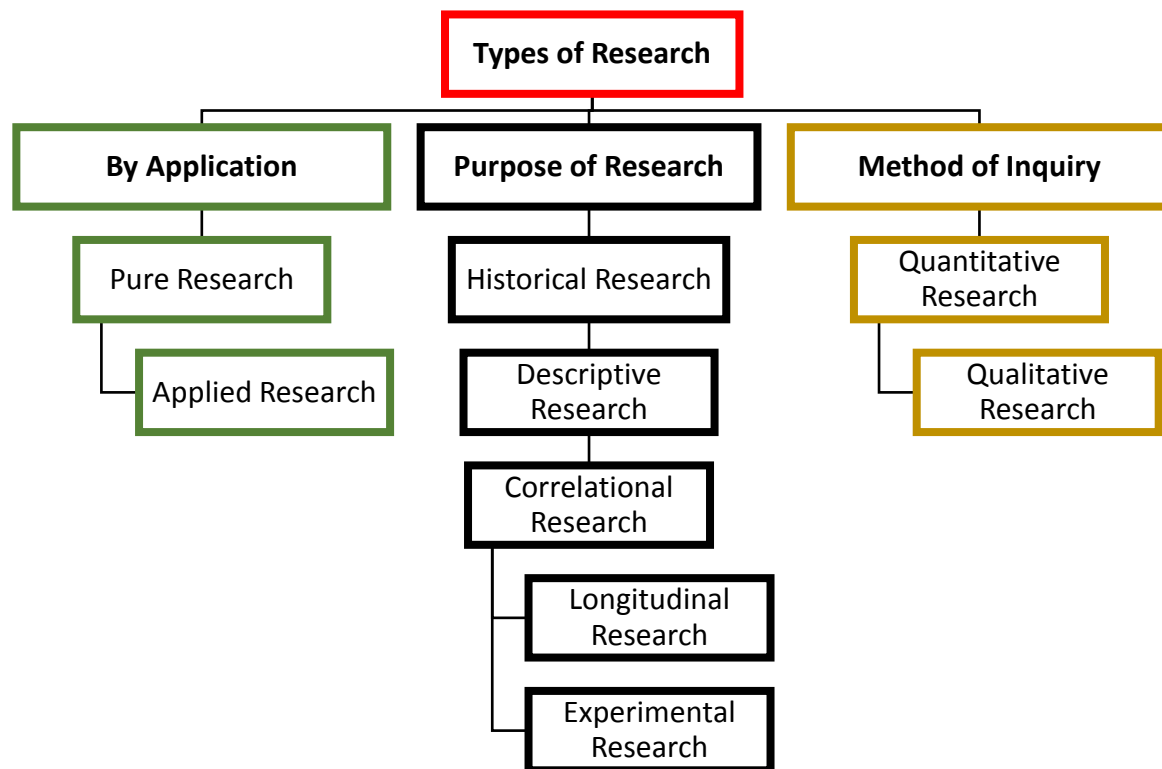
Gall, Borg, and Gall (1996) further explained that these five stages may sometimes overlap or occur in a different order depending on the nature of the study. For instance, qualitative studies which involve emergent research design may gather and analyse some data before developing the proposal. Furthermore, all the steps above are *iterative*, in that the end of a research process forms the basis for further studies.

The iterative nature of this process makes for the rigor, repeatability, and reliability associated with research. It also creates the confidence that the researcher has followed unbiased steps to ensure that the conclusions reached are robust, objective. As Mills, Durepos, and Wiebe (2010) had noted, the iterative process involves the systematic repetition of a sequence of tasks executed in exactly the same manner multiple times, thereby providing a deepening understanding of research data and bringing a standard of reliability to scientific researches.

### **3.1.3 Types of Social Research designs**

The Social sciences employs different designs for research. Each of these designs are usually informed by the intents of the researcher and the objectives of the study. As

noted by Kumar (2011), Social researches can be sorted into various types on the basis of (i) Its application or the use of the findings of the research, (ii) the mode of enquiry adopted in conducting the study, and (iii) the objectives of the study.



*Fig. 3: Types of Research in Social sciences. Source: Author's illustration.*

On the basis of application or use, research can be said to be either pure or applied, as discussed earlier in this chapter. Research can also be classified as qualitative or quantitative considering the approach of enquiry employed. For instance, if the data gathered for the study is largely subjective and expresses the deep-seated perception of the group under study, or it is a study designed to describe an observed situation, or the historical enumeration of events, an account of the different opinions people have about an issue, or the living conditions of a community, such a research can be said to be qualitative. On the other hand, the study is classified as quantitative if the researcher focuses on the magnitude of the problem, relying on statistics and numbers (Bhattacharjee, 2012; Kumar, 2011; Frankfort-Nachmias and Nachmias, 1996).

This section discusses the various research types as defined by the aim and objectives of the research. Under this classification, there are seven major types of research, namely: historical research, descriptive research, correlational studies, comparative research, longitudinal studies, experimental research and ex-post facto design. In subsequent sections, qualitative and quantitative researches will be discussed as research paradigms and approaches to social research.

**a)     *Historical Research***

Historical research is the type of research that is aimed at studying, understanding and interpreting past events. As noted by Aggarwal and Ranganathan (2019), the core purpose of historical researches is to gain a clear understanding of the impact of the past events on present and future events, or to arrive at conclusions about past experiences or occurrences in relation to life process. It usually involves a detailed analysis of what has happened or previously written or done, which can be used to describe, explain or interpret present outcomes (Aggarwal and Ranganathan, 2019, Anikpo, 2006).

Historical research proceeds from a systematic collection and evaluation of data in order to describe, explain, and understand actions or events that occurred sometime in the past (Abu and Nwakanma, 2018). As Anikpo (2006) had noted, historical researches are used to study the processes of growth processes and dynamics of internal changes of a particular phenomenon. In this type of research, data is sourced from secondary sources such as archives, documentaries, bibliographies, oral histories, autobiographies, artifacts, while attempts are made to reconstruct the past and use it to understand and explain present events past (Abu and Nwakanma, 2018; Anikpo, 2006).

**b)     *Descriptive Research***

Descriptive research, as the name implies, is a type of research that intends to describe a population, a situation, or an observed phenomenon. It focuses on answering the *how, what, when, and where* questions of a research problem, rather than the *why*.

Descriptive research, for Abu and Nwakanma (2018), is commonly used in the social sciences to systematically study and unveil the characteristics and key attributes of a phenomenon or a population of interest. It is employed when the researcher is interested in only “describing” a situation, subject, behaviour, or phenomenon, and to draw an inference on the implications of those attributes on given variables. Aggarwal and Ranganathan (2019) suggests that descriptive studies can be of several types such as, case reports, observational studies and cross-sectional surveys. Descriptive studies collect numerical data for analysis through surveys, observations, and interviews; while variables are not manipulated but are measured as they occur.

*c) Correlational Research*

Correlational research is a type of research in which the researcher measures two or more relevant variables and assesses the statistical relationship or association between them with little or no effort to control extraneous variables. Studies that employ correlational researches are largely interested in whether an incremental or degressive change in one variable corresponds with an increase or decrease in the other variable. For instance, a study may want to examine if an increase in unemployment rates correlates with an increase in street crimes or a decrease in the production of a particular merchandise.

It is important to know that when the variables under observation tend to change in the same direction, it can be said that there is a positive correlation. However, when the variables are noticed to change in opposite directions, the variables are said to be negatively correlated. There are also situations where there is a zero correlation when there is no observed relationship between the variables under study. Furthermore, it is important to note that correlational researches focus only on predicting the strength of a relationship between two or more variables, and cannot prove that one variable *causes* a change in another variable (Abu and Nwakanma, 2018). Correlation and causation in social researches are entirely dissimilar, and do not mean the same thing. Whereas correlational researches establish a relationship, ‘causation’ indicates that one event is the direct *result* of another event. For instance, smoking and alcoholism

may be *associated*; however, it will be difficult to say that smoking causes alcoholism (Abu and Nwakanma, 2018; Bhattacharjee, 2012; & Kumar, 2011).

*d) Comparative Research*

Comparative researches are employed when the objective of the study is to provide explanation for differences”, and similarities between two or more events, traits or entities. It is conventionally used to systematically study social phenomena such as human behaviour, traits, trends, institutions, societies or cultures, in order to identify and explain key similarities and differences in them. Tilly (1984), as cited in Adiyia and Ashton (2017), have explained that there are four major types of comparative analysis, namely: individualizing comparison, universalizing comparison, variation-finding and encompassing comparison.

- i. Individualizing comparison:* Is a type of comparative analysis that contrasts a small number of cases in order to grasp the peculiarities and differences of each case. This basically involves describing fully the characteristics or features each of the cases being studied as a way to broaden knowledge and insight into the key differences.
- ii. Universalizing comparison:* This aims to establish that every instance of a phenomenon follows essentially the same rule.
- iii. Variation-finding comparison:* This seeks to establish a principle of variation in the character or intensity of a phenomenon by examining systematic differences between instances. That is, comparing numerous forms of a single phenomenon to discover logical differences among instances and establish a standard of variation in the character or intensity of that phenomenon.
- iv. Encompassing comparison:* This type places different instances at various locations within the same system, on the way to explaining their characteristics as a function of their varying relationships to the system as a whole. For instance, explaining the difference between two children’s behaviour by their

orders of birth, or attributing the characteristics of rural communities to their varying connections with a nearby city or urban area.

*e) Longitudinal Research*

Longitudinal designs are usually employed in researches that intend to investigate events throughout lifetimes, or to monitor changes in a particular phenomenon over a period of time. The key word in longitudinal research is ‘periodization’, which means categorizing the past into discrete, quantified blocks of time in order to facilitate a systematic study and analysis of history (Abu and Nwakanma, 2018; Frankfort-Nachmias, and Nachmias, 1996). Specifically, longitudinal research is simply research where data are collected over a meaningful span of time.

Longitudinal researches can be categorized into two (2) types:

- *Cohort Studies*: where a group of people with a shared defining characteristic are observed at certain intervals over a period of time; and
- *Panel Studies*: where individuals are followed over time, with repeated measures being taken from the same sample at different intervals.

Longitudinal research provides researchers the means to detect changes in the attributes of a given population. The key advantage of this design here is that longitudinal studies extend beyond a single moment in time. As a result, they can be used to establish sequences of events.

*f) Experimental Research*

An experimental research is a type of study specifically used to investigate if there is a *causal-and-effect* relationship between two or more variables. An experimental research is interested in manipulating the level of some independent variable and then measures the outcome. Experiments are powerful techniques for evaluating cause-and-effect relationships. As noted by Blakstad (2008), experimental research design is often used where (1) where is time priority in a causal relationship (cause precedes

effect), (2) there is consistency in a causal relationship (a cause will always lead to the same effect), and (3) where the magnitude of the correlation is great.

Experiments are conducted both in the laboratory and in real life/field situations. Laboratory experiments, for instance, are conducted in laboratories or artificial settings where variables can be controlled, while field experiments are conducted in real life settings such as in a community, work environment, classroom, etc. One of the challenges of this type of experiment is the difficulty associated with manipulating treatments and controlling for extraneous variables in the natural setting.

In experimental research, the researcher deliberately manipulates the independent variable to see its effects on the dependent variables. Manipulation here means the conscious control and methodical interruption of the independent variable in order to observe its effect on a given dependent variable. For instance, a study may want to find out how ethnicity affects public perception of crime. To investigate this, the researcher will create an artificial environment and manipulate ethnicity, by swapping people of various ethnic groups at different intentionally created crime scenes to see how it affects public perception (Abu and Nwakanma, 2018).

Scholars, such as Babbie (2013), Neuman (2012), and Blakstad (2008), have opined that there are different types of experimental researches used in diverse situations with diverse expected outcomes. For Babbie (2013), Neuman (2012), and Blakstad (2008), there is:

1. **Pretest-Posttest Design:** This type of experimental research checks whether the groups are different before the manipulation starts and also checks for the outcomes or effect of the manipulation after the experiment.
2. **Control Group:** Control groups are designed to measure research bias and measurement effects in a study. A control group is a group not receiving the same manipulation as the experimental group.



3. Randomized Controlled Trials: Randomized experiments provides a comparison between an Experimental Group and a Control Group and strict control/randomization of all other variables.
4. Solomon Four-Group Design: This operates with two control groups and two experimental groups. Pretests are administered on half of the population under study while the other half do not have a pretest. This is essentially to test both the effect of the pretest and the outcomes of the test on both the control and the experimental groups.
5. Counterbalanced Measures Design: This tests the effect of the order of treatments when no control group is available.
6. Matched Subjects Design: Here participants are matched to create similar Experimental- and Control-Groups.
7. Double-Blind Experiment: In this type of experimental research, neither the researcher, nor the participants, know which is the control group. The results can be affected if the researcher or participants know this.
8. Bayesian Probability: The Bayesian probability method is usually used for settings where there are many variables which are hard to isolate. Here, the researcher proceeds with a set of initial beliefs, and tries to adjust them to how participants have responded.

Experimental research generally involves taking action to influence a phenomenon under study and then observing the consequences of the influence. It has three essential components namely;

- (i) Independent and dependent variables;
- (ii) Experimental and control groups; and
- (iii) Pre-testing and post-testing exercises or activity.

***g) Ex-Post Facto Research***

Ex post facto design is a research method in which groups with qualities that already exist are compared on some dependent variable. Also known as ‘*after-the-fact*’ research, an ex post facto design is considered a quasi-experimental research method in that the research subjects are not randomly assigned, rather they are grouped on the basis of already existing characteristics or traits. The interest of the researcher here is simply to investigate how those already existing traits impact on certain variables. For instance, a study may wish to investigate how height affects study rate among students using a library. In this case, the height, as the independent variable, is an already existing attribute of the research participants not assigned by the researcher.

***3.1.4 Characteristics of Research in the Social sciences***

The above explanations reveal the following characteristics of research:

- a) Research is a systematic and rigorous process
- b) Research is not a mere compilation of observations, but an empirical investigation aimed at generating evidences and observable facts.
- c) Research adopts the scientific method which is a series of steps or procedure that ensures objectivity and repeatability.
- d) Research is directed towards finding answers to questions that can be used to expand the frontiers of knowledge or improve the conditions of humanity.

**3.2 Quantitative research: Designs and methods**

As noted earlier, research can also be classified on the basis of the approach of enquiry employed. Quantitative research is a type of research that deploys statistical tools in the measurement of events, objects, traits or human social behaviour. As rightly opined by Kanire (2012), the quantitative research is guided by established measurements in numerical forms, and involves the empirical investigation of issues using statistical tools. Quantitative research, as the name suggests, is concerned with trying to quantify things or events. It focuses on computable or quantifiable questions

such as ‘how many, ‘how far or ‘to what extent’, and ‘how long’. Quantitative method is used when the researcher wants to measure and quantify data from a sample of the population of interest and generalize to the entire population.

Quantitative methodology is the dominant research framework in the social sciences. It is used to study numerical patterns in social phenomena, including human social behaviour. Quantitative research deals with data that are numerical or that can be converted into numbers. Sheard (2018) and Kanire (2012) have argued that, quantitative research as a research method in the social sciences allows researchers to conduct measurements of quantities and to discover the features of a population based on these measurements. Data derived from a quantitative research is generalizable, and can be extended or attributed to the larger total population.

As a research method, the quantitative research method is characterized by hypothesis testing, reliance on large samples, standardized measures, the deductive approach, and rigorously structured data collection instruments to generate numerical data about a thing or a given phenomenon in the society.

### **3.3 Qualitative research: Designs and methods**

In contrast to the quantitative research method, qualitative research seeks to develop subjective information that describes the opinions, views, and perceptions of people. As noted by Kanire (2012) qualitative researches are interested in collecting nonnumerical data that provides in-depth description of how people experience certain social events. It collects data in the form of words, expressions and opinions instead of numbers. Hence, the data gathered cannot be analysed using statistical tools except through systematic inductive methods and mere descriptive analytical tools. For MacDonald and Headlam (2009) qualitative methods are generally associated with the *subjective* evaluation of social dimensions.

Qualitative methods provide results that are usually rich and detailed, offering ideas and concepts to inform your research. Qualitative methods, as noted by MacDonald

and Headlam (2009), can tell how people feel and what they think, but cannot tell you how many of the target population feel or think that way as quantitative methods can.

Qualitative research methods usually involve first-hand observation, such as interviews or focus groups. It is usually conducted in natural settings, meaning that researchers study things as they are without manipulation. Furthermore, qualitative studies tend to determine what the study measurements are, and why they are useful in measuring the study results. This research tries to explore the motives and desires by conducting in depth analysis, evaluation and interviews. Apart from interviews the qualitative research involves various tests that collect both oral and written data, such as questionnaires, observations, focus group discussions, ethnography, and surveys. The purpose for undertaking these tests is to examine the attitude or individual opinion of study participants toward the subject of interest.

*Table 1: Qualitative and Quantitative methods.*

	<b>Quantitative Research</b>	<b>Qualitative Research</b>
Objective	<ul style="list-style-type: none"> <li>• To collect information which can be analysed numerically, the results of which are typically presented using statistics.</li> <li>• To measure the magnitude of an occurrence.</li> <li>• To generalize results deduced from a sample to population of interest.</li> </ul>	<ul style="list-style-type: none"> <li>• Explores information from the perspective of individuals and groups.</li> <li>• To understand the behaviour, perception and priorities of affected subjects of interest and to uncover prevalent trends in thoughts and opinions.</li> <li>• To generate in-depth understanding of the ‘why’ behind measurements.</li> </ul>
Sample size	Random; Usually large, representative of the population of interest.	Non-random; Usually small and narrowly defined.
Data collection	Structured/Semi-structured; standardized instruments. E.g., Questionnaire.	Unstructured/semi-structured and other Observational methods.
Data analysis	Deductive; Sorted and analyzed using descriptive and inferential statistical methods.	Inductive; Non-statistical; Descriptive methods.

Outcomes	Quantifiable data; Conclusive	Valid data; Used to develop further studies
Strengths	Manageable, replicable and appears much more reliable; cannot be generalized.	Validity is attained; Depth and details
Weakness	Just numbers showing extent without in-depth meaning; Validity problems.	Tedious; May generate irrelevant data; Difficult to replicate and be generalized.

*Source: Abu and Nwakanma (2018)*

### **3.3.1 Self-assessment exercises**

- a) What is science?
- b) How is science different from other methods of knowing?
- c) Explain the steps and stages in social research

## **3.4 Appraisal of Mixed Methods in Research**

The term “*mixed methods*” refers to a research method that allows for the systematic integration of both quantitative and qualitative methods of research within a single process of research. Mixed methods research combines the elements of qualitative and quantitative approaches for the purpose of expanding breadth and depth of understanding and corroboration on the outcomes of quantitative or qualitative analysis, while offsetting the weaknesses inherent to using each approach by itself (Shorten and Smith, 2017; FoodRisc 2016).

DeCuir–Gunby (2008) and Ivankova (2006) explained that mixed methods research requires a purposeful combination of different methods in data collection, data analysis, and interpretation, which enables researchers to see a more panoramic view of their research landscape, viewing phenomena from different viewpoints and through diverse research lenses. The idea of mixed method as a research approach flows from the drawbacks associated with quantitative and qualitative methods. While some scholars argue that quantitative research methods do not really capture participants’ experience and voice, others opine that qualitative research is also defective, largely because it is not entirely scientific and lacks the rigidity of the



### ***3.4.1 Types of Mixed Methods research Designs***

Scholars, including Shorten and Smith (2017); Creswell (2012); and Johnson, Onwuegbuzie, and Turner (2007), have noted that there are six (6) major types of mixed methods research designs, namely: convergent parallel mixed method, explanatory sequential mixed method, exploratory sequential mixed method, embedded mixed method, transformative mixed method and multiphase mixed method.

- i) **Convergent Parallel:** This method mixed method happens when the quantitative data collection and analysis and qualitative data collection and analysis occur at the same time and are then compared after the completion of the study.
- ii) **Explanatory Sequential:** In this mixed design, quantitative data collection and analysis occurs first, followed by qualitative data collection and analysis. It is usually used to help explain, interpret or contextualize quantitative findings, and to examine, in more details, unexpected results from a quantitative study.
- iii) **Exploratory Sequential:** This design is used when qualitative data collection and analysis occurs first, followed by quantitative data collection and analysis. It is particularly used to explore a phenomenon and to expand on qualitative findings, and to generalize qualitative findings to different samples in order to determine the distribution of a phenomenon within a chosen population.
- iv) **Embedded:** In embedded mixed methods, quantitative and qualitative data are collected and analysed concurrently within a quantitative design (such as an experimental research) or within a qualitative design (such as an phenomenology).
- v) **Transformative:** For this method, qualitative and quantitative data collection and analysis can occur concurrently or sequentially. This mixed method allows the researcher to work within a specific theoretical framework (for instance the social learning theory or the feminist theory).

- vi) **Multiphase:** For multiphase mixed method, separate quantitative and qualitative studies are conducted to gather data before a mixed method study is conducted.

As explained by FoodRisc (2016), DeCuir–Gunby (2008), and Ivankova (2006), these mixed methods are particularly employed when:

- The researcher wants to validate or corroborate the results obtained from other methods.
- The researcher needs to use one method to inform another method. For instance, when little is known about a topic and it is necessary to first learn about what variables to study through qualitative research, and then study those variables with a large sample of individuals using quantitative research.
- The study wants to repeatedly look at a research question from different angles, and clarify unexpected findings and other potential contradictions.
- The study wants to elaborate, clarify, or build on findings from other methods. For instance, if a causal relationship has been established through experimental research, but the study wants to understand and explain the causal processes involved through qualitative research.
- The study is interested in developing a theory about a phenomenon of interest and then test it. In this case, qualitative research is employed first to build theory, while quantitative research provides the means and indicators of testing the components of the theory.

### ***3.4.2 Advantages and Disadvantages of Mixed research Methods***

The use of mixed method research provides a number of advantages and disadvantages for scientific researches. Wisdom and Creswell (2013) and Ivankova (2006) are of the opinion that mixed research methods are advantageous as they provide the means for answering research questions that neither quantitative nor



qualitative methods could answer alone. Mixed methods are also used to gain in-depth understanding of connections or contradictions between qualitative and quantitative data. Furthermore, mixed research methods can facilitate better scholarly interaction and enrich the experiences of researchers as different perspectives illuminate the issues being studied.

FoodRisc (2016) noted that mixed research designs provide the balance that offsets the weaknesses embedded in quantitative and qualitative research designs. For instance, quantitative research is understood to be weak in explaining the context or setting in which people behave, while qualitative research is also deficient because of the potential for biased interpretations and the difficulty in generalizing research outcomes to a large group. Nevertheless, by using both types of research, the strengths of each approach can make up for the weaknesses of the other.

Mixed method research, however has some limitations. As noted by FoodRisc (2016) and Ivankova (2006), some of these are:

- i) Mixed method research design can be very complex as it requires the researcher to complete both processes for better analysis.
- ii) Mixed methods researchers are usually time consuming and requires more time and resources to plan and complete than single method research designs.

#### **4.0 Conclusion**

It has been established here that research is an empirical investigation aimed at generating evidences and observable facts. In development studies, research must adopt a systematic and rigorous process which involves series of steps or procedures that guarantees objectivity and repeatability of the processes and the outcomes. Without this, precision, organization, and repeatability are lost and research becomes non-science, and thus, cannot be relied upon.

Whereas research is not the only way of knowing, it has been proven also that it is the most reliable way of generating valid and authentic knowledge. Other methods of knowing such as: sensory experience, logic and reasoning, tradition, authority, divination, and intuition, have all been found to be riddled with issues such as hasty conclusions, faulty measurements, bias, overgeneralization, and fabrication of facts.

Unlike other approaches to social research, a mixed method research design is a procedure for collecting, analysing, and presenting data. Mixed method research design utilizes the strengths of both quantitative and qualitative research methods in a single study to provide a deeper and sensible understanding of a research problem. The need for mixed methods is hinged on the inability of any of quantitative and qualitative approaches to collect both numerical and non-numerical data. Mixed methods are used to ensure that a study generates data that is both rich in quality and is equally measurable.

## **5.0 Summary**

The intent of research is captured in its definition as a process of systematic inquiry, involving the collection of data; documentation of critical information; analysis data, and interpretation of findings, to generate valid explanations for events in man's environment. Social researches are interested in understanding the nature, dynamics and connotations of human social behaviour. Research employs various designs and methods for collecting, analysing, interpreting, and reporting data. Rigorous research designs are important because they guide the methods decisions that researchers must make during their studies and set the logic by which they make interpretations at the end of studies.

Social researches can be sorted into various types on the basis of (i) Its application or the use of the findings of the research, (ii) the mode of enquiry adopted in conducting the study, and (iii) the objectives of the study. For instance, research can be considered pure or applied if its intent is to generate just knowledge or help humanity solve certain existing or emerging problems. On the basis of approach or mode of

inquiry, research is said to be either quantitative or qualitative. Quantitative data, as noted earlier in the unit, includes close-ended information such as that found to measure attitudes (e.g., rating scales), behaviours (e.g., observation checklists), and performance instruments. The analysis of this type of data consists of statistically analysing scores collected on instruments (e.g., questionnaires) or checklists to answer research questions or to test hypotheses. Qualitative data, on the other hand, consists of open-ended information that the researcher usually gathers through interviews, focus groups and observations. The analysis of the qualitative data (words, text or behaviours) typically follows the path of aggregating it into categories of information and presenting the diversity of ideas gathered during data collection.

A contemporary method, referred to as *mixed method research design*, sprung from the combination of traditional quantitative and qualitative approaches. This method stemmed from its potential to help researchers view social relations and their intricacies clearer by fusing together the quantitative and qualitative methods of research while recognizing the limitations of both at the same time. Mixed methods are also known for the concept of triangulation in social research. According to Haq (2014) and Brannen and Moss (2012), triangulation provides researchers with the opportunity to present multiple findings about a single phenomenon by deploying various elements of quantitative and qualitative approaches in one research.

## **6.0 Tutor-Marked Assignment**

- i) Explain the concept of research and differentiate from other ways of knowing.
- ii) What are the types of research in the Social Sciences?
- iii) Explain the key attributes of qualitative and quantitative research designs, and show the significance of the mixed method research design.

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## **MODULE TWO**

### **FIELD WORK AND DATA COLLECTION**

#### **UNITS**

- Unit one: Types and Sources of Data
- Unit two: Instrument design and Data collection techniques
- Unit three: Population, Sample and Sampling techniques
- Unit four: Brief Description of big data

#### **CONTENTS**

- 1.0 Introduction**
- 2.0 Module Objectives**
- 3.0 Main Content**
  - 3.1 Types and Sources of Data**
  - 3.2 Instrument design and Data collection techniques**
  - 3.3 Population, Sample and Sampling techniques**
  - 3.4 Brief Description of big data**
- 4.0 Conclusion**
- 5.0 Summary**
- 6.0 Tutor-Marked Assignment**
- 7.0 References/Further readings**

#### **1.0 Introduction**

The notion of research is hinged on the data collection to confirm or refute, prove or disprove, and generate new knowledge. The process of collecting data in research is regarded as field work or field studies, which involves conducting investigations in real human communities. Fieldwork is a dynamic process where there is an exchange between the researcher, participants, and the larger sociocultural context in which the research problem is located. Field work or field studies involves the collection of raw

data from human societies by interacting with subjects of interest in their social environment. The field or social milieu is the *laboratory* of social scientists. It is in the field or social milieu that social researches are done. Field work enables researchers to examine the way theories and suppositions exist in real life. As Groh (2018) and Hughes (1960) have explained, field research involves a range of well-defined range of methods used in collecting and documenting data directly or indirectly from research participants. This module is designed to explain the processes of data collection, sources of data, types of data, and the concept of population and sample in social research.

## **2.0 Module Objectives**

The key objectives of this module include to enable students understand:

- The meaning of data, the types of data, and sources of data,
- The instruments of data collection,
- The validity and reliability of data collection instruments,
- The meaning of population and sample,
- Sampling techniques, as well as the merits and demerits of each technique.

At the end of the study, students should be able to explain each of these processes in research, and should also be able to apply them in actual social investigations.

## **3.0 Main Content**

### **3.1 Types and Sources of Data**

Data can be explained as pieces of evidences collected to corroborate or refute an assumption, a supposition or a speculation. Data, or *datum* for singular, can also be described as any information that has been collected or created to validate research assumptions. This research data can be any of observations, opinions, and



measurements, contained in documents, spreadsheets, laboratory notebooks, field notebooks, diaries, questionnaires, transcripts, audiotapes, videotapes, or photographs. Information contained in these mediums can be extracted, processed and transformed into useful *information*.

It is important to note that data and information are considered two different terms in the social sciences even though they are synonymously used. This is because data is seen as unorganized pieces of observations such as raw numbers, texts, words, pictures, sounds, or video recordings, gathered in a research. While information is considered a processed set of data. Furthermore, data is thought of as the lowest unit of information from which other measurements and analysis can be done. The implication of this is that, data in itself cannot be understood; and to get *meaningful* information, data requires further sorting, processing and documentation. That is to say, data becomes information when it is processed and transformed into something that can be understood by everyone (Abu & Nwakanma, 2018; Cohen, Manion, & Morrison, 2011).



*Fig 5: Flowchart of data conversion to information. Source: Author's illustration*

Data are used in researches as facts to substantiate research assumptions or to provide observable evidences that can be used to evaluate occurrences. As a result, the generation of useful data is one of the core objectives of social researches (Essay, 2016; Babbie, 2013).

### 3.1.1 Types of Data in Social research

Research data is usually classified into numeric and nonnumeric data. Data is said to be numeric when it is in the form of numbers and can be statistically measured. Examples of such data include: length, width, height, age, temperature, humidity, prices, and volumes of things, etc. Nonnumeric data, on the other hand, are data that cannot be measured, but are only observed. Nonnumeric data are largely qualitative and describes information. Such data cannot be easily quantified. Examples of qualitative data include perceptions, feelings, tastes, textures and color. Each of these types of research data are further classed into two sub-types. For Numeric or quantitative data, there are *discrete* and *continuous* data. While for Nonnumeric, we have *nominal* or *ordinal*.

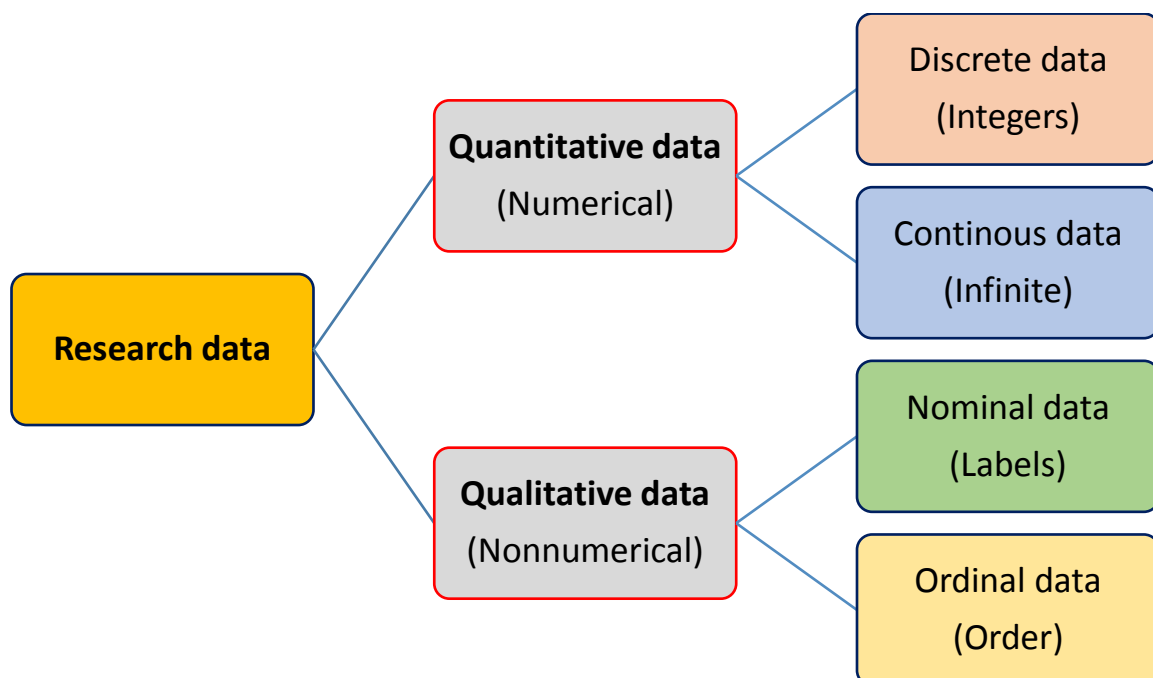


Fig 6: Flow chart showing types of research data. Source: Author's illustration

- a) **Discrete data:** Data can be said to be **discrete** if the measurements are mostly integers. An ‘integer’ (from the Latin *integer* meaning ‘whole’) is informally defined as a number that can be written without a fractional component. For example, 21, 4, 1, and –2048 are all *integers*, while  $\frac{2}{32}$ ,  $\sqrt{2}$ , and 9.75 are not. Discrete data typically involves indivisible entities that are equidistant to other numbers. For instance, the number of children in a family or pupils in a school is discrete data because they are indivisible entities. For instance, in discrete data, you cannot have 9.75 children in a family or  $\frac{2}{32}$  pupils in a school. In simpler terms, discrete data are numerical and countable, and can only take particular values.
- b) **Continuous data:** Continuous data, on the other hand, refers to the unfixed number of possible measurements between two realistic points. They are data that can be measured on a continuum and can take any value within a finite and infinite interval. Examples of such data are weights, temperature, and lengths. As noted by Babbie (2013) and Okereke (2008), continuous data has the facility for ‘absolute zero’, that is the possible non-existence of the characteristics of a variable. For example, in continuous data, you can measure length from 0 cm to 99.99cm or more in a measurement between 0 and 100cm.
- c) **Nominal data:** Nominal data is a type of qualitative data, and includes data which are differentiated by a simple ‘naming system’ without any calculable value. As noted by Abu and Nwakanma (2018), nominal data defines categories of variables. They only show that the items measured vary in nature or in names. A good way to remember ‘nominal’ data is that it sounds a lot like ‘name’; and of course, nominal scales are simply *names* or *labels*. Examples of nominal data are categories such as ‘Pass’ or ‘Fail’, ‘Male’ or ‘Female’, ‘Urban’ and ‘Rural’, or names of countries, objects, traits, and actions.
- d) **Ordinal data:** Ordinal data are inherently *orderable* categorical data. Unlike nominal data that relies on a naming system, ordinal data are data grouped following a ‘ranking system’. Ordinal Scale maintains the naming qualities of

the nominal data; however, along with an intrinsic order. The variables in ordinal data are usually listed in an ordered manner. The ordinal variables are usually numbered, so as to indicate the order of the list. However, the numbers are not mathematically measured but are merely assigned as labels for opinions.

Ordinal data mixes numerical and categorical data. The numbers placed on the categories only have ordinary ranking meaning, and no particular mathematical value. For example, rating a hotel on a scale from 0 (lowest) to 5 (highest) stars gives ordinal data. The rating of a hotel as ‘5 star’ or ‘1 star’ simply shows the difference between a hotel of high quality and that of a lower quality, and not a numerical value of hotels (Abu and Nwakanma, 2018; Babbie, 2013). Ordinal data can also be *dichotomous* or *non-dichotomous*. Dichotomous data have only two possible categories. E.g., health dimensions can only be presented as 'sick' or 'healthy', or information categorized as 'false' or 'true', when measuring its truth value. Non-dichotomous data, on the other hand, consists of a variety of values and categories that describes the possible extents and extremes of a variable. For instance, the level of agreement can be measured on the scales of: 'agree', 'strongly agree', 'disagree', 'strongly disagree', or ‘undecided’.

*Table 2: Types of Research data*

<b>TYPES OF DATA</b>	<b>DESCRIPTION</b>
<b>Nominal Data</b>	Qualitative; Nonnumerical Simply names or labels and categories. Nominal data are not measurable, they do not rank variables in any particular order. They only describe variables on the basis of their nature. E.g., Urban, Rural, and Sub-urban.
<b>Ordinal Data</b>	Qualitative; Nonnumerical Groups data on a rank system. Ordinal data have order, but the numbers or ranks between

<b>Discrete or Interval</b>	<p>the categories are not meaningful. E.g., High or Low</p> <p>Quantitative; Numerical</p> <p>Interval data have countable whole numbers, with meaningful intervals between each measurement; however, there is no true starting point such as zero. E.g., 1, 2, 10, 245</p>
<b>Continuous or Ratio</b>	<p>Quantitative; Numerical</p> <p>Continuous or Ratio data have the highest level of measurement. Data are numerical, quantifiable and has a starting point and infinite end point. E.g., 0, 0.25, <math>\frac{2}{32}</math>, -2.11</p>

*Source: Author's illustration.*

### **3.1.2 Sources of Research Data**

Data, as described earlier in this unit, is basically unorganized statistical pieces of facts collected for research purposes. Data are usually collected from different two main sources, namely: primary and secondary sources. Understanding the difference between these two sources is important in deciding which method of data collection to use in a study, and the possible outcomes of such study.

#### **i) Primary sources of Data:**

A primary data source is one in which the data are collected first-hand or directly by the researcher for a specific research purpose. When the data is directly from the field *via* self-administered surveys, field observations, interviews, or experiments, it is said to be from a primary source. First-hand here means that the data is directly from the research subjects. Primary sources of data have the following characteristics:

- Primary data is ‘first-hand information’ collected by an investigator,
- It is collected for the first time,
- It is original and unique to the particular investigation,

- Data collected are current, momentous and up-to-date,
- The data collected belongs to the researcher

It is important to note that collecting data from primary sources has its advantages and disadvantages, as well as its implications for research outcomes. For instance, collecting data from primary sources can be very expensive and time consuming. Also, in some cases, collecting data from primary sources may be difficult especially if the subjects of interest are inaccessible, hidden, or averse to direct contact. Notwithstanding, as explained by Salkind (2010), data from primary sources are suitable for quantitative studies that has the intention of generalization. Another advantage is that data from primary sources directly address the research interest and provides information that is largely unavailable elsewhere. Furthermore, primary sources of data allow a researcher the choice of employing a methodology he or she is convinced will generate the most reliable and precise data required.

#### ii) Secondary sources of Data:

Secondary sources of data are the opposite of primary sources. They are simply repositories where data collected by some other researchers or organisations are stored and made readily available to users or researchers. Data in secondary sources have already been processed and interpreted by the original investigator, and are stored in the form of reports, articles, gazettes, documentaries, texts, videos, audios, pictures, or books. Secondary sources of data have the following characteristics:

- They are second-hand data and contains processed information
- They are easily accessible and ideal for gaining a broad understanding of a subject of interest before or after primary data collection.

Whereas secondary data are usually easily accessible to researchers and organisations because they are stored and shared publicly; the implication is that the data are usually general and not tailored specifically to meet the researcher's needs as primary data

does. This demerit forms the basis for most of the disadvantages of secondary sources of data. The data in secondary sources may also be out of date or inaccurate. It may not also cover those samples of the population researchers want to examine, or contain insufficient data (Babbie, 2013; Salkind, 2010; Frankfort-Nachmias and Nachmias, 1996). A major challenge with secondary data is that they generally have a pre-established degree of validity and reliability which may not be suitable for the researcher who is re-using such data.

Despite these weaknesses, secondary sources of data provide time-saving and cost-efficient data collection process. Another clear benefit of using secondary data is that much of the rigorous background work needed to clean, sort, analyse has already been carried out. Secondary data also serve as a baseline for primary research. It can also be used for data enrichment.

*Table 3: Sources of Data showing merits and demerits*

<b>SOURCES</b>	<b>ADVANTAGES</b>	<b>DISADVANTAGES</b>
<b>Primary sources</b>	Control of information, Authenticity/Reliability, etc.	Time-Consuming, Expensive, etc.
<b>Secondary sources</b>	Ease of accessibility, Inexpensive/Affordable, etc.	Lack of control Uncertainty/Date & time, etc.

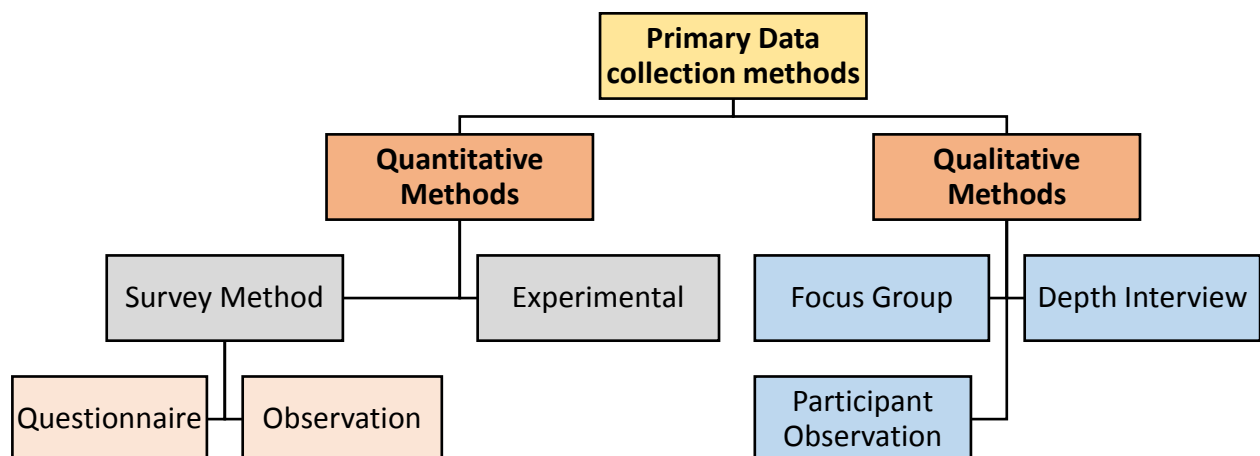
*Source: Abu and Nwakanma (2018).*

It is important to note that, considering the inherent strengths and weaknesses of the two sources of data, and their implications for research outcomes, research data can be collected from both sources.

### **3.2 Instrument design and Data collection techniques**

Data collection is one of the most important steps in social research. Data provides evidences to corroborate research hypothesis and propositions. Data collection is defined as the procedure of collecting, measuring and analysing data for research using validated *techniques*. Data collection is the process of gathering and measuring

information from various sources in a way that enables the investigator to find answers to research questions. Data collection employs various tools and techniques that ensure accuracy and precision. Data collection techniques here explains the various tools, methods, and principles employed in the collection of research data. Social research employs different techniques depending on the aim of the study and the nature of the study population. Some of these techniques are specific to quantitative and qualitative research, while some others can be deployed for both research designs. These data collection techniques include questionnaires, interviews, focus group discussions, and the different types of observational methods of data collection. Some scholars, such as Kanire (2012), Neuman (2012), and Kumar (2011), have noted that these data collection techniques can be classified into quantitative and qualitative methods, with each of them having different techniques under them (see Figure 7 below).



*Fig 7: Data collection techniques. Source: Author's illustration*

Data is primarily collected to be further subjected to testing and other forms of analysis which seeks to explain the phenomenon of interest. Other underlying reasons for collecting data mentioned in Formplus (2020) include:



- **Integrity of The Research:** A key reason for collecting data, be it through quantitative or qualitative methods is to ensure that the integrity of the research question is indeed maintained.
- **Reduce the likelihood of errors:** The correct use of appropriate data collection of methods reduces the likelihood of errors consistent with the results.
- **Decision Making:** To minimize the risk of errors in decision making, it is important that accurate data is collected so that the researcher doesn't make uninformed decisions.
- **Save cost and time:** Data collection saves the researcher time and funds that would otherwise be misspent without a deeper understanding of the topic or subject matter.
- **To support a need for a new idea, change and/or innovation:** To prove the need for a change in the norm or the introduction of new information that will be widely accepted, it is important to collect data as evidence to support these claims.

### ***3.2.1 Data collection techniques: Questionnaire***

A questionnaire is a research instrument consisting of a series of questions and other prompts for the purpose of eliciting information from respondents. Questionnaires contain predetermined questions designed to extract responses from research participants. Data collection using questionnaires involves asking research participants to respond to a set of oral or written questions in order to extract their opinion, views, experiences, and comments over a given issue of research interest.

A questionnaire is a data collection instrument popularly used in collecting primary data, and are usually employed in survey researches mainly because they can be used to collect a wide range of qualitative and quantitative data at the same time from a small or large population. Questionnaires also have the advantage being a convenient,

inexpensive and an efficient way of collecting and compiling data from any size of research population.

### ***Types of questionnaires***

Questionnaires are usually classified on the basis of design or style of administration. In terms of design or structure, there are mainly three types of questionnaires, namely: open-ended questionnaires, closed questionnaires, and ‘mixed’ or ‘semi-structured’ questionnaires. However, in terms of administration, questionnaires types include: mailed questionnaires, face-to-face questionnaires, pictorial questionnaires, telephone questionnaires, and online questionnaires.

#### ***i) Questionnaire types based on design: Open-ended, Closed ended and Mixed***

Closed questionnaires are typically designed to collect precise information using a set of *predetermined* questions. In closed questionnaires, the options available to the respondents are limited, in that they are restricted to certain questions and responses. Closed questionnaires are also known as ‘structured’ questionnaires owing to the fact that respondents cannot express their views beyond the options provided by the researcher in the questionnaire. Closed ended questionnaires are ideal for collecting easy-to-analyse statistical data; however, with close ended questionnaires insightful data may be lost in research as respondents do not have the room to express their opinion.

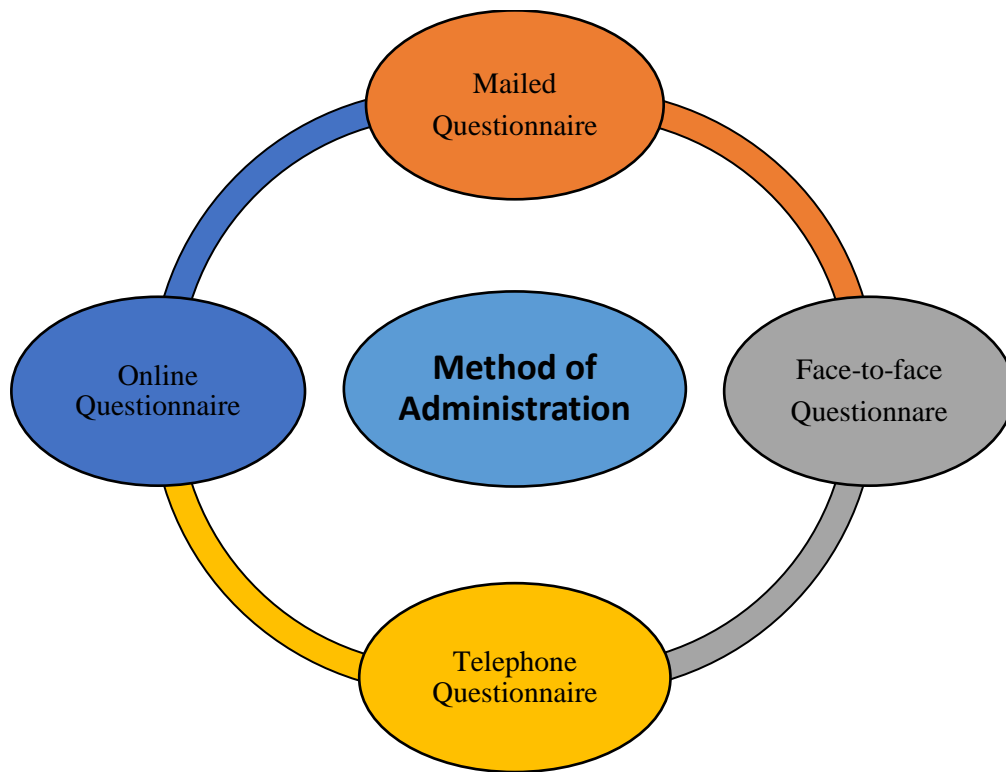
Open-ended questionnaires on the other hand are designed to allow respondents supply personal opinion outside the options provided in the questionnaire. Open-ended or Unstructured questionnaires, as they are also regarded, are important for collecting qualitative data. The questions in this type of questionnaire are *exploratory*, and allows for free comments from respondents with little or no restrictions. There are also no pre-set answer options, instead respondents are permitted to put down their exact thoughts in their own words. Open-ended questionnaires are often used for complex surveys that cannot be answered in a few simple categories but require more detail and discussion. One major advantage of using open-ended questionnaires is that

rich qualitative data can be obtained as it is designed to allow the respondents elaborate on their answer. The significance of this is that the research can find out why a person holds a certain attitude. However, as McLeod (2018) agrees, open-ended questionnaires can be time-consuming to collect the data, as it takes longer for the respondent to complete open questions especially if the sample is large. It is also very tedious to analyse the data from open-ended questionnaires as the researcher is obliged to read every response and try to put them into categories by coding, which is often subjective and difficult. Furthermore, open-ended questionnaires have proven not to be suitable for less educated respondents as open questions require superior writing skills and a better ability to express one's feelings verbally.

Mixed questionnaires or semi-structured questionnaires combine the qualities and structure of open-ended and closed questionnaire designs to create an instrument that is capable of collecting both qualitative and quantitative data at the same time. Semi-structured questionnaires are oftentimes chosen in researches to reduce the disadvantages of employing a singular design for data collection, as it provides the means to collect balanced information.

## ***ii) Questionnaire types based on method of administration***

On the basis of mode or method of administration, questionnaires can be face-to-face, mailed, telephone or online. These terms explain how the researcher presents the questionnaire to the respondents.



*Fig. 8: Diagram describing types of questionnaires. Source: Author's illustration.*

Face-to-face questionnaires, as explained by Abu and Nwakanma (2018), are administered physically by the researcher who visits the workplace or home of the respondents. This type of questionnaire allows the respondents to clarify from the researcher any ambiguous aspect of the questionnaire which reduces errors in filling the questionnaire. Another advantage of this method is that the researcher can instantly collect the questionnaire. The significance of this is that attrition levels in data collection is seriously reduced. However, this method has a number of weaknesses, one of which is the possibility of the researchers' presence to unduly influence the response of the respondent. Also, face-to-face questionnaires can be expensive and slow to conduct, as the researcher will need to visit the workplace or the homes of each selected research participant.

Mailed questionnaires can be open-ended, closed or mixed methods; however, it involves a researcher sending a physical questionnaire to the mailbox of a respondent with the expectation that it will be filled and mailed back. Mailed questionnaires, although is becoming obsolete, it is commonly used when the respondents are outside

the geographical area of the researcher, or can only be reached via mails. The advantage of this design is that respondents can complete the questionnaire at their convenient time. This method can also be used to reach a wide range of people. Nonetheless, this method is expensive and time-consuming. There is also a high risk of not collecting enough responses to make actionable insights from the data. Another disadvantage identified with this type of questionnaire is that respondents may be too busy to return the mails, and in situations where the respondent needs clarification on certain aspects of the questionnaire, the researcher will not be present to assist.

Telephone questionnaire is another type of questionnaire where research participants are contacted via phone for a conversation. Phone surveys, unlike other questionnaire types, makes the process of data collection a more private communication and this concealment puts respondents at ease and encourages them to answer truthfully; however, there are a few challenges with this type of data collection method. For instance, communication network may be poor and thereby frustrate the process. Also, some respondents may be hard to reach or may be too busy to take phone surveys. At other times, the respondents may hesitate to give out much information over the phone. It is also an expensive way of conducting research. Furthermore, if the investigator does not have a good recording device, much of the data collected may be lost (Abu and Nwakanma, 2018; Kanire, 2012, and Neuman 2012).

Online questionnaires bring to fore the modernization and reinvention of the mailed questionnaire design. Online questionnaires are born out of the emergence and use of electronic media and social media. In recent times, emails and other online platforms such as Telegram, WhatsApp, Facebook, and Instagram, are gradually occupying the space of postal interactions, such that researches can also be conducted via the. Online questionnaires are sent to the online platform where respondents can access them, respond and return them. Some online questionnaires are also designed to sort and analyse any data keyed into them. As noted by Kanire (2012), and Neuman (2012), this method is generally cost-effective and time-efficient. Respondents can also answer at leisure. Without the pressure to respond immediately, responses may be

more accurate. The disadvantage, however, is that respondents can easily ignore these questionnaires.

### ***Types of questions in a Questionnaire***

As explained earlier, questionnaires are documents with set of questions designed to elicit information for research purposes. The questions are carefully designed to ensure that explicit, sufficient and useful information are collected. Some of the types of questions used in the design of questionnaires, as mentioned in QuestionPro (2017), include:

- a) **Open-Ended Questions:** Open-ended questions help collect qualitative data in a questionnaire where the respondent can answer in a free form with little to no restrictions.
- b) **Dichotomous Questions:** Questionnaires with dichotomous questions present two possible options or responses to respondents. For instance, questions with predetermined responses such as: “agree/disagree”, “true/false”, and “yes/no” are dichotomous questionnaires and close-ended. This question is usually used in case of the need for necessary validation. It is the most natural form of a questionnaire.
- c) **Multiple-Choice Questions:** Multiple-choice questions are commonly found in close-ended questionnaires in which a respondent is limited to selecting one (as in *single-select* multiple-choice question) or many (like in *multi-select* multiple choice question) responses from a given list of options. The multiple-choice question consists of an incomplete stem (question), right answer or answers, incorrect answers, close alternatives, and distractors. It is important to note that not all multiple-choice questions have all of the answer types. For example, you probably will not have the wrong or right answers if you’re looking for customer opinion.

- d) **Scaling Questions:** These questions are closed ended and are based on the principles of the four measurement scales – nominal, ordinal, interval, and ratio. A few of the question types that utilize these scales’ fundamental properties are rank order questions, Likert scale questions, semantic differential scale questions, and staple scale questions.
- e) **Pictorial Questions:** This question type is easy to use and encourages respondents to answer by identifying with pictures and diagrams provided. It works similarly to a multiple-choice question and allows respondents to provide answers to questions by choosing attached images. This helps respondents choose an answer quickly without over-thinking their answers; thus, giving the investigator more precise information.

### ***Qualities of a Good Questionnaire***

Designing a questionnaire begins with an understanding of the structure, pitfalls, and principles. As noted by Abu and Nwakanma (2018), a good question has the following qualities:

- i) A good questionnaire should have clear explanations on the aim and objectives of the investigation, instructions on how to respond to the questionnaire, as well as a caveat on what the data will be used for. Also, the questionnaire should explain the level of protection, privacy or confidentiality the respondent has access to for participating in the research.
- ii) A good questionnaire should not contain *personal identifiers* or any other details that can ‘expose’ the identity of respondent. Anonymity of respondents is a very important issue in social research. Hence, the research instrument should be designed to protect that. Examples of personal identifiers are names and aliases, personal house address, unique status or position in an organization and contact phone numbers.

- iii)* A good questionnaire should not contain offensive questions that can embarrass, upset or infuriate the respondents.
- iv)* A good questionnaire should be systematically and logically designed to elicit relevant information for the study.
- v)* A good questionnaire should be written in a language easily understood by the respondents. In cases where the language used is uncommon, then it should be clearly and exactly interpreted.
- vi)* If special terms are used in the questionnaire, they should also be explained to the respondents.
- vii)* A good questionnaire should not be too lengthy and excessively wordy. Lengthy or long-winded questionnaires soon weary out the respondent. Preferably, Keep It Short and Simple!
- viii)* A good questionnaire should not have double-barrelled or ambiguous questions that can confuse the respondent.
- ix)* A good questionnaire should not contain any form of mathematical calculations. Except it is for a population that are proficient in calculations.
- x)* A good questionnaire should be set in a way that there are portions of the questions that allow for cross examination of information supplied by the respondents.
- xi)* The answers provided in the questionnaire should be relevant to the research problem.
- xii)* The answers provided should also be direct, short and simple enough for clarity and precision.
- xiii)* A good questionnaire should also be attractive in appearance and the words printed visibly.



- xiv) A good questionnaire should also be administered ‘responsibly’! Yes. No matter how beautifully designed and perfectly structured a questionnaire is if it is not administered responsibly it amounts to nothing! Questionnaires must be administered with the ethical responsibilities to the participant and public in mind. For example, the researcher should not in any way try to coerce, persuade or cajole the respondent to choose particular answers.

### **3.2.2 Data Collection techniques: Interviews**

Interview is another important data collection technique in the social researches. An interview is a survey method in which an investigator engages respondents or subjects of interest in a conversation as a way of eliciting vital information from them. The use of interviews as a data collection method derives from the assumption that the participants’ opinion and perspectives are meaningful, significant, and can add richer information to what can be observed. Through interviews, researchers generate richer and much more reliable information through conversation and documentation of the expressions, emotional displays, points of emphasis, etc., of the respondents, as they comment on given topics.

Two types of interviews are commonly used in social researches, namely: structured and unstructured interviews (Bhattacharjee, 2012; Kumar, 2011, and Anikpo, 2006). In *structured interviews* the researcher creates a set of standardized and formalized questions in an *interview schedule*, with which he conducts the interview. In this type of method, the discussions between the researcher and the respondents do not go beyond the pre-set schedule. The major advantage of this design is that it allows the investigation to be quicker, precise and easy to interpret. However, structured interviews sometimes deny the researcher the liberty to spontaneously follow comments and new observations during the conversation. Respondents are also not able to freely express themselves beyond the researcher’s interview schedule.

For *unstructured interviews*, flexibility and informality are introduced. In this type of interview, the researcher has in mind a clear plan of the direction of the interview;

however, the conversation does not follow any rigid fashion or follow any interview schedule. The researcher asks questions that open up discussions and allow respondents to comment freely on issues raised. The responses and comments of the respondents serve as a clue on follow-up questions to be asked. Kabir (2016) opines that unstructured interview method has the following characteristics:

- Questions tend to be open-ended and allows for *in-depth* interviewing.
- The interviewer has a clear plan in mind regarding the focus and goal of the interview. This guides the discussion.
- There is no structured interview guide. Instead, the interviewer builds rapport with respondents, getting respondents to open-up and express themselves in their own way.
- Unstructured interviewing is recommended when the researcher has developed enough of an understanding of a setting and his/her topic of interest to have a clear agenda for the discussion with the informant, but still remains open to having his/her understanding of the area of inquiry open to revision by respondents.

For Anikpo (2006:72), “the major advantage of this type of interview is that it is more penetrating and enables the researcher to follow up unexpected cues, redirect the inquiry into more desirable areas on the basis of emerging data, and record nonverbal displays during the interview”. Unstructured interviews are also very useful method for developing baseline data of events, behaviours, experiences, or research settings that have not been fully understood or explored. However, some of the challenges include the fact that unstructured interviews can be time consuming, and often times the data generated can be very bulky and difficult to analyse.

### ***Processes of conducting an Interview***

The interview method is among the most challenging methods of data collection in social research. This is partly because it involves evaluating and documenting spoken and unspoken responses of participants in a close by interaction. Also, interviews require a level of expertise to manage the conversation and elicit useful data from the research participants. The followings describe the processes of conducting an interview.

- *Preparing the setting:* For interviews, selecting an appropriate site in which to conduct interviews is very important. The environment can influence the interview process in a lot of ways, including making the respondents uncomfortable, apprehensive, agitated, scared, or inhibited. The setting of the interview must first be easily located by the respondents, and has to be in an environment that is comfortable, free from distractions, and hazardous substances. If possible, an investigator can inquire from the interviewee where they would like to be interviewed. Some respondents may be comfortable being interviewed at home, while others may prefer a venue outdoor or some other form of interview, such as telephone or online.
- *Opening remarks:* In many ways, an interviewer has the same initial problem that a salesperson has; and that is opening the discussion with a talk that guarantees a continued and unhindered conversation. Investigators need to start the conversation with soft, welcoming talks that will make the respondents relaxed, and at the same time excited about the interview.
- *Explaining the study:* It is also important that the investigator explain briefly the objectives of the study again to the respondents. It is also in this step that the investigator assures the respondents of their safety, and confidentiality for participating in the study. In most cases, the researcher notifies the respondents that the interview is voluntary and any one is free to withdraw at any point he or she feels uncomfortable or wants to leave.

- *Asking the questions:* The essence of the interview is to pose questions to elicit information from the respondents. However, asking these questions follows some written and unwritten principles. For instance, the researcher is expected to avoid sensitive and unoffensive questions, except in a situation that those questions are important to the study and consent has been given by the respondents. Also, in cases where there is an interview guide, the researcher has to use the questionnaire; however, carefully and informally. While the instrument is designed to guide the interview, having your face in the instrument can make the entire process mechanical and uninteresting. Interviews work better when the investigators have memorized some parts of the questions and only refer to the instrument occasionally, while maintaining eye contact in a confident manner.
- *Obtaining adequate responses:* to obtain adequate response from the participants, an investigator can use silent probing, overt encouragement, elaboration, ask for clarification where necessary, or ask the participants to *elaborate* on comments previously supplied. In *silent probing*, the researcher encourages the respondent to elaborate on a comment by pausing and waiting after the respondent has made a comment. This suggests to the respondent that you wish them to continue talking. *Overt encouragement* is the direct opposite of silent probing. In this case, the researcher directly and openly encourages the respondent to continue a conversation by making short comments that suggests that. Overt encouragement could be as simple as saying: 'Please go ahead', 'You mean that?' 'You don't say!', and, 'Okay?'. As for *elaboration*, the researcher asks the respondents directly to comment further on the information provided. Phrases such as 'kindly elaborate on this' or 'is there anything else you would like to add?', can be asked. Another method of eliciting information is to *ask for clarification* on comments the respondents made in the course of the interview.

- *Recording the response:* Without recording the information elicited during an interview, the whole process becomes meaningless. There are different ways of recording the responses of the interviewees during an interview. Some investigators prefer to use recording devices such as audio recorders or video cameras. Some others use the services of research assistants who records verbatim the answers of the respondents. There are also researchers that prefer to document the responses themselves while the interview is ongoing. The choice of recording information in an interview is influenced by amount of funds available, the time available for the interview, the length of the interview, and the setting of the interview. However, whatever choice one makes in recording the interview, it is important the respondents are informed that the conversation is being recorded.
- *Concluding the interview:* To conclude the interview, it is important the investigator thank the respondents for their time and resources spent attending the interview. Researchers should also highlight the key points in the conversation and ask for the closing comments of the respondent. Also, if provisions are made for incentives, the closing is the perfect time to give them out. This will make the respondents feel appreciated. In the end, respondents should be notified that they may be further contacted if there is need for any more information.

### **3.2.3 Data Collection techniques: Observation**

Observation is a data collection method in which investigators gather first-hand data on in the natural setting of an occurrences through observation and systematic recording of events, traits or behaviours being studied. As explained by Kumar (2011) and Anikpo (2006), observation method is the active acquisition of information about a people or any other research interest by meticulously observing their activities, actions, behaviour and responses. This technique provides investigators the opportunity to collect data on a wide range of behaviours in their natural setting using the senses or other technological aids such as audio recorders and video cameras.

Observation is a key method in anthropology studies and ethnography, and consists of a mix of techniques including interviews, direct observation, participation group activities, group discussions, analyses of life histories, documentaries, diaries and transcripts. Observations occur in natural, unstructured, and flexible settings, and allows the researcher to understand the behaviour and responses of the subject of interest in the context they are acted. It also provides the researcher the opportunity to identify unanticipated outcomes in a study. The nature of the observation could be accomplished either as a complete observer (*nonparticipant observation*), or a participant as an observer (*participant observation*).

Participant observation requires the researcher to actively partake and interact with the community under study. Participant observation is usually undertaken over an extended period of time which helps the researcher obtain more detailed and accurate information about the people being studied. This *emic* (study from within group) method helps the researcher to share the experiences of the subject of interest. This kind of method is employed in ethnographic studies to provide a holistic backstage documentation of the obvious and unintended nature of the phenomenon under study. However, it has been noted by Abu and Nwakanma (2018) and Bhattacharjee (2012), that without proper discipline and objectivity, it is possible for participant to yield biased data owing to the sentiments attached to living and getting accustomed to subject of interest. Also, there are the issues of time constraints, risks associated with living amongst strangers, ethical concerns associated with documenting a people while living with them, and of course, the problem of ‘observer effect’ influencing responses and behaviour of subjects of interest.

Nonparticipant observation, on the other hand, requires the researcher to investigate the group being studied discreetly or *unnoticeably*. For Mills and Durepos (2010), nonparticipant observation is an *etic* (study from outside of group) method of data collection that allows the investigator to extensively observe events in their natural environment without interference, with the aim of gaining knowledge about the activities of a group or an individual. Unlike participant observation, the investigator

in nonparticipant observation studies the group passively or from a distance without partaking or interfering in the group's activities. As rightly opined by Liu and Maitlis (2010), this method is used to understand a phenomenon by investigating the individual or group or community while staying separate from the activities being observed.

By directly observing operations and activities, the researcher can develop a holistic perspective, and understand the context within which the behaviours or events occur. This may be especially important where it is not the event that is of interest, but rather how that event may fit into, or be affected by, a sequence of events. Furthermore, observational approaches also allow the researcher to learn about issues the participants may be unaware of, or that they are unwilling or unable to discuss openly in an interview or focus group discussion (Liu and Maitlis, 2010; Mills and Durepos, 2010).

The advantage of this method is that it helps the researcher maintain objectivity and be free from developing emotional attachment or bias for the group being studied. Also, documenting and analysing observations becomes less difficult as the researcher is less involved. However, studies have shown that in participant observation, there is the problem of faulty measurement as the investigator can only document events he can 'see', without knowing the meaning behind them. Again, the behaviour of the group being studied can also be affected and modified when the people notice that they are being observed.

#### ***3.2.4 Data Collection techniques: Focus Group Discussion***

A focus group is a data collection technique that requires an investigator to interview a group of respondents at the same time. Focus group discussions (FGD) are commonly used in the social sciences when examining cultural values or other complex social issues that requires multifaceted views. It is also used at the initial stages of a research study to create baseline information, or after the completion of the study to generate deeper insights into findings of a study. According to MacDonald and Headlam

(2015) and Gibbs (1997), a focus group, usually involving 6 – 10 participants, can be defined as a group of individuals selected to discuss and comment upon, from personal experience, the topic that is the subject of the research.

Using focus group discussions in social research gives an investigator the opportunity to collect diverse and vast information on the subject of interest. Zikmund (1997) summarised the advantages of focus group discussions as “10 Ss”:

- *Synergism*: For Zikmund (1997), FGD gives the advantage of synergy as the group discussions produce better insight into a problem than individual interviews.
- *Snowballing*: Also, in focus group discussion, the views or response of one participant initiates a chain of responses that further enriches the data being collected.
- *Stimulation*: Again, the setting of FGD’s encourages participants to give responses and air their own view on the subject of interest.
- *Security*: Zikmund (1997) also noted that since participants will usually find another participant who might endorse his or her opinion and there is less individual pressure unlike in a depth interview, respondents are more likely to be candid.
- *Spontaneity*: Spontaneity suggests that since there are no predesigned questions guiding the conversation (especially in unstructured FGD’s), responses are spontaneous. Such response tends to reveal more beyond what is prepared for discussion. Also, because no one individual is required to respond to a question, this encourages a spontaneous response when people have a definite point of view.
- *Serendipity*: In FGD’s also, new ideas are generated in the course of discussion.



- *Specialization*: Since response is being sought from large number of respondents, a trained moderator is required to interview more respondents in a given session.
- *Scientific Scrutiny*: Since the proceedings are being recorded, they can be analyzed in a great detail scientifically. can be observed by members of the research team.
- *Structure*: Focus group discussions also allows for topics to be discussed flexibly and in great depth. It is also easier for the investigator to reintroduce a topic not adequately covered before than in a depth interview.
- *Speed*: Since a large number of respondents are being interviewed simultaneously in the focus group discussion, data is collected more quickly than in individual interviews.

Whereas the advantages of focus group discussions are enormous, there are some drawbacks. For instance, the lack of privacy associated with discussing in groups can present a major obstacle as some persons may be too shy or inhibited to express themselves. There is also the group to be dominated by one or two participants. Furthermore, focus group discussion sessions can be time-consuming and difficult, and require a moderator who is skilled at creating a relaxed environment for conversation, drawing out passive participants, and managing differences and conflict during the conversation.

### ***3.2.5 Data Collection techniques: Experimental research***

Another commonly used data collection technique in the social sciences and natural sciences is the experiment technique. An experiment is a controlled study in which the researcher attempts to understand the cause-and-effect relationships in a given phenomenon. In Social research, an experiment data collection method is that in which a researcher deliberately manipulates some variables in their natural environment and observes their effects on other variables under study. In this method,

the variables manipulated are referred to as *independent* variables, while the variables that change as a result of manipulation are the *dependent* variables. This method creates the opportunity to test for association and causation. As noted by MacDonald and Headlam (2015), the greatest advantage of using an experiment in data collection is that one can explore causal relationships that an observational study cannot. Nevertheless, experiments have the disadvantage of being expensive and requiring a lot of time.

### **3.2.6 *Validity and Reliability of Research instruments***

Validity and reliability are two important factors usually considered when developing and testing any research instrument. Reliability and validity are used to evaluate the quality of measurement in research. This unit explains the role and factors that define validity and reliability in social researches.

#### ***i) Validity in Social research***

Validity refers to the degree to which an instrument accurately measures what it intends to measure as it is designed to perform. Whereas it is near impossible that an instrument will be 100% valid, assessing validity helps us understand the degree to which an instrument actually measures what it intends to measure. As a process, validation involves collecting and analysing data to assess the accuracy of an instrument. Three common types of validity, namely: content, construct, and criterion validities, are usually considered when conducting a pilot test.

- **External validity:** This refers to the extent to which the results of a study can be *generalized* from a sample to the entire target population. An instrument that is externally valid increases the degree to which a sample represents the population of the study (Middleton, 2019; Babbie, 2013; and Anikpo, 2006).
- **Content validity:** Content validity refers to the degree to which an assessment instrument is relevant to, and representative of, the targeted construct it is designed to measure. That is, the appropriateness of the content of an

instrument in measuring key questions and observation guiding the study. To produce valid results, Middleton (2019), noted that the content of a research instrument must cover all relevant parts of the subject the study aims to measure. If some aspects are missing from the measurement (or if irrelevant aspects are included), then the validity of the study is threatened.

- **Criterion validity:** Criterion validity evaluates how well one measure predicts the extent to which the outcomes of a study correspond with the results of related studies. As opined by Middleton (2019) to evaluate criterion validity, the researcher is expected to calculate the correlation between the results of his or her measurement and the results of the criterion measurement. If there is a high correlation, this gives a good indication that the test is measuring what it intends to measure.

#### *ii) Reliability in Social research*

Reliability is another way of assessing the quality of the data collection and measurement procedure in social research. Reliability of an instrument refers to its level of consistency in measuring its set parameters. Reliability can also be thought of as the ability for a research finding to be repeatable. In social research, there are basically three types of reliability in social research, namely: test-retest reliability, internal consistency reliability, and inter-rater reliability.

- **Test-retest reliability:** when researchers measure a construct that they assume to be consistent across time, then the scores they obtain should also be consistent across time. Test-retest reliability shows the extent to which this is actually the case. Assessing test-retest reliability requires using the measure on a group of people at one time, using it again on the *same* group of people at a later time, and then assessing the test-retest correlation between the two sets of scores.
- **Internal consistency reliability:** Internal consistency reliability is that in which there is consistency of responses across the items on a multiple-item measure. In simpler terms, the internal consistency reliability is used to measure the

consistency of results across items. The most common measure of this type of reliability is a statistical test tool called Cronbach  $\alpha$  (the Greek letter for alpha). Conceptually,  $\alpha$  is the mean of all possible split-half correlations for a set of items. This involves splitting the items into two sets, such as the first and second halves of the items or the even- and odd-numbered items. Then a score is computed for each set of items, and the relationship between the two sets of scores is examined (Price, Jhangiani, and Chiang, 2015; Babbie, 2013).

- **Inter-rater reliability:** Inter-rater reliability is used to measure the extent to which different raters or observers give consistent estimates on repeated study. Interrater reliability is often assessed using Cronbach's  $\alpha$  when the judgments are quantitative or an analogous statistic called Cohen's  $\kappa$  (the Greek letter kappa) when they are categorical (Middleton, 2019; Price, Jhangiani, and Chiang, 2015; and Babbie, 2013).

### **3.3 Population, Sample and Sampling techniques**

Research, as earlier noted, involves collecting data from respondents for further analysis. These respondents exist within a population. Population in social research refers to a set of entities from which statistical inferences are to be drawn, often based on a random sample taken from the population. It is a complete set of elements that possess some common characteristic defined by the sampling criteria established by the researcher. In research, a population does not necessarily refer to human beings. It can mean a group of any object, event, traits, species, organisms, organisations, or behaviour that is of research interest. Babbie (2013) and Kumar (2012) defines population as the broader group of people, objects, or events that a researcher intends to generalize the results of a study.

The population of a study, also referred to as *Universe*, is further divided into two types, namely: the *target population* and the *accessible population*. This classification brings to fore the difference between the theoretical population and the actual population accessible at the time in the area of the study. The target population refers

to the entire group of persons or objects to which researchers are interested in generalizing the conclusions. The target population usually has varying characteristics and is also known as the ‘theoretical population’. The accessible population, on the other hand, is the population available at the time of the research. This population, also known as the ‘study population’, is a subset of the target population and from which the researchers draw their samples.

### ***3.3.1 Sample, Sample size and Sampling techniques***

Owing to the fact that it is sometimes impractical to study an entire population, researchers sometimes rely on a sample as a representative of the larger group. A sample refers to a ‘portion’ or a ‘specimen’ drawn from a population of interest. It can also be explained as a subset of a population selected for measurement or observation to provide statistical information about the larger population (Abu and Nwakanma, 2018; Anikpo, 2006). Human samples are usually referred to as *subjects* or *participants*, while a sample of other inanimate objects can be referred to as specimens or just samples.

Scholars have also identified two categories of samples, considering the level of representativeness of the elements selected. The first, called a random sample, is considered an unbiased or representative sample wherein each individual member of the population has a known, probable and non-zero chance of being selected as part of the sample. The second, referred to as a non-random sample relies on a less rigorous selection process that leaves elements of the population with zero chance of being selected as a representative of the entire group. Some examples of nonrandom samples are convenience samples, judgment samples, and quota samples. The total number of elements or subjects selected as a sample is referred to as ‘sample size’, while the process of selecting a sample from a population is referred to as sampling.

It is important to also note that sampling in research follows a set of principles and techniques that helps to ensure a valid outcome of data collection and measurement processes. A *sampling technique* involves the various methods, principles, and

processes involved in the identification and selection of samples from a study population. Sampling techniques follow two broad methods, namely: probability sampling method and non-probability sampling method.

### ***Probability sampling method***

This is a broad term for a range of techniques that ensures the objective selection of sample elements. Probability or random sampling, as it is also called, is a sampling method in which researchers choose samples from a larger population using a technique based on the theory of probability and randomness. Randomness here means that the sampling process can result in any of several outcomes. As noted by McCombes (2019), Abu and Nwakanma (2018), and Babbie (2013), the following are some types of probability sampling techniques.

- i) Simple random sampling: In a simple random sample, every member of the population has an equal chance of being selected. The researcher uses a sampling frame which includes the whole population, from which sample is selected from. To conduct this type of sampling, you can use tools like random number generators or other techniques that are based entirely on chance such as lottery, choosing from straws or drawing from hat method.
- ii) Systematic sampling: the systematic sampling is similar to simple random sampling; however, it is to conduct and requires a mathematical calculation of intervals from which samples can be drawn from Every member of the population is listed with a number, but instead of randomly generating numbers, individuals are chosen at a calculated interval. This interval is calculated using the formula:  $K=N/n$ ; where:  $K$  is the constant,  $N$  is the total population, and  $n$  is the proposed sample size.
- iii) Stratified sampling: This sampling technique involves dividing the population into homogenous subpopulations that may differ in important ways. It allows you draw more precise conclusions by ensuring that every subgroup is properly represented in the sample. In this method, the population is first divided into

subgroups (or strata) who all share a similar characteristic. It is used when it is expected that the measurement of interest will vary between the different subgroups, or when there is the need to ensure representation from all the subgroups.

- iv) Cluster sampling: Cluster sampling is also used in the social sciences. Like stratified sampling technique, cluster sampling also categorises the study population into subgroups; however, unlike in stratified sampling technique where each subgroup is represented in the sample, cluster sampling chooses only one of the subgroups as the sample. This method is employed when dealing with large and dispersed populations; however, there is the risk of error in the sample as there could be substantial differences between clusters. In other words, it is sometimes difficult to guarantee that the sampled clusters are really representative of the whole population.

### ***Non-probability sampling methods***

Non-probability sampling is the direct opposite of probability sampling, in that the technique has a high risk of sampling bias as the sample is selected without recourse to their chances of being included in the sample. Non-probability sampling techniques are often used in exploratory and qualitative research, where the aim is not to test a hypothesis about a broad population or generalize, but to develop an initial understanding of an under-researched population. The following types of non-probability sampling techniques has been highlighted by McCombes (2019), Abu and Nwakanma (2018), and Babbie (2013):

- i) Convenience sampling technique: This sampling technique, as the name implies, includes in the sample objects or persons that are accessible to the researcher. This is an easy and inexpensive way to gather initial data; however, the sample may not be representative of the study population, as a result it cannot produce generalizable results.

- ii) Voluntary response sampling: This technique is similar to the convenience sampling technique, except that a voluntary response sample is mainly based on ease of access and the voluntary participation of respondents. In this case, instead of the researcher choosing participants and directly contacting them, people volunteer themselves to be part of the study.
- iii) Purposive sampling: This type of sampling, also known as judgement sampling, involves the researcher selecting a sample that is most useful to the purposes of the research. Purposive sampling is highly subjective and relies on the judgement of the researcher in the selection of samples. Researchers may implicitly choose a “representative” sample to suit their needs, or specifically approach individuals with certain characteristics. Judgement sampling is often used in qualitative research where the researcher wants to gain detailed knowledge about a specific phenomenon, and rather than conduct a perception study, engages research participants who are knowledgeable in the area. An effective purposive sample must have clear criteria and rationale for inclusion.
- iv) Snowball sampling: Snowball sampling is hinged on the notion of referral. It is a sampling technique that is used for hidden or hard-to-access, where research participants are recruited through other participants. The number of people included in the sample continues to “snowball” as the researcher gets in contact with more people, until the desired sample size is attained.

### ***3.3.2 The purpose of Sampling***

Samples are generally used to make inferences about the population of a study. Samples make it easier to collect data from because they are smaller, more manageable, convenient, and cost-effective. Sampling becomes important for social research as the field of inquiry deals with groups and collection of people. Thus, sampling helps to bring the study population to a manageable number, reduce cost of data collection, and help in minimization of error from the despondence due to large number in the population.



Adeniyi, Oyekanmi, and Tijani (2011), listed nine major reasons for population sampling in research, which includes:

- It makes the researcher more thorough and affords more time for better study.
- Sampling makes data analysis easier and more skilful with qualitative results.
- Since sampling enables us to deal with a part of the population, it is obviously cheaper to study a sample rather than the entire population.
- It enables us to obtain quicker results than covering an entire population with its attendant problems.
- At times, it is practically impossible to take a complete and comprehensive study of the population because of the nature and pattern of distribution or dispersion of the population elements.
- For a study involving practical enumeration of subjects, sampling is the best option to achieve it.
- Sampling helps the researcher to guard against incomplete and inaccurate instruments such as questionnaires.
- Sampling makes it possible to study an *infinite* population.
- In a large population, there could be some similarities and uniformities along the line of research investigation; drawing up a sample along these similarities will give a general result for the whole population.

As noted by Babbie (2013), Kumar (2012), and Bhattacharjee (2012), the ultimate purpose of sampling is to reduce cost of the study, while reducing the cost of data collection and get accurate representativeness.

### **3.3.3 Self-assessment exercises**

- a) Why is sampling important in research?

- b) What are the advantages and disadvantages of using a questionnaire in research?

### 3.4 Brief description of Big Data

Data, as earlier explained, is a collection of pieces of facts (numbers, words, measurements, observations, etc.) that can be stored and later translated into meaningful information. Data can also be collected and stored in very large volumes amounting to what is referred to as 'Big data'. The term "Big Data" refers to data that is large, fast and complex such that it is difficult to process using traditional methods of storage and analysis. Sagioglu (2013) and Magoulas and Lorica (2009) refer to Big Data as a collection of data that is voluminous, yet growing exponentially with time. It is a data with so large size and complexity that none of traditional data management tools can store it or process it efficiently. Big Data has emerged as a significant area of study for researchers in the field of social sciences. As a subtheme in social science, Big Data explains the various ways to methodically collect, analyse, systematically extract information from, or otherwise deal with data sets that are large or complex to be dealt with by traditional data processing techniques.

#### 3.4.1 *Characteristics of Big Data*

Big data can be described by the following characteristics: Volume, Variety, Velocity, and Variability.

- a) **Volume:** The name Big Data suggests that it is related to a size which is enormous. The size of data plays a very crucial role in determining how the data will be processed, analysed and stored. Furthermore, whether a particular data can be considered as Big Data or not is dependent upon the volume of data. Hence, 'Volume' is one characteristic which needs to be considered while dealing with Big Data (SAS Institute, 2014; Sagioglu, 2013).
- b) **Variety:** The next aspect of Big Data is attribute of variety. Variety here refers to heterogeneous sources of the data, and the nature of data. During earlier

days, spreadsheets and databases were the only sources of data considered by most of the applications. Nowadays, data in the form of emails, photos, videos, monitoring devices, PDFs, audio, etc. are also being considered in the analysis applications. This variety of unstructured data poses certain issues for storage, mining and analysing data (SAS Institute, 2014; Sagioglu, 2013).

- c) **Velocity:** The term 'velocity' refers to the speed of generation of data. How fast the data is generated and processed to meet the demands, determines real potential in the data. Big Data Velocity deals with the speed at which data flows in from sources like business processes, application logs, networks, and social media sites, sensors, Mobile devices, etc. The flow of data is massive and continuous (Guru99, 2020; SAS Institute, 2014).
- d) **Variability:** This refers to the inconsistency which can be shown by the data at times, thus hampering the process of being able to handle and manage the data effectively (Guru99, 2020; Sagioglu, 2013).

According to Akoka, Comyn-Wattiau, and Laoufi (2017), SAS Institute (2014), and Sagioglu (2013), Big Data can be of the following types: Structured, Unstructured, and Semi-structured.

- *Structured:* Any data that can be stored, accessed and processed in the form of fixed format is termed as a 'structured' data. Over the period of time, talent in computer science has achieved greater success in developing techniques for working with such kind of data (where the format is well known in advance) and also deriving value out of it. However, nowadays, we are foreseeing issues when a size of such data grows to a huge extent, typical sizes are being in the range of multiple zettabytes.
- *Unstructured:* Any data with unknown form or the structure is classified as unstructured data. In addition to the size being huge, un-structured data poses multiple challenges in terms of its processing for deriving value out of it. A typical example of unstructured data is a heterogeneous data source containing

a combination of simple text files, images, videos etc. Now day organizations have wealth of data available with them but unfortunately, they don't know how to derive value out of it since this data is in its raw form or unstructured format.

- *Semi-structured*: Semi-structured data can contain both the forms of data. We can see semi-structured data as a structured in form but it is actually not defined with e.g., a table definition in relational DBMS. Example of semi-structured data is a data represented in an XML file.

#### **4.0 Conclusion**

Data collection is an integral part of research, without which research cannot be said to be complete or meaningful. Through data collection, investigators collect relevant pieces of facts that can be processed into meaningful information. However, the data collection process follows some standardized processes and principles that ensures its reliability and validity. Social researches rely on data to make inferences about social behaviours, traits, actions and many other events in our complex society.

#### **5.0 Summary**

This section has examined the various methods of field work and data collection in the social sciences. Field work is the crux of research in that it is the phase of research where data is collected to corroborate the assumptions of the study. In social science field work, variety of measures are employed to select samples and collect data from respondents. Some of the considerations in selection of samples includes accessibility, convenience and representativeness of the sample with the total population. Data collection also involves the use of quantitative or qualitative methods such as interviews, questionnaires, observation, and experimentation. Data can also be enormous and requiring a higher level of analyses and storage as in big data.

## **6.0 Tutor-marked assignment**

- i) Explain the sources and types of data
- ii) List and explain six data collection techniques
- iii) Explain the concept of population, and mention the attributes of a target and accessible population
- iv) List and explain six sampling techniques showing how they are applicable to qualitative and quantitative studies.

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## **MODULE THREE**

### **DATA PROCESSING AND DATA ANALYSIS**

#### **UNITS**

- Unit one: Data processing in Social Research
- Unit two: Hypothesis testing and Methods of data analysis
- Unit three: Statistical applications for data analysis
- Unit four: Presentation of findings

#### **CONTENTS**

- 1.0 Introduction**
- 2.0 Module Objectives**
- 3.0 Main Content**
  - 3.1 Data processing in Social Research**
  - 3.2 Hypothesis testing and Methods of data analysis**
  - 3.3 Statistical applications for data analysis**
  - 3.4 Presentation of findings**
- 4.0 Conclusion**
- 5.0 Summary**
- 6.0 Tutor-Marked Assignment**
- 7.0 References/Further readings**

#### **1.0 Introduction**

This module introduces students to the key issues in data processing and data analysis in social research. At the core of social research is data processing and data analysis which enables researchers to be able to analyse and understand relationships between variables under study. Furthermore, data processing and analysis avails investigators the platform to use evidences found in data to prove, disprove or corroborate the suppositions and hypothesis of a study. Data processing and analysis in social research



generally involves the process of inspecting, sorting and transforming data, using various statistical and logical techniques, with a view to reaching certain conclusions (Abu and Nwakanma, 2018; Bhattacharjee, 2012). In this module efforts shall be made to elucidate on the meaning and ramifications of data processing, the various methods of data analysis and hypothesis testing, statistical tools in data analysis, and how research findings are documented and presented in the social sciences.

## **2.0 Module objectives**

This module intends to expose students to the meaning of data processing, the techniques of data analysis, and styles of academic research report. At the end of this module, students are expected to be able to explain the concept of data processing, explain the methods of data analysis in the social sciences, discuss the purpose of data analysis, and most importantly, be able to use some of the statistical and computer applications for data analysis.

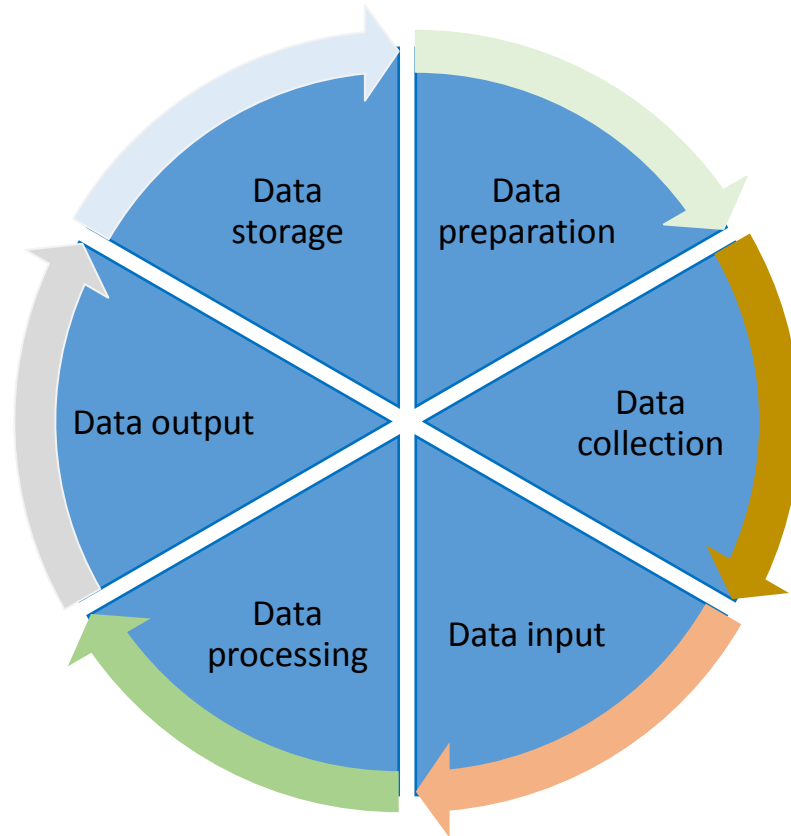
## **3.0 Main Content**

### **3.1 Data Processing in Social research**

Data processing is generally explained as the collection and manipulation of pieces of data to produce meaningful information. Data processing is concerned with editing, coding, classifying, tabulating, and storing research data into comprehensible formats using charts and diagrams. Data processing occurs when research data is sorted and translated into usable information. Duggal (2020) and French (1996) posit that the essence of data processing in research is to clean and transform raw data collected during fieldwork into meaningful information that can be easily analysed. This process of cleaning and transformation of data is commonly referred to as *data reduction* or data minimization. Data reduction entail sorting out the nonrelevant data from data relevant to a study, and giving shape to a mass of data.

Data processing starts with data in its raw form and converts it into a more readable format (graphs, documents, etc.), giving it the form and context necessary to be

interpreted by computers and utilized by individuals, organizations, or other researchers. Duggal (2020) and French (1996), suggests that data processing runs through a cycle beginning from data collection, data preparation, data input, data processing, data output, and data storage. For these scholars, in the first step of data processing cycle, raw data is collected from its various sources using standardized techniques that ensure that the subsequent findings are valid and usable. Data preparation or data cleaning, which is the next step, is the process of sorting and filtering the raw data in order to remove nonrelevant and inaccurate data. In this step, already collected data is checked for relevance, errors, duplication, and miscalculations, and then transformed into a suitable form for further analysis. This step is followed by input processes, where the prepared data is fed into a data processing tools. During data processing, the raw data is subjected to various data manipulations including testing, charting, diagramming, and coding. In the output stage, the data is finally transmitted and displayed to the end user in a readable form such as audio files, video clips, and documents. The last step of the data processing cycle is data storage where data are stored for future use. Storage is important for the entire research process as it allows for quick access and easy retrieval of information whenever it is needed.



*Fig 9: Data processing cycle. Source: Author's illustration*

### **3.1.1 Types and levels of data processing**

Scholars have noted that there are five (5) types of data processing. This typification is based on the nature of data preparation, input and processing.

- *Batch Processing* (In batches): This is one of the widely used type of data processing which is also known as Serial/Sequential, Tacked/Queued offline processing. The fundamental of this type of processing is that different jobs of different users are processed in the order received (Planning Tank, 2021).
- *Real-time processing* (In a small time period or real-time mode): As the name suggests this method is used for carrying out real-time processing. This is required where the results are displayed immediately or in lowest time possible. The data fed to the software is used almost instantaneously for processing

purpose. The nature of processing of this type of data processing requires use of internet connection and data is stored/used online.

- *Online Processing* (Automated way enter): This processing method is a part of automatic processing method. This method at times known as direct or random-access processing. Under this method the job received by the system is processed at same time of receiving. This can be considered and often mixed with real-time processing.
- *Multiprocessing* (multiple data sets parallel): This type of processing perhaps the most widely used types of data processing. It is used almost everywhere and forms the basis of all computing devices relying on processors. Multiprocessing makes use of CPUs (more than one CPU). The task or sets of operations are divided between CPUs available simultaneously thus increasing efficiency and throughput. The breakdown of jobs which needs be performed are sent to different CPUs working parallel within the mainframe.
- *Time-sharing* (multiple data sets with time-sharing): Time based used of CPU is the core of this data processing type. The single CPU is used by multiple users. All users share same CPU but the time allocated to all users might differ. The processing takes place at different intervals for different users as per allocated time.

### **3.2 Hypothesis testing and Data Analysis**

The term *data processing* is considered a broad term for the processes of sorting and processing research data. Data processing as a matter of fact is used for the initial stages of data handling, which is typically followed by a data analysis. Whereas data processing involves the editing, coding, classification, and the tabulation of data, data analysis converts research data into information and knowledge, and explores the relationship between variables. For Perez (2019) and Shamoo and Resnik (2015), data analysis in research is the rigorous process of applying statistical and logical techniques to describe and evaluate research data. Data Analysis in social research is a

systematic process, and entails inspecting, sorting, and transforming raw data into logical data, using various statistical and descriptive techniques, and with a view to drawing certain conclusions. The adjoining unit explains the various techniques employed in the social sciences for data analysis.

### ***3.2.1 Data analysis techniques***

Data analysis, as earlier explained, is the process of evaluating data using the logical and analytical reasoning to carefully examine each component of the data collected or provided. In social research various techniques are used to analyse research data; however, as noted by Perez (2019), several factors are usually considered in the determination of the appropriate technique to use for analysis. For instance, the investigator must consider the type of data being measured and the objectives of the research before deciding on what data analysis technique to employ.

Scholars, such as Perez (2019), Shamoo and Resnik (2015), and French (1996), all agree that methods of data analysis are typically of two kinds, namely: quantitative data analysis techniques and qualitative data analysis techniques. Quantitative data analysis techniques emphasize on objective measurements, and the application of statistics in the analysis of data. Qualitative research, on the other hand, proposes an in-depth examination of human experiences and human behaviour, with the goal of obtaining insights into everyday experiences and meaning attached to these experiences of individual. As such, its techniques are non-numerical, descriptive, and aims at interpreting the features of a data, rather than test for relationships.

- a) **Qualitative Data Analysis:** This technique is used to analyse data in the form of words, pictures, symbols and observations. This type of analysis refers to the procedures and processes that are utilized for the analysis of data to provide some level of understanding, explanation or interpretation. In this technique, no statistical approaches are used to analyse data. The technique relies on mere description and interpretation of observable data (Perez, 2019). There are a

variety of approaches to collecting this type of data and interpreting it. For Perez (2019), some of the most commonly used methods are:

- *Content Analysis*: This is used to analyse verbal or behavioural data. The type of data examined using this method consists of documents, artifacts, texts in various formats, pictures, videos and audios.
- *Narrative Analysis*: This is one of the most commonly used qualitative data analysis technique as it involves analysing data that comes from a variety of sources including field notes, surveys, diaries, interviews and other written forms. It involves reformulating the stories given by people based on their experiences, and in different contexts.
- *Grounded Theory*: This technique involves the development of causal explanations of a single phenomenon from the study of one or more similar cases. If further cases are studied, then the explanations are altered until the researchers arrives at a statement that fits all of the previously observed cases.
- *Transcription*: Another important technique used for qualitative data is to compile the research data and transcribe into readable information. Transcription is simply the systematic process of converting raw data collected in audio or video recordings, into readable texts from which logical conclusions can be drawn. In qualitative studies, researchers sometimes use a recording device to capture the words or actions of participants during interviews or observations (Abu and Nwakanma, 2018).

- b) **Quantitative Data Analysis**: Quantitative analysis techniques comprises of methods that are used to quantify data, measure for relationships, correlation or differences, and in the end generalize findings. Simply put, statistical methods of data analysis, as opined by Perez (2019), are used to collect *raw* data and

transform it into numerical data. Perez (2019), and Abu and Nwakanma (2018), noted that some of the techniques employed in quantitative analysis include:

- *Measures of central tendency:* Measures of central tendency are the most basic and the most informative description of a population's characteristics. They describe the 'average' or the 'central position' of a data set. Measures of central tendency, such as mean, median, and mode, are commonly used in social researches to provide a summary measure that describes a whole set of data with a single value that represents the middle or center of its distribution. The Mean is the most basic measure of central tendency where the sum of a numbers observed is divided by the number of items observed. It is useful in determining the overall trend of something.
- *Hypothesis testing:* Hypothesis testing is used to assess the credibility of a hypothesis by using sample data. Hypothesis testing involves the systematic test of claims or assumptions about a research population using statistical analysis, such as: T-Tests, Regression analysis, Analysis of variance, Correlation analysis, etc. It is important to note here also that hypothesis can be tested by various techniques. The hypothesis testing techniques are divided into two broad categories, namely: Parametric Tests and Non- Parametric Tests. Parametric test depends upon assumptions typically that the population(s) from which data are randomly sampled have a normal distribution. As a branch of statistics, parametric test assumes that sample data come from a population that can be adequately modeled by a probability distribution that has a fixed set of parameters (Cox, 2006; Geisser, 2006). The basic idea of parametric tests is that there is a set of fixed parameters that determine a probability model. In other words, the methods are classified by what we know about the population we are studying. Non-parametric test on

the other hand assumes that the variables are measured on a nominal or ordinal level. It is used when the independent variables are non-metric.

### **3.3 Statistical applications for data analysis**

With the recent innovations and advancement in information technology, data analysis has become much easier and faster, as new computer applications are created daily for data handling and analysis. In recent times, software programs that can generate tabulated reports, charts, plots of distributions and trends, as well assist in more complex statistical analyses like regression analysis, analysis of variance, correlation analysis, etc., have been designed to support and facilitate the process of data analysis in the social researchers.

For quantitative analysis, numerous statistical software systems are available currently. As noted by Ali and Bhaskar (2016) the commonly used software systems are Statistical Package for the Social Sciences (SPSS) – manufactured by IBM corporation, Statistical Analysis System (SAS) developed by SAS Institute of North Carolina, R (designed by Ross Ihaka and Robert Gentleman from R core team), Minitab (developed by Minitab Inc.), Stata (developed by Stata Corp), and the MS Excel (developed by Microsoft), among many others (Abu and Nwakanma, 2018).

Qualitative data analysis also has sophisticated data analysis software tools such as NVivo, ATLAS.ti, etc., that are used to support the entire analytic process of transcribing data, organizing it, coding and providing overviews. These software tools allow for easy sorting, structuring and analysing of large amounts of text or other data, and facilitate the management of the resulting interpretations and evaluations (Abu and Nwakanma, 2018).

#### **3.3.1 Self-assessment exercises**

- a) Mention two methods of analysing quantitative data?
- b) What is content analysis?
- c) What is data processing in research?



### **3.4 Presentation of findings**

The culmination of every scientific investigation is the presentation of the findings. Research processes and the outcomes are expected to be presented in formats that can be read, and understood by all and sundry. Presentation findings is here differentiated from research report writing in the sense that research reports are the final documentation of a research to be published for public consumption, while presentation of findings deals with how the findings of a study is presented in a research report.

Considering the discipline and field of study, research findings can be presented in different ways. As Fah and Aziz (2006), have noted, presentation of research findings requires some technicalities that must be understood by every researcher. Fah and Aziz (2006), noted that to begin with, the general rules of presenting research findings are:

- Keep it simple. This golden rule assumes that readers can be lost in the mass of data if the presentation is not succinct enough to convey the pertinent facts of the study.
- It is also important to start with the general issues in the study, and then conclude with the specifics. For instance, the presentation can start with response rate and description of research participants (these information gives the readers an idea of the representativeness of the research data), then the key findings and relevant statistical analyses.
- Again, data collected should be relevant and answer the research questions identified earlier.
- Fah and Aziz (2006) also noted that it is better to leave the process of data collection to the methods section.
- Always use past tense in describing results.

- Texts, tables and graphics should also be used smartly, and not altogether for the same data set. For Fah and Aziz (2006), in presenting findings, it is important not to repeat the same information in more than one format. Select the best method to convey the message.
- Tables can also be presented in this format for clarity and easy identification.
  - i.* Consistent use of units and its decimal places.
  - ii.* Arrange date and timing from left to the right.
  - iii.* Round off the numbers to fewest decimal places possible to convey meaningful precision.
  - iv.* Avoid listing numerous zeros, which makes comparison incomprehensible.
  - v.* Avoid too many lines in a table. Often it is sufficient to just have three horizontal lines in a table; one below the title; one dividing the column titles and data; one dividing the data and footnotes. Vertical lines are not necessary.
  - vi.* Table titles should appear at the top left, while the citation of the source of the table should appear below with year of access, and at the left of the table.
- Graphics are particularly good for demonstrating a trend in the data that would not be apparent in tables. It provides visual emphasis and avoids lengthy text description. However, presenting numerical data in the form of graphs will lose details of its precise values which tables are able to provide. Some general guides to graphic presentation are:

- i.* Titles and sources of every graphic appears at the bottom of the table, and begins with FIGURE or DIAGRAM, and the number according to the chapter or section of the report,
- ii.* Bar charts, either horizontal or column bars, are used to display categorical data. Strictly speaking, bar charts with continuous data should be drawn as histograms or line graphs. Usually, data presented in bar charts are better illustrated in tables unless there are important pattern or trends need to be emphasised.
- iii.* Avoid 3-D graphs and charts. Three-dimensional graphics are impressive in slide show and easily capture the attention of the audience. In medical writing, they are not effective because it is difficult to read the exact value on the Y axis (the height of the bars) accurately (Fah and Aziz, 2006).

#### **4.0 Conclusion**

Data processing and data analysis are crucial aspects of the data collection phase of a research. Without the sorting, cleaning, and adequate analysis of research data, the entire process becomes meaningless as conclusions cannot be drawn, neither can new knowledge be generated from the process. In social science research, different techniques are used in data processing and data analysis; however, they all depend on the volume of the data, the type of the data, and the objectives of the study. Furthermore, at the end of data processing and analysis, there is the need for findings of the study to be presented also. Scholars, such as Fah and Aziz (2006), have highlighted some important technicalities for presenting research data, especially how the tables should be presented, the font style, the titling of graphics in the study, and the volume of the presentation of findings.

#### **5.0 Summary**

The aim of research is to generate new knowledge or understand the causes, differences, relationship, and similarities between events or traits in the human environment. Research relies on data as evidences to support or disprove the assumptions associated with the subject of interest. However, data must be processed and analysed for clarity and easy explanation. This module has carefully explained the processes of data processing and data analysis, and has shown how they are inextricably important for social investigations. In this module also, the role of information technology was explained as data processing and data analysis are gradually becoming faster and easier owing to various computer software that are able to sort, prepare, analyse and present data.

## **6.0 Tutor-Marked Assignment**

- i) Explain the concept of data processing and data analysis
- ii) Explain four types of data processing
- iii) Mention some quantitative techniques of data analysis in the social sciences
- iv) Discuss the role of information technology in data analysis

## **7.0 References/Further reading**

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## **MODULE FOUR**

### **RESEARCH REPORTS AND PROPOSAL WRITING**

#### **MODULE**

- Unit one: Writing Research reports and Proposals
- Unit two: Significance and Challenges of research in the social sciences
- Unit three: Ethical considerations in social research
- Unit four: References and Referencing styles

#### **CONTENTS**

- 1.0 **Introduction**
- 2.0 **Module Objectives**
- 3.0 **Main Content**
  - 3.1 **Writing Research reports and Proposals**
  - 3.2 **Significance and Challenges of research in the social sciences**
  - 3.3 **Ethical considerations in social research**
  - 3.4 **References and Referencing styles**
- 4.0 **Conclusion**
- 5.0 **Summary**
- 6.0 **Tutor-Marked Assignment**
- 7.0 **References/Further readings**

#### **1.0 Introduction**

The last phase of a research process is the research report phase where the researcher is obligated to document and, like in most cases, publish the study. Research reports are the means through which the processes and the findings of a study can be conveyed to the public, or at least to the beneficiaries of such study. This module focuses on the types of research reports, the techniques involved in writing a research report, and the components and purposes of a research proposal. In this module also,

the significance and challenges of social research will be discussed, as well as ethical issues in conducting social researches. The module will end by discussing the need for references in academic documents, and the different styles of referencing.

## **2.0 Module objectives**

This module is designed to interrogate the types and techniques involved in writing research reports, alongside other research concerns such as: proposal writing, referencing, ethical issues in social research, and the significance and challenges of social science research. At the end of the module, students should be able to:

- Explain the various types of research reports in the social sciences
- Discuss the various techniques in writing a research report and a proposal
- Explain the Significance of research in the social sciences
- Mention the common challenges of research in the social sciences
- Discuss the need for referencing and referencing styles in research
- Clearly explain ethical considerations in social researches.

## **3.0 Main content**

### **3.1 Writing research reports and Proposals**

To begin with, a research report can be defined as a medium to communicate research work with relevant people. Research reports are academic documents used by investigators to record the entire processes, methods, and findings of a study. One of the reasons for carrying out social research is to add to an existing body of knowledge, and help humanity solve certain existing or emerging social problems. Thus, after a research is completed, it is important for the researcher to document the processes and findings in a research report. Kabir (2016), Kumar (2012) and Bhattacharjee (2012), define research report as a document that outlines the objectives, processes, data

types, methods of analysis, and the findings of a systematic investigation. With a research report, it is easy for others to access the findings of an investigation, and any gaps needing further inquiry.

Knowing how to write a detailed and compelling research report is important for the entire research report. Research reports serve as a means to effectively communicate the findings of an investigation to the public or to a specific group. In scientific writing, the basic structure of a typical research paper is the sequence of Introduction, Methods, Results, and Conclusion (sometimes abbreviated as IMRAC) (Thomas and Patricia, 2004). Using this structure, each section addresses a different aspect of the research, however, all in a connected manner. In the introduction, the author states: the background to the study, the problem the study intends to address, the objectives of the study, as well as the questions emanating from the objectives of the study. Thereafter, the author states what he or she did to answer the question in the Methods section; then what they observed in the Results section; and in the Conclusion, what they think the results mean.

### ***3.1.1 Types of Research Reports***

There are different types of research reports in the social science, and each has a specific structure, and common features. Research reports are usually classified into different types on the basis of three factors; specifically, (1) on the basis of the purpose of the report, (2) and on the basis of the target audience.

#### ***(1) Types of Research reports based on Purpose of the report***

On the basis of purpose of the research, research reports include: term papers, research articles, research papers, research projects, dissertations, and theses. A *term paper* is a research report usually written by students as a research assignment on studies they have received over an academic term or semester. It is a research task used to estimate how well a student has understood, and incorporated the materials and activities associated with courses given within the term. A term paper differs from other research reports in terms of volume and structure. Term papers run into about 3000 to



5000 words, and has a less complex outline which includes: the title page, abstract, table of contents, introduction section, methods section, results section, and discussion section, as well as the reference page.

Another type of research report commonly used in social research is a *research article*. A research article is a report written about a subject recently researched or reviewed by an expert in that field. The purpose of this type of report is to convey to the academic world, in peer-reviewed journals, the processes and findings of a study. Research articles are sometimes distinguished from *research papers* in that research articles are published in academic journals or magazines, while papers are usually presented at conferences. A research article is an original research published in a peer-reviewed journal. However, a research paper is also original research published in a conference and presented as an oral presentation or as a poster. Research articles and papers are usually about 10 to 15 pages long, and follows a more precise outline which includes:

- Title page (covering the names of the authors, institutions, and emails),
- Abstract (this is written after the report has been completed),
- Introduction (including background to study),
- Statement of the problem (including study aims and objectives),
- Research methods (tools and procedure for investigation and analysis),
- Results (including descriptive analysis but no interpretation)
- Discussion (including interpretation and judgement of findings),
- Conclusions and Recommendations,
- References (a list of materials used).

A *research project* is similar to a term paper, in that it is written by students, although at the end of an undergraduate programme. The purpose of a research project is to test the students' competence in the particular field of study he or she is graduating from,

while at the same time giving them the opportunity to expand their knowledge through research. Research projects can be up to 100 to 150 pages and, unlike term papers or research articles, they are written in chapters as shown below:

- *Preliminary pages (numbered in roman numerals)*
  - Cover page
  - Title page
  - Dedication page
  - Acknowledgement page
  - Certification page
  - Abstract
  - Table of contents
- *Chapter One: Introduction*
  - Background to the study
  - Statement of the problem
  - Aim and Objectives of the study
  - Research questions
  - Research hypothesis (if applicable)
  - Significance of the study
  - Scope/Delimitations of the study
  - Definition of key terms
- *Chapter Two: Literature review*
  - Conceptual framework
  - Empirical review
  - Theoretical review
  - Theoretical framework
- *Chapter Three: Research methodology*
  - Research design
  - Study area and population of the study

- Sample size and sampling techniques
- Data collection techniques
- Data analysis techniques
- *Chapter Four: Data presentation and Analysis*
  - Presentation of data
  - Test of hypothesis
  - Discussion of findings
- *Chapter Five: Summary, Conclusion and Recommendations*
  - Summary
  - Conclusion
  - Recommendations
  - Contribution to knowledge
- *References*
- *Appendix (e.g., Research instruments, List of tables, etc.)*

The above structure may differ according to department or discipline; however, it is a general structure for all social science disciplines. It is important to note here that when a research project is completed, a research project is assessed by an examiner and serves as a partial fulfillment of the students' requirements to be awarded a university degree.

Research papers such as *dissertations* and *thesis* on the other hand are larger research reports of findings of field researches undertaken as a partial requirement for a university postgraduate degree. A thesis is written following a Masters level research project, while a dissertation is done during a Doctoral study. Both reports have the same structure as that of a research project; however, are much more voluminous with pages as much as 150 to 200. The word length for some discipline is as much as 20,000 and 35,000 words, and contains extensive citations and references compared to other types of reports.

## (2) *Type of research report based on target audience*

Research reports can also be classified into qualitative and quantitative research reports on the basis of target audience. Reports under this category are structured and written in consideration of the type of persons that will access it. Under this, a research report can be said to be technical or popular.

A *technical research report* is a document that contains a detailed record of an industry-based research. This report is highly specialized because it provides information for a technical audience; that is, individuals with above-average knowledge in the field of study (Formplus, 2019). In a technical research report, the researcher is expected to provide specific information about the research process, such as the purpose of the study, the selection criteria for samples, as well as the statistical methods employed for analysis. Also, the use of language in technical reports is highly specialized and filled with jargon (Formplus, 2019).

A *popular research report*, on the other hand, is intended for a general audience; that is, for individuals who do not necessarily have any special knowledge in the field of study. A popular research report aims to make information accessible to everyone. It is written in very simple language which makes it easy for all category of readers to understand the processes, findings and recommendations of the study.

### **3.1.2 Writing Research proposals**

A research proposal is a concise and detailed summary of a proposed research. A research proposal is used to outline the general area of a study, the central issues the study intends to address. Investigators use research proposals to persuade potential supervisors and funders of the significance of a study and the preferred approaches and techniques to complete the study.

Writing a research proposal follows a unique method of writing that helps the investigator clearly explain the issues in the study, and also convince the audience that the research is worth investing in. Santelmann (2001) noted that a good proposal

should be around 2,000–3,500 words, (that is about 4-7 pages long, and must have the following sections:

*i. Introduction*

- Explain the issue you are examining and why it is significant.
- Describe the general area to be studied
- Explain why this area is important to the general area under study

*ii. Background/Review of the Literature*

- A description of what has already known about this area and short discussion of why the background studies are not sufficient.
- Summarize what is already known about the field. Include a summary of the basic background information on the topic gleaned from your literature review (you can include information from the book and class, but the bulk should be outside sources).
- Discuss several critical studies that have already been done in this area,
- Point out why these background studies are insufficient. In other words, what question(s) do they leave unresolved that you would like to study?
- Choose (at least) one of these questions you might like to pursue yourself.

*iii. Rationale for the study*

- A description of the questions you are examining and an exploration of the claims. List the specific question(s) that you are exploring; explain how these research questions are related to the larger issues raised in the introduction, describe what specific claim, hypothesis, and/or model of psycholinguistics you will evaluate with these questions.

*iv. Method and Design*

- A description of how you would go about collecting data and test the research questions or hypothesis.

- Describe the general methodology you choose for your study, in order to test your hypothesis(es). Explain why this method is the best for your purposes.
- v. *Significance and Conclusion*
  - Discuss, in general, how your proposed research would lead to a significant improvement over the original studies, and how it would benefit the field. (In other words, why should someone care? If you were applying for money to do this, why would someone fund you? If you wanted to publish your results, why would they be interesting?)
- vi. *References*
  - List the complete description of all the in-text citations

As rightly stated by Krathwohl (2005), the goal of a research proposal is twofold, first is to present and justify the need to study a research problem, and the second is to present the practical ways in which the proposed study should be conducted. Furthermore, research proposals demonstrate the ability of a researcher to identify gaps in knowledge and propose most suitable methods of investigating them. Thus, writing a good research report is a requisite skill for any social science scholar who wishes to attract funding or get approval for studies.

### **3.2 Significance and Challenges of research in social sciences**

Human history has shown that since the beginning of the world humans have been preoccupied with generating explanations for the events and challenges of human existence, while developing simpler ways of managing existing and emerging social, economic, and natural problems. This inclination has set in motion the constant modification of different methods of investigating reality to understand the dynamics of our complex world. Social sciences emerged from the understanding that human social behaviour can be subjected to scientific inquiry. The widespread and violent intellectual, political, and economic revolutions of the eighteenth and nineteenth century further spurred the need to develop a field of social inquiry. The economic

crisis, widespread migration, widening inequality, and swift breakdown of social order in experienced by many societies at the time in history led many to begin to apply science to the study of social behaviour. Science, as at then till date, is believed to hold answers to many obscurities in human world, owing to its capacity to differentiate between facts and fictions, and generate reliable knowledge.

Social science is, thus, a branch of science devoted to the study of societies and the relationships among individuals within those societies. Social science deals with the dynamics of human behaviour in its social and cultural contexts; and how humans establish social structures, create institutions, engage in conflict, or other common activities that define the social environment. Whereas social sciences, through research and analysis, has contributed immensely to solving many social problems, there is still some debate regarding the use of the term *social science*, with criticism generally aimed at the application of *science* in study of the society.

Scholars against the scientific nature of social sciences argue that there are several difficulties in successfully applying sciences to the study of humans. For instance, some critics opine that the social world is too complex, and too subjective for objective application of the scientific methods and principles. Francis (2010), have highlighted some of the common criticisms of the social research as a scientific endeavour, which includes:

- *Complexity of Social Data:* It is a well-known that social science studies the human behaviour which depends on several factors such a physical, social, temperamental, psychological, geographical, biological socio-cultural etc. Because of these factors a researcher is generally confused. It is therefore said that because of this complexity of social data, human behaviour cannot be put to scientific test.
- *Problems of Concepts:* Social sciences also face the challenge of having constructs and concepts that are stable and measurable. In social science research, one relies more on abstraction and subjective definition of concepts.

Abstraction is both the central strength and one of the weaknesses of social sciences, in that it can lead to faulty reasoning. For example, the classical theory of employment was based on a faulty reasoning that wage cut will increase employment opportunities; however, later on J.M. Keynes proved the faulty reasoning of this classical theory and presented an alternative theory.

- *Problems in Interpreting Relationship between Cause and effect:* In social science research, we generally find interdependent relationship between cause and effect. The cause and effect are one and the same, for example, in underdeveloped countries, the economic development cannot be accelerated due to lack of technical know-how, and capital for technical know-how cannot be obtained due to underdevelopment of the country. In the end, the analysis looks teleological and immeasurable.
- *Dynamic Nature of Social Phenomena:* Man is a social animal, and the human nature and societies undergo constant change. What is true today may not be valid or useful tomorrow. The techniques used in past may prove useless for present and future studies. On account of this dynamic nature of social phenomena, the task of analysing data objectively becomes very much complicated and the inferences drawn may be misleading.
- *Problem of maintaining objectivity:* The problem of impartiality is in part a problem of objectivity. It is generally argued that the social scientists are less objective than natural scientist because their own interest affected by the findings of their studies, hence leading to prejudice and bias.
- *Unpredictability:* Predictability is one of the most important characteristics of science. In case of physical science, high degree of predictability is possible but it is not so in case of social data. But this statement is also partially true; the social scientist can roughly estimate the behaviour of the group.



- *Difficulty in the Verification of the Inferences:* In social science research, the events of social sciences are non-repetitive and the social scientists are ill-equipped with their tools to verify inferences.
- *Difficulty in the Use of Experimental Method:* In case of social science research, its product, being a human being, cannot be put to laboratory test. Even if it is done, their responses would not be natural but subject to the awareness of the artificial condition.
- *Incapability of being dealt through empirical method:* An empirical method cannot be applied in case of social science research as repeated experiment is not possible, for example, the problem of unbiased sampling, selection of data etc.
- *Problems of inter-disciplinary research:* Social sciences, being inter-disciplinary, is related with Economics, Political Science and Sociology, such that we cannot draw water-tight compartments for each other social sciences.

Gutting (2012) and Anikpo (2006), as cited in Abu and Nwakanma (2018), explains these challenges under three themes:

- Measurement problems:* This explains the problems encountered in using science to measure accurately human social behaviour. As Gutting (2012) and Anikpo (2006) noted, while the natural sciences can produce many detailed and precise measurements using the scientific method, the social sciences find this difficult owing to the unpredictable nature of humans. Human behaviour is naturally erratic and complex; and also depends adjusts according to feelings, considerations, and needs.
- Objectivity:* Another problem associated with social science as a scientific endeavour is the problem of maintaining objectivity in social inquiries. This challenge flows from the assumption that social researches may find it hard to

separate themselves from the society they are studying, as they are equally members of the society.

- iii. *Language problems*: This criticism hinges on the complications of concepts and terminologies used in the social sciences, where subjective meanings are given to social events. The challenge with this is that it leaves the social sciences with very many concepts with no precise meaning except as applied by the social scientist.

Whereas some of these criticisms appear tenable, scholars in the social sciences have not entirely accepted them as an imperfection to the scientific status of their discipline. For instance, Anikpo (2006) have argued that these criticisms are largely the outcome of an adverse misconception with regards to the real nature of science and social sciences. In his work “*foundations of social science research: a methodological guide for students*”, Anikpo (2006) argued that despite its variability, social phenomena and human behaviour, with the proper tools, can be objectively studied as concrete things using the scientific ‘principle of uniformity’ of nature. The principle of uniformity of nature is built on three key assumptions that:

- (i) what is true with one case may be true of all other cases,
- (ii) every phenomenon contains identifiable indicators whose reality is objective enough for analysis, and,
- (iii) there is always the cause-effect relationship in any social phenomenon.

For Anikpo (2006), these assumptions make it possible to objectively measure and explain human social behaviour. Furthermore, on the issue of faulty measurement in social researches, Anikpo (2006) argued that the instruments and techniques of a social scientist may differ from that of the natural scientists; however, his approach is informed and *guided* by the same rigorous and repeatable processes of the scientific method, which therefore renders it scientific. Science is essentially a method as well as an attitude to research; it is a method that reduces personal influence, and also an

attitude that approaches inquiries with neutrality and objectivity (Abu and Nwakanma, 2018); consequently, any research activity that employs these methods and upholds the principles of science can comfortably be considered a scientific endeavour. Thus, the application of the principles and methods of science to the study of the society, again, informs the *scientificness* of the social sciences.

### **3.3 Ethical considerations in social research**

The task of social sciences is to study human society in all its manifold forms of manifestation. As such, social scientists, in the course of their researches, regularly come in contact with people's feelings, beliefs, values, livelihoods, social identity, and culture which needs to be handled with all carefulness, transparency, and respect. Social science is a human-subject research which investigates complex human problems that has social, cultural, legal, economic, educational, and political dimensions. This status creates the need for social researchers to ensure high-level transparency in research processes, while ensuring that the subjects of research are protected and that the outcome of researches are reliable.

As a concept, '*research ethics*' refers to a complex set of values, standards and institutional principles that help regulate scientific activity (Broom, 2006; Sieber, 1982). Ethics, on its own, is conceptualized as a set of norms and moral standards governing individual or social action. Ethics are self-regulatory guidelines that help members of an organization maintain the integrity of their profession and protect the welfare of consumers, subjects or clients. According to City University of Hong Kong (2020), research ethics provides guidelines for the responsible conduct of research. In addition, it helps to monitor scientists conducting research to ensure a high ethical standard.

#### **3.3.1 Ethical issues in social research**

The following, as explained in City University of Hong Kong (2020), Watts (2008), and Broom (2006), are some general ethical considerations every scholar in the social sciences must consider in the course of research

- i) *Honesty*: Honesty explains the quality of being sincere, trustworthy and straightforward. The value of honesty to the society is the same as the value of honesty to science. Honesty plays a key role in the search for knowledge and in promoting cooperation and trust among researchers, as well as between science and the society. On the basis of this, researchers are expected to honestly report the entire procedure of the study; data, results, methods and findings. The researcher must at all cost avoid practices as: fabrication of false data, falsifications data, plagiarism by the misappropriation or use of the intellectual property or work of others without acknowledgement or permission, suppression of relevant data or findings and/or data, obtaining data by deception, etc.
- ii) *Objectivity*: Researchers, as noted by City University of Hong Kong (2020), are to maintain neutrality, fairness, and impartiality in terms of observation of facts, data analysis, and interpretation of research findings.
- iii) *Carefulness*: Also, researchers are to avoid careless errors and negligence in handling research data, hypothesis testing, experiments or analysis of findings.
- iv) *Openness*: Researchers should also be open to sharing data, results, ideas, tools, and resources to colleagues and the public. Most importantly, a researcher should be open to criticism and new ideas.
- v) *Respect for Intellectual Property*: As earlier noted under honesty as a key research ethics, respect for intellectual property is important for social research. First it helps to advance the frontiers of knowledge as colleagues are mentioned and acknowledged for their works. Also, respect for intellectual property as encourages researchers to further invest in research. Thus, researchers must honour patents, copyrights, and other forms of intellectual property. Do not use published or unpublished data, methods, or results, without permission. Also, it is important to give credit where credit is due.

- vi) *Confidentiality and Privacy*: Confidentiality here refers to the strict concealment of the identity, and the protection of the views and opinion of research participants. Protecting the anonymity and confidentiality of research participants is an important research ethics. Confidentiality specifies that the private views or any information from a respondent cannot be revealed, while privacy is the ethical obligation to protect the identity of the research participant, especially if expressly requested by the research participant (Watts, 2008; Broom, 2006).
- vii) *Informed consent*: Informed consent is one of important ethical considerations in the social sciences. Informed consent is aimed at ensuring that research participants enter a research voluntarily, with full information about what it means for them to take part, and that they give consent to be included in the research. Obtaining informed consent for a research study requires being considerate about the privacy of the participant. It begins with being open and disclosing to the study participant:
- The nature, procedures, extent and devices to be used in the research
  - Any known risks or foreseeable risks, hazards, pain or discomfort that the participant might experience in the course of the research.
  - The possible outcomes of the study and the possible implications of such outcome.

The researcher should also be open and honest in answering questions from prospective participant, refrain from coercing any individual to enroll. And most importantly, documenting the voluntary consent to participate.

- viii) *Conflicts of interest*: Conflict of interest explains the situation in which the private interests of the investigator are likely to influence the procedure or outcomes of a research. Scholars see conflict of interest as a general term for situations in which financial or other personal considerations of a researcher

has the potential to compromise or bias professional judgment and objectivity. For instance, if a researcher is expecting to obtain a personal gain, or a gain to a member of their family, or another person to whom they have a close personal relationship arising from the research, there will be an interference which reduces the independence of the research.

- ix) *Responsible Publication*: This ethical obligation suggest that a researcher is to publish purely for advancement in research and scholarship, and not just to advance personal career. In recent times, the drive to ‘publish’ and avoid perishing career-wise has pushed many scholars to focus more on their career, than on expanding the frontiers of knowledge or helping humanity meet needs. This wrong attitude to research lowers the quality and relevance of academic researches, thus impacting on research and development.
- x) *Responsible Mentoring*: Another ethical obligation of researchers is to help to educate, mentor, and advise younger colleagues and students. This responsibility helps the academic community to grow as skills, expertise and knowledge is passed down to burgeoning researchers.
- xi) *Non-Discrimination*: Another important ethical concern is avoiding discrimination against colleagues or students on the basis of sex, race, ethnicity, or other factors that are not related to their scientific competence and integrity.
- xii) *Legality*: Researchers are also expected to know and obey relevant laws, as well as institutional and governmental policies.
- xiii) *Animal Care*: In studies that involve animals, researchers are expected to show proper respect and care for animals when using them in research.
- xiv) *Human Subjects Protection*: When conducting research on human subjects, researchers are also obligated to minimize harms and risks, and maximize benefits and human dignity.

- xv) *Providing the right to withdraw:* With the exception of those instances of covert observation where it is not feasible to let everyone that is being observed know what you are doing, research participants should always have the right to withdraw, at any stage, from the research process without being pressured or coerced to rescind that decision.

### ***3.3.2 Objectives and Advantages of Research ethics***

Research ethics, as a code of conduct, provides investigators with the standards to guide their interaction with humans, society, and data, as well as in the handling of research procedures and outcomes. Adhikari (2020), Žukauskas, Vveinhardt and Andriukaitienė (2018), and Bloom (2006), agree that research ethics are important for social researches, and has the following objectives

- (a) **Protection from risk and Harm:** The first and comprehensive objective of research ethics is to protect human participants from risk and harm, and guard their dignity, rights and welfare.
- (b) **Relevant research and Responsible publication:** The second objective of research ethics is to make sure that research is directed in a manner that assists welfares of persons, groups and/or civilization as a whole.
- (c) **Quality control:** The third objective of research ethics it to ensure the quality of researches, and to make sure that research events and schemes are reliable and transparent, and that the participants participated willingly knowing the full implications and extent of the research.

Furthermore, Adhikari (2020) noted that research ethics are advantageous to social sciences, especially as research ethics promote the aims of research, increases trust among the researcher and the respondent, helps to protect the dignity, rights and welfare of research participants, makes researchers responsible and answerable for their actions, promote social and moral values, promotes the ambitions of research such as understanding, veracity, and reduction of error. Research ethics also uphold

the values that are vital to cooperative work, such as belief, answerability, mutual respect, and impartiality. It also helps to increase public support for research. Truth is, people are more likely to trust a research project if they can trust the worth and reliability of research.

### **3.3.3 Self-assessment exercises**

- a) What is IMRAC?
- b) Why do we need to produce a research report?
- c) What are the implications of not abiding by research ethics?

## **3.4 References and Referencing Styles**

The beauty of research is that the entire process of investigation and documenting the procedure and outcomes of a study connects to the ideas, experiences, and empirical works of other scholars. The variables of interest, the study area, theories, and the methods employed by a researcher, must have been mentioned by some other scholar; thus, researchers, in one way or another, lean on the works of other scholars to effectively establish a research. The idea of referencing is built on this notion, and serves as a medium for researchers to identify and acknowledge the works of other scholars.

Referencing is a formal system of acknowledging sources of information one may have used in the course of explaining concepts, stating a research problem, developing hypothesis, defining methods, or interpreting findings. Referencing is defined as citing authorities or mentioning support for a position in a research paper. It is a writing style for indicating when the ideas of others have been used in a research, and to show acknowledgment of such sources. Referencing in a work shows that some of the information or ideas you are quoting or paraphrasing is from another author's work. Besides being a style of writing that helps readers understand the voice of the researcher and that of others, acknowledging your sources is crucial to doing honest academic work. It also demonstrates the breadth and depth of your research.



We reference whenever we use an idea from another scholar or borrow definitions and methods from another author's works. This is regardless of whether you have paraphrased, summarised or directly quoted the work. It is an important practice in academic writing. We reference published materials (such as journal articles, textbooks, newspapers articles, magazines, pamphlets and brochures); unpublished materials (such as lecture notes, personal interviews, research reports, etc.); films, documentaries, television programs or advertisements; websites or other electronic resources including emails, social media posts, blogs and other online discussion forums. We also reference diagrams, illustrations, charts and other images created by others (Stern, 2007; Lipson, 2006). The failure to provide proper acknowledgement for works borrowed from other sources is considered plagiarism.

Referencing in academic papers can be presented in different forms, namely: in-text citations, footnotes, end notes, and references.

- i) *In-text Citation*: This is a brief reference found in the body of the work, and helps to differentiate between the ideas of the author and that of other scholars. This type of referencing is also called parenthetical reference, and often come at the end of a sentence or at the opening of a sentence. For example, if the in-text citation is after a sentence, it is written in parenthesis, e.g. (Stern, 2006); and when it is before a sentence, the name of author appears outside the parenthesis, e.g., Stern (2006).
- ii) *Footnote*: This is another acceptable referencing style in which citations are indicated in the body of work as superscript numbers, and later mentioned at the bottom of the corresponding page. Footnotes are used for two things: as a form of citation in certain referencing styles, and as a provider of additional information to the ones provided in the page.
- iii) *Endnote*: An endnote is a source citation placed at the end of an article, research paper, chapter, or book. Endnotes are used specifically to refer readers to the end of the paper where they can find the sources of the materials

mentioned in the paper. When using endnotes, the quoted sentence or material is followed by a superscript number, and later listed fully at the end of the paper.

It is important to note that endnotes differ from footnotes, in that whereas footnotes appear at the bottom of the same page where the material is cited, endnotes appear at the end of the paper.

- iv) *References*: This is a form of referencing where a separate page is dedicated to documenting the materials mentioned in the entire work. This form of referencing is commonly used in writing research reports, even in the social sciences. Some fields title this reference page *bibliography*, while some fields call it *cited works*.

### **3.4.1 Types of referencing and Referencing styles**

Referencing styles or citation styles are of various types, and are unique to different areas of discipline. For instance, the Modern Language Association [MLA] referencing style is commonly used in Humanities and Liberal Arts, the Council of Science Editors [CSE] referencing style is used in the Life sciences, the American Medical Association [AMA] citation style is recommended in Nursing and Biomedical Sciences, the American Anthropological Association [AAA] citation style is usually used in Anthropological studies, while the Chicago (or the Turabian) referencing style is used in many fields especially in the Arts and Humanities (Abu and Nwakanma, 2018).

The referencing style recommended in the social sciences is the American Psychological Association [APA] referencing style. As Cooper (2020) noted, also known as an ‘author-date’ referencing style, is used in the social sciences because of its way of providing clarity of expression in research reports. Cooper (2020) and Lipson (2006) further noted that the APA referencing style suggests dedicating the last pages of the research report to referencing, and has the following attributes:

- The APA style of referencing recommends that citations are to be presented in-text and on a reference list, all in a parenthetical system.
- APA style of referencing uses the author-date format where the surname and the year of publication of the cited materials are mentioned both ‘in-text’ and on the reference list.
- For the reference list, researchers are to use a separate page (at the end of the document) to mention the detailed references at the end of the work.
- The reference list is also to be arranged alphabetically.
- APA style of referencing also recommends that:
  - Citations with two authors up to five authors should be mentioned fully in-text and in the reference list.
  - Citations with up to six authors and above should be mentioned only once in-text, and in subsequent in-text citations, only the first author will be mentioned with an *et al*, a Latin word meaning ‘and others’ or in addition. For instance, Abu, Nwakanma, Stern, Babbie, Kumar, Anikpo, and Bloom (2017), at the first mention, and afterwards written as: Abu, *et al* (2017).

### ***3.4.2 Importance of referencing in social research***

Referencing, as earlier noted, is an important component of academic documents, and is important for a number of reasons, including:

- i. It allows readers or reviewers to access your source documents as quickly and easily as possible in order to verify, if necessary, the validity of your arguments and the evidence on which they are based (Cooper, 2020; UNSW, 2019).
- ii. Referencing helps an author to acknowledge the contribution of other scholars.

- iii. Referencing is also a way to provide evidence to support the assertions and claims in a research paper.
- iv. Furthermore, by citing experts in your field, an author shows the depth literature review conducted in the course of the study.

#### **4.0 Conclusion**

Research reports have been shown to be important for the entire process of research. Social researches use different types of reports to convey the procedures employed in a research, as well as the findings of the study. For instance, research papers are prepared by researchers to convey the outcome of a study to an audience at a conference, while a research article is published in a journal for the use of scholars and students. Each of these reports have their unique structure which helps the author present the content of the research in an organized fashion, easy to read and interpret by the public. Referencing also elaborates on the content of a research report, in that it provides authors the occasion to acknowledge the sources of the materials consulted in the study. The American Psychological Association (APA) style of referencing is recommended for the scholars in the social sciences largely because it presents citations in very simple formats.

#### **5.0 Summary**

This module has explained the key issues surrounding research report writing in the social sciences, and the need for referencing. It is established here that research can be said to have been successfully completed if it is reported to the public or a target audience for further reviews, application to education, or implementation. The module also discussed the various ethical issues in social researches and the implications they have research and development. Poor consideration of ethical concerns in social research can result in a number of problems including dissemination of incorrect information, loss of faith and trust in science and research, exposing participants to risk and harm, and loss of lives.

## 6.0 Tutor-Marked Assignment

- i) Explain the types of research reports in the social sciences
- ii) Discuss four ethical concerns in social researches
- iii) What are the methodological challenges of research in the social sciences?
- iv) Discuss the importance of referencing in research reports

## 7.0 References/Further readings

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