NATIONAL OPEN UNIVERSITY OF NIGERIA

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COURSE DESCRIPTION

As contemporary political science and particularly political inquiry is increasingly becoming sophisticated and scientifically oriented especially, in the area of deployment of complex methods and techniques for exploring and explaining socio-political phenomena. It is becoming increasingly important as well to design and develop a course material that is capable of giving students the requisite and fundamental knowledge of the best methods, practices and techniques of inquiry into political and social world. This curse material is therefore designed to achieve the forgoing. In its effort to achieve the forgoing objective, the course will engage issue such as, understanding political inquiry and why the need to learn methods of political inquiry, concepts, variables and relationships of variables. It will explain the meaning of operational concepts and empirical referents. Examine conventional research formats and research process, heorizing, hypothesis and problem formulation, research design, qualitative and quantitative test of hypothesis. It will assess research techniques observation, self report techniques such as survey, interviewing and questionnaire, issues of validity and reliability, nature of causation and causal interpretations, qualitative and quantitative measurements; paradigms and science in political inquiry; types of data and sources of data; qualitative and quantitative data.

INTRODUCTION

Prior to the end of the World War 11, political inquiry was chiefly engaged in an effort to give answers to practical philosophical questions about political and social phenomena. This form of engagement made political inquiry more of a moralistic discussion, institutional explanations and narrating political accounts. There was little or perhaps no attempt to explore other methods of inquiry into the political world.

However, after the World War 11, there was a form of revolution in political science which changed the narrative on how political investigations or inquiries are to be conducted. Put differently, there was a radical departure from the philosophical, moralistic and institutional methods and techniques of political inquiry as emphasis was channeled to the scientific methods which was anchored on behavioralism and later post-behavioralism. Thus, a good number of political scientists became concerned with the structure of political inquiry and at the same time, the subject matter of politics. Greater attention was therefore given to research strategies and techniques. Hence, the concentration on behavioral inquiry gave many political scientists the background to examine the nature of political inquiry and its nexus in understanding social and political phenomena.

COURSE AIM AND OBJECTIVES

This course is designed to provide the requisite knowledge and understanding about the logic and methods of conducting contemporary political inquiry. It deals with the strategies, methods and scientific techniques of engaging in investigation into social and political world. Specifically, it seeks to

- i. Prepare students and anyone is engaged in the conduct of political, social science inquiry.
- ii. Explain the processes, logic, methods, and techniques of contemporary political inquiry
- iii. Explore interdisciplinary ideas on inquiring into the unknown political world.

WORKING THROUGH THE COURSE

Students must read the study units and some other reference materials in order to finish the course. Additionally, students will be required to complete specific exercises for which they will require a pen, a notebook, and additional tools that will be indicated in this manual. Students can best comprehend the ideas in this manual by working through the exercises. Students will be obligated to submit a written assignment for evaluation at the conclusion of each unit.

Students will be required to write a final exam at the conclusion of the course.

THE COURSE MATERIAL

Students will find the following key elements in each course:

- i. Course Guide
- ii. Study Units
- iii. Textbooks
- iv. Assignments

STUDY UNITS

There are 12 study units in this course. They are:

Module 1 Understanding The Methods And Techniques Of Political Inquiry

- Unit 1 What is the Political Inquiry.
- Unit 2 Define the Concept of Variables.
- Unit 3 Meaning of Concepts
- Unit 4 Operationalization of Concepts and Empirical Referents

Module 2 Conventional Research Format And Research Process

- Unit 1 What is Conventional Research
- Unit 2 Theorizing, Hypotheses, and Problem Formulation
- Unit 3 Research Design
- Unit 4 Qualitative and Quantitative Testing of Hypothesis

Module 3 Understanding Research Techniques

- Unit 1 What is Research Technique
- Unit 2 Reliability and Validity
- Unit 3 Causation and Causal Interpretation
- Unit 4 Qualitative and Quantitative Measurement

TEXTBOOKS AND REFERENCES

Despite my utmost attempts to give critical and fundamental meaning that students need to successfully complete this course, students will find a list of pertinent reference materials at the end of each unit that they may choose to use for further reading and understanding of the major issues explored in this course material.

Master degree requires a lot of independence therefore, students must develop the culture of consulting and assessing as many useful materials that can assist them have a deep insight and understanding of the issues and concepts engaged in this course material.

COURSE OVERVIEW PRESENTATION SCHEME

This course consists of 12 units. Each unit requires a week and some days of work. Open and distance learning (ODL) has the benefit of allowing you to read and complete the course materials at your own pace and leisure. The instructor who physically sits or stands in front of you in the classrooms is replaced by the course materials.

The attributes of all the units are comparable. Each unit starts with an introduction and concludes with a reference or recommendations for additional reading.

Units	Торіс	Week			
		Activit	nt		
		У	(End-of-		
			Unit)		
(Course Guide		~		
Modul	UNDERSTANDING THE N	AETHOD	OS AND		
e 1	TECHNIQUES OF POLITICAL INQ				
Unit 1	What is the Political Inquiry	Week 1	Assignmen t 1		
Unit 2	Define the Concept of Variables	Week 2	Assignmen t 1		
Unit 3	Meaning of Concept	Week 3	Assignmen t 1		
Unit 4	Operationalization of	Week 4	Assignmen		
	Concepts and Empirical Referents		t 1		
Modul	CONVENTIONAL RESEARCH	FORM	AT AND		
e 2	RESEARCH PROCESS				
Unit 1	What is Conventional Research	Week 5	Assignmen t 1		
Unit 2	Theorizing, Hypotheses, and Problem Formulation	Week 6	Assignmen t 1		
Unit 3	Research Design	Week 7	Assignmen t 1		
Unit 4	Qualitative and Quantitative Testing of	Week	Assignmen		
	Hypothesis	8&9	t1		
Modul e 3	UNDERSTANDING RESEARCH TEC	CHNIQUE	ËS		
Unit 1	What is Research Technique	Week	Assignmen		
		10	t 1		
Unit 2	Reliability and Validity	Week	Assignmen		
		11	t 1		
Unit 3	Causation and Causal Interpretation	Week	Assignmen		
		12&13	t 1		
Unit 4	Qualitative and Quantitative Measurem	Week	Assignmen		
	ent	14&15	t 1		
	Revision	Week			
		16&17			
	Examination	Week			
		18			
	Total	18			
		Weeks			

WHAT STUDENTS WILL NEED IN THE COURSE

Each module's conclusion will list several recommended texts that students are expected to consult. Students will be able to access some of these materials in libraries all around the nation (including online or elibraries). Students must set aside time to read these texts attentively and constructively.

TUTORS AND TUTORIALS

In order to complement the effort of the students in this course, fifteen (15) hours of tutorials are provided. Once you are placed in a tutorial group, you will be informed of the times and places of these tutorials, as well as the name and contact information of your teacher. Your instructor will grade and remark on your work, as well as keep track of your academic progress. Send in your tutor-marked assignments as soon as possible and be sure to get in touch with your tutor if you experience any challenge with your self-assessment exercise, a tutor-marked assignment, or the assignment's grading. Please take note that your participation in conversations, attendance, and answering test questions properly will help your performance in the course.

ASSESSMENT EXERCISES

The evaluation of this course has two components. The tutor-marked assignments come first, followed by the written test. Students are required to use the information, understanding, and experience gained during the course in completing these assignments. Usually, students complete the tutor-marked tasks online. Students are expected to make sure they enroll in all of their classes so that they can easily access the online assignments. The online tasks you complete will count for 30% of your final grade. Students will be required to take a final exam at the conclusion of the course. The remaining 70% of your course grade will be determined by this exam.

TUTOR-MARKED ASSIGNMENTS (TMAs)

In this course, there are typically four online assignments that are marked by a tutor. Each assignment will receive a grade of at least 10%. The top three scores out of a possible ten will be used to determine the final score. This implies that the combined grade for students top three tasks will account for 30% of thier overall course grade. The data and materials in the references, reading, and study units will help you effectively complete your online assignments.

FINAL EXAMINATION AND GRADING

Pol 801 final examination will last two hours and count for 70% of the final course mark. The multiple choice and fill-in-the-gaps questions on the test will be based on the practice questions and tutor-marked assignments students have already completed. The entire course will be evaluated. It's crucial that students give themselves enough time to thoroughly review the entire course. Before the examination, students might find it helpful to go over the work that their instructor marked. All topics covered in the course are covered in the final exam.

HOW TO GET THE MOST FROM THIS COURSE

- a. This course consists of three modules and12 units. Students must stay in each unit for one week except unit 4 in module 2 and Units 3 & 4 in module 3 which students are expected to spend two weeks. The university lecture is replaced by the study units in distance learning. One of the major benefits of remote learning is that you can read and complete carefully created study materials at your own speed, at the time and convenience that works best for you. Consider it as studying the lecture rather than paying attention to the lecturer. Similar to how a lecturer might assign you some reading, when to read and which books are your assigned readings are specified in the study units. At the proper times, you are given exercises to do, just like a lecturer might do in a class.
- b. All study unit adheres to a standard framework. An introduction to the unit's subject matter and how it fits into other units and the course as a whole make up the first item. A list of learning objectives follows this. These objectives outline what you should be able to do once you've finished the unit. Your study should be guided by these learning objectives. Once a unit is complete, you must go back and make sure the goals were met. Your chances of passing the course will considerably increase if you make this a habit.
- c. An effective method for completing the course is as follows. If you encounter any difficulties, contact your tutor or go to the study center that is most convenient for you. Keep in mind that the purpose of your tutor is to assist you. Never be reluctant to call and seek your tutor for help when you need it.
- d. Create a "Course Overview" to help you navigate the course and organize your study schedule. Take note of the amount of time assigned for each unit as well as the connections between the assignments and the units.
- e. Take your time reading this course manual. Your initial task lies in it.

- f. The study center has vital information, such as information about your tutorials and the date of the semester's start day.
- g. Try and compile all the data in a single location, such as your diary or a wall calendar. Regardless of the approach you take, you should select and record your own due dates and a calendar of tasks for each unit.
- h. Make every effort to adhere to your personal study plan after you've established one.
- i. The primary cause of student failure is lagging behind in their coursework. Before it's too late for assistance, please let your tutor or course organizer know if you run across scheduling issues.
- j. Go to Unit 1 and read the introduction and the unit's goals.
- k. Put together the study materials. Your references for the unit you are studying will always be useful.
- 1. You will be aware of the resources to reference for more information as you complete the unit.
- m. Whenever you require current information, visit your study center.
- n. Check up with your study center for important information and changes well before the online TMA deadlines that apply. Remember that thorough completion of the assignment will teach you a lot. They have been created to support you in achieving the course's goals and, as a result, will assist you in passing the test.
- o. Go over the objectives for each study unit again to be sure you've accomplished them. Review the study materials or speak with your tutor if you have questions about any of the objectives. You can go on to the following unit when you are certain that you have accomplished the goals for that unit. Work your way through the course unit by unit, spacing out your study time to help you stay on schedule.
- p. After finishing the last unit, review the material and get ready for the final exam. Check to see if you've met the course objectives and the unit objectives, which are provided at the start of each unit (listed in the course guide).

CONCLUSION

This course offers student the empirical and theoretical understanding of political inquiry in the contemporary world. Students can be successful in this course through adherence to all the guidelines provided in this course by the tutor as well as the university. Above all, engaging classical and contemporary literatures on the issues discussed in this course material will put the student in the solid foundation to accomplish the objective of this course. Finally, interaction with another student and good intellectual network can be beneficial.

SUMMARY

The purpose of this course guide is to provide you with the knowledge you need to successfully complete the course. In the end, how much you acquire from it will rely on how much effort, time, and planning you put into studying. Goodluck.

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MODULE 1 UNDERSTANDING THE NEED TO LEARN METHODS OF POLITICAL INQUIRY

- Unit 1 What is the Political Inquiry.
- Unit 2 Define the Concept of Variables.
- Unit 3 Meaning of Concepts
- Unit 4 Operationalization of Concepts and Empirical Referents

UNIT 1 What is Political Inquiry

Unit Structure

- 1.1 Introduction
- 1.2 Learning Outcomes
- 1.3 The Origin and Meaning of Political Inquiry
- 1.4 Why is the Knowledge of Method of Political Inquiry Important
 - 1.4.1 Theory Building
 - 1.4.2 Explanation
 - 1.4.3 Discovery
 - 1.4.4 Prediction
 - 1.4.5 Storage
- 1.5 Approaches to the study of Political Inquiry
 - 1.5.1 Traditional Approach
 - 1.5.2 Behavioral and Post-Behavioral Approaches
- 1.6 Summary
- 1.7 Glossary
- 1.8 References/Further Reading
- 1.9 Possible Answers to SAEs



1.1 Introduction

The logic of political inquiry is the ontological and epistemological justification for approaches and methods of political inquiry, the approaches of political inquiry are the theoretical and philosophical basis for data collection and analysis, while methods of political inquiry are the procedural rules for data collection and analysis. The study of politics is composed of the interrelationship between these three important elements (Orji and Nweke, 2009). Consequently, as the sophistication of the social sciences increases, in terms of widespread of use of complex methods and techniques for inquiring and explaining social and political phenomenon, it is becoming expedient to develop materials designed to acquaint students, political scientist and those who have interest in the process of political inquiry with some fundamentals of political and social science inquiry. Lack or inadequate grounding in

at least the basic assumptions and approaches to social science inquiry and in particular political inquiry will prevent the student and political scientists alike from making full use of the best knowledge in the field of social sciences. Accordingly, in social sciences, in particular political science, there is a huge gap in knowledge on the systematic understanding of political phenomenon or the political world due to the fact the students and political scientists have not been robustly exposed to the nature of political inquiry, which may be broadly defined as the systematic search for answers to questions.

Before the end of the World War 11, the field of political science as a discipline was basically occupied with attempting to answer practical or philosophical questions about politics. The results tended to take the form of moralistic discussions, institutional description, and political reports. Thus, political science used to be concerned with simply the study of government, i.e. to say governmental and legal institutions. But in 1920s and 1930s, an intellectual movement appeared which contended that to understand politics and political institutions, one had to understand man.

This movement became known as behaviouralism. Some of the basic assumptions of behaviouralism include contents. That means emphasis is less upon governmental institutions and process than upon the political behaviour of human beings (Mbah, 2020). Before the advent of behaviouralism, little attention was given to the alternate approaches a researcher might use when seeking answers to questions concerning the political world. Again, a good number of political scientists are concerned with the structure of inquiry as well as the subject matter of politics.



At the end of this unit, you should be able to:

- explain the various meaning of political inquiry
- explain why the knowledge and understanding of political inquiry is important
- explain approaches to the study of Political Inquiry



The Origin and Meaning of Political Inquiry

The logic and approaches to the study of politics are linked to the methods of political inquiry. Methods of political inquiry are the technical rules that lay down the procedures for how data can be obtained and analyzed (Brewer 2000:2). The study of political inquiry is one of the foremost areas of inquiry. Most disciplines have tried to trace its origin to the ancient Greek civilization of which few of them have been able to establish a firm claim to this heritage like political science. Against this backdrop, the field of political inquiry started from the ancient Greek civilization. Thus, like every other concept in the social sciences, the concept of political inquiry lacks precise meaning. The traditional definition of political inquiry is anchored on investigation that is limited to government, states, sovereignty, and authority which appear too restrictive for the characterization of contemporary investigations. Thus, Hayes and Hedlund (1970) stressed that traditional political inquiry is anchored on three fundamental studies viz, political philosophy, institutional description. and primitive empiricism. According to Hayes and Hedlund (1970), the early political inquiry is an investigation into the political philosophy, institutional description and primitive empiricism in a political system or political phenomenon. The traditional political inquiry is therefore speculative and conjectural. It is legalistic due to its characteristics of drawing upon constitutions and legal documents to describe political structures and organizations and finally, political inquiry under the traditional method might be accurate and objective but its method of data collection and analysis are not always rigorous. For instance, in in a study carried out by James Bryce on Political and Social Reality in Several South American Countries using empiricism, Bryce conclusions were accurate and were reached from strong empirical basis, but his methods of data collection and analysis were not often rigorous (Bryce 1912). Unlike the most recent work by Gabriel Almond and Sidney Verba on "Civic Culture" that equally used empiricism but have employed a rigorous method of data collection and analysis (Almond and Verba, 1963).

After the second world which ushered in the behavioral and post behavioral revolution in political science. Political inquiry shifted from the traditional approaches by seeking new methods of answering political science questions. The growing use of empirical methods of inquiry in political research during this period fostered interest in the nature and structure of inquiry itself. The emphasis of political inquiry in this period lies on studying observable behavior in other to make accurate statements on political phenomena. The goal of political inquiry after the behavioral and post behavioral revolution changes from 'what ought to be' to 'what is' making normative discussions more meaningful when conducted in the light of empirical evidence.

Behavioral political analysis is particularly associated with the work of American political scientists after the Second World War, but its origins can be traced back to the works of Graham Wallas (Human Nature in Politics) and Arthur Bentley (The Process of Government), both published as early as 1908. Both Wallas and Bentley were inclined to lay greater emphasis on the informal processes of politics and less on political institutions in isolation. Considering new developments in contemporary psychology, Wallas wanted to incorporate a New Realism into political inquiry. The new psychology suggested that man was not completely rational, and that his political decisions were not completely reasonable. Reason and self-interest lead individuals. As a result, Wallas pressed on investigating into the facts and proof by developing an insight into human nature and how it manifests in human conduct. On the other hand, Arthur Bentley, a pioneer of the group approach to politics, aimed to create a set of new tools for social science research rather than to characterize political behavior. He went on to explore the function of pressure groups, political parties, elections, and public opinion in the political process, having been greatly influenced by sociology.

Another father of the behavioral method was Charles E. Merriam. He is most known as the leader of the 'Chicago School,' which largely contributed to the behavioralist movement. Merriam critiqued contemporary political science for its lack of scientific rigor in his article 'The Present State of The Study of Politics' published in the American Political Science Review (1921) and his book 'New Aspects of Politics' (1925). Merriam challenged political scientists to look at political behavior as one of the main objectives of research in his presidential address to the American 'Political Science Association' (1925).

On the inside, the practitioners had differing opinions on what constituted behavioralism. As a result, behavioral political inquiry has eluded a strait jacket definition since its inception. Dwight Waldo stressed the ambiguity of behavioralism, describing it as "complex" and "obscure." (Waldo, 1975, p. 58.) As a result, attempts to fully define behavioral political inquiry have been futile, according to Easton, who stated, "Every man puts his own emphasis and thereby becomes his own behavioralist." Easton (1962, p. 9) So, rather than describing behavioralism, it's far easier to state what it accomplishes or aims to achieve (Wogu, 2013).

Self-Assessment Exercises (SAEs) 1

Attem	pt these exercises to measure what you have learnt so far. This should
	not take you more than 5 minutes.
1.	Political inquiry is as old as politics and politics is as od as man but
	political inquiry is traceable to
	civilization.
2.	The scientific and systematic study of political events and phenomena

in an attempt to answer questions that will unravel the unknown social

	and	political	issues	is	known		
	as						
3.			app	broach sees	political		
	inquiry as	an investigation	that is anchore	ed on the stru	ctures an		
	institution of government in an effort to answer philosophical question						
	and institution	onal description	and primitive emp	oiricism.			
4.	The approach which relies on observable behaviors in other to make						
	accurate						
	statements o	n political pheno	mena is		••••		

1.4 Why is the Knowledge of Method of Political Inquiry Important

Political scientists and student of politics from Aristotle to the contemporary time have had different ideas to what constitutes goals of political inquiry. However, while opinion is divided between the traditional and contemporary students and political scientists as to what constitutes the goals of political inquiry. We are going to develop the goals of political inquiry under the following conceptual sub-heads: theory building, explanation, discovery, prediction, and storage.

1.4.1 Theory Building

Theory is a body of knowledge fashioned in such a way that it draws together facts about reality and imparts to them meaning and significance not otherwise apparent. Put differently, a theory identifies and describes the relationships among facts discovered through observation. Theories are provisional acceptable statements. In the beginning, they may be basically speculative, tentative explanations.

In political science or social sciences, theory means the collection of interrelated law-like statements or hypotheses which are intended to explain some political or social phenomenon or event (Leege and Francis, 1974:33). They held that each law-like statement specifies relationships between or among fairly abstract concepts, usually the theory also specifies the contingences, that is, the conditions under which these relationships are likely to hold. Thus, given conditions a, b, and c, $X \rightarrow Y$ is a common form for a theoretical statement. Some statements in a theory will be axiomatic according to Leege and Francis, (1974: 35), that is beyond logical derivation or empirical proof; all other statements are held together by a structure called deducibility. Generally, statements deduced from a theory must be confirmed or made tenable; confirmation occurs through empirical observation of the target phenomena. Deducibility occurs when, according to a prevailing system of logic, hence we can say that one statement implies another (Leege and Francis, 1974: 35 cited in Mbah, 2020). According to Hayes and Hedlund (1970), theory building in the context of political inquiry is

used to accomplish a variety of purposes of which the development of explanatory schemes sufficiently general to account for large numbers of similar phenomena.

1.4.2 Explanation

One of the central purposes of science is to explain phenomena. Explanation has to do with answering 'why' question about things (Mbah, 2020:10). Briefly, scientific inquiry is any method which seeks explanation and prediction. Method in political science is any system of techniques, processes, and modes of reasoning or research strategies which attempts to make political phenomena intelligible, understandable and manageable as opposed to description which basically asked the question, what? Explanation asks how and why or how does one account for (explain) what has happened. In effect, what these new questions suggest is that political phenomena cannot be adequately explained simply by representing "word pictures" of those phenomena; rather explanation in its most elementary form requires a search for the antecedent causes of the phenomena under investigation. The discovery of causes is what is meant by "accounting for" political events. Explanations are limited in nature and modest in aims (Mbah, 2020). In the first place, explanations are conditional i.e. they are true in some conditions but not in others. Second, they are generally unconducive and often indeterminate.

By unconducive, we mean that explanations do not try to show why something must be but rather why the event to be explained may be. In other words, they are tendencies. Mbah (2020) argues that by being indeterminate, they do not apply to all cases. Many explanations begin with the word "generally speaking". Thirdly, explanations are partial; they seldom if ever specify all the factors that account for the phenomena to be explained. Consequently, no explanation no matter how thorough or dew-like can pretend to close the book on a subject. By conditional, unconducive or indeterminate and partial, being explanations are characterized by what Kaplan calls "openness". Therefore, a "good" or acceptable explanation is the one that raises as many new questions and a problem as it answers. Thus, Ernest Nagel has written that the distinctive aim of the scientific enterprise is to provide systematic and responsibly supported explanations. Thus, if Nagel's view is representative of most students and researchers of scientific method, it is impressive to conclude that those conducting political inquiry and research and those reading the findings of such inquiry and research ought to know something about the nature of scientific explanation. Furthermore, it is evident that political scientists are forever trying to answer explicitly and implicitly "why" questions.

There are convincing methodological reasons for political scientists taking an interest in logic of explanation. That was why Unanka (2002) claimed that the main realizable goal of political inquiry is to explain political phenomenon. He argued that political inquiry is about scientific explanation which is a logical generalization about the behavior of a political phenomenon under investigation. In the process of explanation, the fundamental goal is description, which attempts to clarify the nature of the phenomenon under certain types of condition.

1.4.3 Discovery

Political inquiry seeks to discover the nature of political phenomenon or ultimately to discover the laws that govern the behaviour of any political phenomenon. A scientific law is an observed set of facts about the behaviour of any type of phenomenon; it is a rule; a tested and relatively unchangeable set of conventions about the behvaiour of certain set of phenomena and in this context, political phenomenon.

1.4.4 Prediction

Prediction like explanation poses a set of questions which to the scientists are more difficult to answer than the question posed by the descriptions. The question most commonly posed by the prediction is of "if then" variety. This involves the notion of probability. Given conditions X and Y, what is the likelihood that Z will occur taking note of the conditions under which future events are expected to occur is what set prediction apart from forecasting or guessing into a crystal ball? The concept of probability is essential to an understanding of scientific prediction. Rarely if ever in the conduct of social research, is the researcher able to predict that a given event will occur with absolute certainty. Explanation and prediction often go together with explanation serving as basis for accurate prediction (Mbah, 2020). But there are some differences. First, explanation seeks to make sense of phenomena which occurs whether in the past or in the present, whereas prediction anticipates the occurrence of events at the same point in the future. The most important distinction between them is in terms of what each conveys to the researcher.

Explanation basically conveys understanding. We may be able to predict something without necessarily understanding it, i.e., without knowing the reasons for it. This is not to suggest that prediction is the same as guess work. Prediction as oppose to guessing is reasoned. David Truman argued that "we cannot escape from the necessity to predict. Following explanation, political inquiry seeks ultimately at predicting the behavior of events or socio-political phenomenon.

1.4.5 Storage

Political inquiry does not only seek to explain, discover, and predict, it also seeks to store findings for future application or usages. A political scientist who is engaged in the science of political inquiry collects data and formulate proposition or theories which are stored for future use.

1.5 Approaches to the Study of Political Inquiry

Unlike the logic of political inquiry, an approach to the study of politics simply means "a general strategy for studying political phenomena" (Isaak 1969: 159). It is the theoretical and philosophical standpoint that determines the focus of a research; that informs the choice of questions a researcher could ask, and the kind of data to consider. In this sense, a particular approach may emphasize economic, institutional, behavioural, or normative issues; while others may focus on gender and discursive issues. In all, approaches to the study of politics are the theoretical and philosophical focal point which informs data collection and analysis (Orji and Nweke,2009).

1.5.1 Traditional Approach: The traditional approach to political

inquiry is the foremost methods used by political scientists in their inquiry into unknown political phenomena. This approach is embedded in institution, law, and philosophy. Thus, Orji and Nweke (2009) argued that the institutional approach is concerned with the development and operation of political institutions. Four fundamental forms of political institutions are highlighted by political scientists (Rothstein 1996). The first are institutions that make collectively binding choices about how to regulate society's shared interests. The second type of institution is one that applies rules and makes collectively binding judgments. The third type of institution is rule adjudicating institutions, which resolve disagreements about how to interpret general rules established by rulemaking organizations. Finally, those who break the rules are punished by the rule-enforcing organizations. In political science as a field, the study of the institutions has taken center stage. For a long time, political scientists looked at these institutions as formal, unchanging entities like parliaments and bureaucracies.

During the long behaviouralist intermission, however, when the focus turned to the examination of individual agents as rational actors, interest in the institutional approach diminished. After March and Olsen (1984) released "The New Institutionalism: Organizational Factors in Political Life" in the mid-1980s, the study of institutions in political science was resurrected. March and Olsen (1984) criticized academics for reducing the explanation of the political process to individual interests, among other things. They chastised political scientists for advocating an individualistic instrumentalist vision of politics that prioritized persons over institutions.

March and Olsen (1989) advocated for the restoration of institutions in a seminal paper. In political science, as well as many other social science disciplines such as economics, sociology, and anthropology, institutional analysis has been "rediscovered" since the late 1980s (North 1990, Powell and DiMaggio 1991, Koelble 1995). Many political scientists today have shifted their perspectives from "old institutionalism." which views political institutions as formal political organizations, to "new institutionalism," which views institutions as well-organized, wellestablished procedures that have become "the rules of the game" (Jepperson 1991). Institutions can be both formal and informal under the new institutionalist perspective. A formal institution is defined by a collection of formal rules derivable from documented legal principles such as a written constitution.

An informal institution, on the other hand, includes informal rules generated from specific established norms, conventions, or codes of conduct that govern the behavior of people who have implicit or explicit loyalty to the code and are subject to certain levels of controls if they breach the norms (Rothstein). Physical violence is frequently used against non-compliance in formal organizations, although non-violent punishments such as expulsion and shame are commonly used in informal institutions (Lane and Ersson 2000). Micro-, macro-, and metainstitutions are all types of organizations. A typical micro-institution operates on an individual level, with rules established by actors who are few enough to meet in person administer their common good.

1.5.2 Behavioral and Post-Behavioral Approaches: The behavioral method has its roots in a political science protest movement. The successes of conventional political science, particularly the historical, philosophical, and descriptive-institutional approaches, are widely dissatisfied among behavioralists. All behavioralists, according to Dahl (1961: 766), share "a mood of skepticism about the current intellectual attainment of political science, a mood of sympathy toward 'scientific' modes of investigation and analysis, and a mood of optimism about the possibilities of improving the study of politics." Methodological and theoretical concerns appear to be on the minds of behavioralists.

The emergence of the behavioral approach marks the incorporation of scientific methodology into political inquiry. It also emphasizes political science's efforts to give behavior meaning by connecting it to some empirical theoretical context. As a result, the behavioral approach aimed to increase our understanding of politics by attempting to explain

empirical aspects of political life using methods, theories, and proof criteria that are acceptable according to current empirical science's canons, conventions, and premises (Dahl 1961).

The behavioral method arose as a psychological notion aimed at removing all references to subjective issues like intents, preferences, or ideas from scientific research (Easton 1967). Only observations gained using sense organs or mechanical equipment were considered as data by the behaviouralists. Observable behavior elicited by external stimuli is the focus of behavioral study, not assumptions about the observer's subjective state of mind. The behavioural approach is a psychology concept that focuses on the individual, particularly interpersonal relationships. Behaviouralists view political actors as humans with human emotions, prejudices, and biases. As a result, they tend to raise human consciousness.

The behavioural approach is based on the belief that there are certain fundamental units of analysis related to human behavior from which generalizations can be established, and that these generalizations can serve as a common foundation for the specialized study of man in society (Easton 1967). As a result, the search for a common unit of analysis that might easily flow into the unique subject of each social science department has intensified. In an ideal world, the units would be the building blocks of all social behavior, manifesting themselves in various institutions, structures, and processes.

The Post-Behavioral Approach is both a movement and a school of thought. It fought the Behavioural Approach's efforts to make political inquiry a value-free science. The Post-Behavioral Approach is a futureoriented approach that seeks to solve both current and future challenges. The study of Political inquiry should emphasize societal transformation in its approach. Political inquiry must be relevant to society for it to be useful. Along with relevance, this approach considers action to be the most important aspect of political inquiry. It acknowledges that political science must investigate all aspects of politics, including social change, values, and so on.

The Post-Behavioural Approach has a few fundamental qualities. The essential characteristics of the Post-Behavioural Approach are the importance of action and relevance, human problem centered, qualitative and quantitative, and concerned with regularities and irregularities. Seven major characteristics of the Post-Behavioral Approach to Political inquiry have been stated by David Easton. He believes that substance should take precedence over technique, that political inquiry should emphasize social change, that social science research should not lose touch with reality, that the study of political inquiry should give value, and that it should study future oriented issues to mention but a few.

Self-Assessment Exercises (SAEs) 2

Attem	pt these ex	xercises to	mea	sure what	at you	ı have	e learnt	so far. This
should not take you more than 5 minutes.								
1.	The	goals		of		politi	cal	inquiry
	are		•••••		•••••	•••••	••••	
2.	Political	inquiry	is	made	up	of	two	approaches
	viz		•••••					
3.	That whic	h arose as	a psy	chologic	al not	ion ai	med at	removing all
	references	s to subjec	tive i	ssues lik	e inte	ents, p	referen	ces, or ideas
	from scier	ntific resea	rch is	•••••				
4.	That which fought the behavioural approach's efforts to mal						orts to make	
political inquiry a value-free science and also sought to both current and future challenges by emphasizing on so						ght to solve		
						g on societal		
	transformation	ation			is			known
	as		•••••		• • • • • • •	•••••		
5.			• • • • • •		a	rgued	that	substance
	should take precedence over technique, political inquiry should							
	emphasize social change, social science research should not lose							
	touch with reality and the study of political inquiry should give							
	value and	be future of	orient	ed.				



Summary

The study of political inquiry is one of the important areas in political science. Students and political scientist are expected to understand the background, nature and composition of political inquiry and this unit have tersely provided some useful background information to understanding political inquiry. The unit engaged the meaning and historical epoch in the study of political inquiry, exploring its approaches and importance.

Political inquiry is painstaking systematic process that enables the political scientist and students of politics to develop a body of knowledge in political science, explain political issues and phenomenon, discover, and predict future political events, issues, and behavior of policy makers for the good of the society. From the early political thinkers such as Aristotle to the contemporary time, political scientist and students of politics have been engaged in the act of political inquiry but with different approach. In the light of that, political inquiry has gone through some historical approach starting from the traditional

approach which was hinged on philosophy, institution, and legal framework.

The inability of the traditional approach to satisfy the needs of the political scientist to carry out a systematic inquiry that is credible enough to explain and predict political and policy issues and coupled with the revolution that occurred in the field of political science after the World War 11 which introduced the behavioral and post-behavioral movement, the approach to political inquiry changed to behavioral approach. The behavioral approach provided a deep systematic approach to political inquiry and gave political inquiry process the expected rigor that is demanded of every empirical study. Again, it provided the background for political scientist to start answering the "why" question and see society how it is and how it ought to be which is the defining feature of the traditional approach. The import of political inquiry cannot be overemphasized because it enables the political scientist and a man in the street to see the world as it is the development of body of knowledge (theory building), explanation and prediction of political and policy issues.

1.7 Glossary

Political Inquiry: This is a systematic and rigorous inquiry into the unknown political phenomenon either to develop a body of knowledge or to test the existing body of knowledge.

Traditional Approach: This is the foremost approach to the study of political inquiry ad it is based on institutional method, legal method, and philosophical method. The subject matter in these methods are political institutions like the parliament or arms of government, legal frameworks like the constitution and how the society ought to be.

Behavioral Approach: The revolution in the discipline of political science after the World War 11 gave birth to the behavioral approach. The behavioral approach situates its unit of analysis on the individual political behavior. Exponents of this approach such as David Easton argued that, instead of emphasizing on abstract issues as units of analysis such as political institutions and legal skeletons, emphasis should be laid on the political actors' behavioral patterns so as to understand, explain and predict political outcomes.

Post-Behavioral Approach: A new group of scholars who were against the value free approach of behavioral approach founded the postbehavioral movement. They argued that political inquiry should be action oriented. To the post-behavioralists, political scientists should desist from the armchair politicking, rather, they should be politically active and participate in politics so that they can bring about the desired societal change and transformation.

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Possible Answers to SAEs

SAEs 1

- 1. Greek Civilization
- 2. Political Inquiry
- 3. Traditional Approach
- 4. Behavioural Approach

SAEs 2

- 1. Theory Building, Explanation, Discovery, Prediction and Storage
- 2. Traditional and Behavioral Approach
- 3. Behavioural Approach
- 4. Post-Behavioural Approach
- 5. David Easton

Unit 2 Variable and Relationship of Variables

Unit Structure

- 2.1 Introduction
- 2.2 Learners Outcome
- 2.3 Define the Concept of Variables
- 2.4 Types of Variables
 - 2.4.1 Independent Variables
 - 2.4.2 Dependent Variables
 - 2.4.3 Active and Attributive Variables
 - 2.5.4 Continuous, Discrete and Categorial Variables
 - 2.4.5 Extraneous Variables
 - 2.4.6 Demographic Variables
- 2.5 Relationship between Variables
 - 2.5.1 Symmetrical Relationship
 - 2.5.2 Asymmetrical Relationship
 - 2.5.3 Spurious Relationship
 - 2.5.4 Suppressed or Distorted Relationship
 - 2.5.5 Linear and Curvilinear Relationship
- 2.6. Summary
- 2.7 Glossary
- 2.8 References/Further Reading
- 2.9 Possible Answers to SAEs



2.1 Introduction

The term "variable" is widely used in research process. In conducting quantitative and qualitative research works, it is important to define and identify the variables that are being used in research. A variable can elicit excitement in any research process than constants, it is therefore paramount for students and researchers to understand or have a clear knowledge of what a variable means, how to identify variables and the relationships that exists between variables.

Put differently, students and researchers must understand how certain variables in a study are related to one another. Thus, to facilitate an accurate explanation of the relationship between the variables, it is necessary to define the variables. There is no control to the number of variables that can be measured, but it is important for students and researchers to note that the more variables there are, the more complicated the study and analysis of data will be. In addition, the longer the number of variables, the longer the data gathering time. Variables are, therefore, first defined by conceptual definitions. These are definitions that explain the concept the variable is attempting to capture. Second, variables are equally defined by operational definitions. These are definitions of how the variable will be measured in practice. For instance, the variable "work effort" can be defined conceptually as the amount of effort required to do the work, including speed, hardness, effort, dexterity, and repetitiveness. Mbah (2020) argues that each of these aspects must have an operational definition if it is to be measured. Conceptual variables are the ideas of what needs to be measured. For instance, a researcher may want to measure changes in strength. Strength would be the conceptual variable. What exactly is strength and how can it be measured? To answer that question, the conceptual variables need to be defined in specific measurable terms. Redefining a variable in terms of specific, measurable terms is called operationalizing a variable (Mbah, 2020:3).

The process of operationalization enables variables to be defined in terms of quantitative measures. Thus, Kaur (2013) claims that variables make it easy for concepts to be explained and more importantly makes empirical testing of complex concepts possible. "Defining the phrase as variables allows it to be quantified and measured." That is to say that the variable must function for you to operate or become effective (p.36). Some variables, such as gender, birth order, blood group types, and so on, are definite and obvious, whilst others are far more abstract and ambiguous.



Learning Outcomes

At the end of this unit, you should be able to:

- know operationalize Variable
- identify Variable
- understand the different relationship that exists between variables
- apply or use variables in research process.



3 Define the Concept of Variables

A variable is a common concept in research process especially in social science research. It is difficult to characterize like any other social science concepts and as such has generated for itself multifarious and multidimensional meaning and connotations. Admittedly, variabledriven research has merits for the development and growth of social science disciplines. Variables can guide research, practice, curriculum development, evaluation, and help develop effective instructional tactics and strategies. Moreover, it is not clear whether variable free research can exist (Mbah, 2020:2). However, most students and budding researchers do not fully understand what a variable means, nor do they understand its importance in research. Variables are terms that are regularly used in social science research but what they are and how they can be used in research works are rarely discussed (Mbah, 2020:2).

In a layman perspective, a variable can mean anything that varies, for instance, weight, height, anxiety levels, income, body temperature to mention but a few. All these characteristics varies from individual to individual and has a range of values. Kaur (2013) forcefully argued that a variable is a characteristic that can have many values." It's equally a combination of attributes that makes sense. Thus, anything that can vary in research due to a circumstance or circumstances is called variables. Characteristics or features that characterize an object are referred to as attributes. For instance, if gender is a variable, the qualities are male and female. If the variable is location, then the qualities are urban, semi-urban, and rural. So, in this case, characteristics describe a person's location. In the same vein, Unanka (2002) emphatically stressed that a variable is any quantity or characteristics, which may possess different categories or numerical values. Stressing further, he argued that any phenomenon or property or concept whose value is capable of changing or varying its form can be best described as a variable (Unanka, 2002:109). This is to say that variables are concepts that contain more than one value. The values or categories may be designed qualitatively or quantitatively e.g., (income= high, medium, and low, Sex= Male or female) (Age= $1,2,3,4,5,6,\ldots,100$ years, Weight= 3, 10, 50.....100kg).

Variables can be determined by assembling groups of meaningful concepts, which express a whole idea, as in "social class". In other words, a variable is an empirically applicable concept that takes on two or more values. Examples of empirically applicable concepts that are treated as variables include "classes" "sex" among others. Variables are entities defining data expected to answer the research questions and boundaries for research data collection. These entities involve various values, for instance: researchers use variables for the purpose of manipulation, to examine and test the hypotheses based on their research questions. In social science research, the variables are either factors or a state that changes under certain situation (Mbah, 2020).

Therefore, variables could be single concepts or compound concepts. For instance, "growth" is a concept, but "economic growth" is a variable, as a compound concept. In the same vein, "participation," "regime," and "pyramid" are single concepts but "political participation," "regime type," and "organizational pyramid" are variables as compound concepts. Finally, the values of a variable are the statistical weights or the theoretical meanings or labels which are ascribed to the categories of the variables. Such values are not fixed, but rather are not the same across individual choice or condition.

Nevertheless, Schutt (1999) maintained that there are two ways variables can be defined viz, conceptual, and operational. In his conceptual definition of variable, he argued that conceptual definition of variables involves defining a variable in such a way that its meaning elements are replaced with simpler elements without stripping the concept of the basic meaning element, including its grammatical content. For instance, if a concept is a verb or noun form, the definition must follow a verb or noun form respectively. Operational definition of variables is the "process of specifying the operations that will indicate the value of cases on the variables" (Schutt, 1999:60).

2.4 Types of Variables

Operationally, there two types of variables viz, independent, and dependent variables but conceptually other types of variables can include active and attribute variables, continuous, discrete, and categorical variable, extraneous variables, and demographic variables. (Unanka, 2002; Kaur, 2013).

2.4.1 Independent Variable

The independent variable is the variable that can effect change in another variable. It is the "cause" variable usually expressed algebraically as X. It can be said to be an active variable and if it is an active variable, we change the variable's values to see how it affects another variable. An independent variable is also sometimes called an experimental or predictor variable. This is because it is a variable that is being manipulated in an experiment or research in order to observe the effect on a dependent variable, sometimes called an outcome variable. For instance, we change the level of anxiety to determine if the response to pain-relieving medication improved. The active independent variable is the level of anxiety (Kaur, 2013). This implies that pain is dependent on the level of anxiety, there for, pain medication is meant to reduce the level of anxiety.

2.4.2 Dependent Variable

The dependent variable is the variable that is impacted by the independent variable. In other words, the dependent variable is the variable whose value is affected by the independent variable. It is dependent upon another variable. It is the effect variable, often expressed algebraically as Y. Responsiveness to pain reduction medication is the dependent variable in the above given example in the independent variable. Meaning that, if anxiety is the independent variable and pain medications are given to reduce anxiety, the result achieved from the administration of pain medication which the relief of the pain is the dependent variable. Meaning that the relieve of the pain is dependent on the reduction of the level of anxiety.

2.4.3 Active and Attribute Variables

Kaur (2013:36) states that "variables which cannot be manipulated are attribute variables and the variables that the researcher creates are the active variables". Active variables can be independent variables as well. For example, the ability of the communication board to fulfill the necessities of intubated patients. The communication board is an 'active independent variable' because it may be altered to meet the demands of the patients or the study's requirements, it is also the source of the problem, i.e., the independent variable. The term "attribute variable" refers to a variable that is not changed during the research. It can also be used as an independent variable, however there are certain drawbacks. Age, gender, blood group, eye color, and so on are some of the attribute factors. We can choose to investigate the impact of age on weight. in this type of study, we cannot alter a individuals age, but we can examine individuals of various ages and weights. Thus, an active variable in one research could be an attribute variable in another research.

2.4.4 Continuous, Discrete and Categorial Variables

On a continuum, variables can have a high degree of variability. Between two points, a continuous variable can take on an unlimited number of values. When it comes to the continuous variable such as weight, which ranges from 1 to 2 kg, the possibilities are endless: 1.005, 1.7, 1.33333, and so on. Continuous measures in practice are included in a range, and each person receives a score within that range. A discrete variable, on the other hand, is one that represents discrete quantities and has a finite number of values between two locations. In statistics, a categorical variable (also called qualitative variable) is a variable that can take on one of a limited, and usually fixed, number of possible values, assigning each individual or other unit of observation to a particular group or nominal category on the basis of some qualitative property.

Categorial variables are a type of nominal measurement. Two or more subgroups of the set objects are measured in nominal measurements. "They have a basic criterion that all elements of the subgroup are treated the same and have the same name (nominal) and numeral assigned to them." That is, we can only measure whether items belong to specific categories, but we can't quantify or even rank order the categories. Gender, for example, has only two alternatives (male and female). Categorical variables are variables that only have a few discrete non-quantitative values.

2.4.5 Extraneous Variables

Occasionally, after completing research, we discover that the real finding is not what we anticipated. Despite taking all reasonable precautions, the outcome is unexpected. Extraneous variables are to blame. Extraneous variables are variables that may impact research findings but were not sufficiently explored in the investigation. These variables are those factors in the research environment which may have an effect on the dependent variable(s) but which is not controlled. Extraneous variables are dangerous. They may damage a study's validity, making it impossible to know whether the effects were caused by the independent and moderator variables or some extraneous factor.

In all research, there are random variables that might alter the assessment of research variables and the interface between them. "Confounding variables are extraneous variables that are not recognized until the investigation is underway, or that are recognized before the study begins but cannot be controlled." Even if the investigator cannot see it, certain external variables may have effect on the interface between the research variables. Intervening variables are what they're called. For instance, girl's knowledge and practices contribute to ensuring menstrual cleanliness. Motivation, mother and friends, and the media are a few intervening variables that may equally contribute to menstrual hygiene management. As a result, if these two characteristics are not under control, it will be impossible to determine what the true fundamental reason is (p.37).

2.4.6 Demographic Variables

Demographic variables are subject traits or attributes that are gathered to describe the population of study. Sample characteristics are another name for them. It means that these factors describe the study sample and help assess whether the samples are representative of the target population. Researchers can explain links between demographic characteristics and dependent variables even though demographic variables cannot be changed. Age, gender, occupation, marital status, and income are some common demographic variables.

Self-Assessment Exercises (SAEs) 1

Attempt these exercises to measure what you have learnt so far. This should not take you more than 5 minutes. 1.is a characteristic that can have many values. It's equally a combination of attributes that makes sense 2. Characteristics or features that characterize object an is called..... 3. What is the variable for gender Income (Sex) and 4. possible List the of types variables..... in 5. Variable that effect change another variable is called..... 6. Variable that whose value is affected by the independent variable is called.....

2.5 Relationship between Variables

Relationships between variables can take several forms viz, symmetrical, asymmetrical, spurious, suppressed, or distorted, linear, and curvilinear relationships.

2.5.1 Symmetrical Relationship

Symmetrical relationship occurs between variables when the changes which can be increased or decreased in either of the variables are followed by change in the other variable. For instance, let's take the variables income and educational qualification. **Symmetrical** relationship can be observed when two variables fluctuate at the same time. In this relationship, two variables appear to be linked but it may be impossible to explain which one does the influencing and which one is influenced. Hence, in symmetrical relationship change in one variable is not caused by change in another variable. In other words, symmetrical relationships of two individual variables usually would be the cause of another factor. Consequently, a researcher may not be able to distinguish between the independent and dependent variables. Both variables are affected more or less equally (symmetrically) by some outside source of influence.

2.5.2 Asymmetrical Relationship

Asymmetrical relationship relates to change in one variable (independent variable) causing changes in another variable (dependent variable). It is apparent as to which variable does the determining and which variable is determined (Mbah, 2020:27). He argues that one is
essentially responsible for the other and asymmetry introduces the subject of causation. In asymmetrical relationship, it is possible to identify which variable came first, that is to state that A influences B not the other way round (Research Methodology, 2008). Consequently, the core of social science research is to be found in the asymmetrical relationship. In this type of relationship, we postulate that one variable (the independent variable) is essentially responsible for another (dependent variable). Asymmetrical relationship propels one into the vital scientific area of causal analysis (Mbah, 2020:27-28). For instance, let's take the variables educational qualification and political participation. While the independent variable (educational qualification) can lead to a change in the dependent variable (political participation), a change in the dependent variable may not result to a change in the independent variable. In another example, Unanka (2002:112) used political participation and sex as two variables for illustration. As he argued, men and women are more likely to participate in politics than the other, in that regard, while it is logical that sex i.e., being a male or female could determine the level of political participation.

But political participation cannot determine whether one becomes male or female.

2.5.3 Spurious Relationship

A spurious relationship is an unreal relationship between variables, and it occurs when two variables seem to be related because of an intervening or third variables and the relationship may disappear if the third or intervening variable is controlled. For instance, the relationship between income and political participation may be spurious or not real because of the presence of a third or intervening variable educational qualification.

Thus, educational qualification can determine the level of income and can equally determine the level of political participation. As such, when educational qualification as the intervening or third variable in this relationship is controlled, the relationship between income and political participation may disappear. To further illustrate spurious relationship, when a relationship between variable A and B exists because of the presence variable C, we say that the relationship is spurious because, when variable C is no longer available, the relationship between variable A and B is likely to disappear.

2.5.4 Suppressed or Distorted Relationship

A suppressed or distorted variables are variables whose presence makes the relationship between two variables to be unnoticeable. Thus, an intervening or third variable can be labeled as suppressed or distorted variable. Therefore, a suppressed or distorted relationship occurs when two variable relationship appears not to exist due to the presence of intervening or third variable. Unlike in the spurious relationship where a control on the intervening or third variable leads to the disappearance of the relationship between two variables, in suppressed or distorted variable, a control of the intervening or third variable, leads to the noticeability or functionality of the relationship between two variables. It can be said that variable A and B relationship is not noticeable because of the presence of variable C as such that if you control variable C, the relationship between variables A and B will be noticeable.

2.5.5 Linear and Curvilinear Relationship

The word "linear relationship" refers to the relationship between a variable and a constant. Linear relationships can be represented graphically by connecting the variable and the constant with a straight line, or mathematically by multiplying the independent variable by the slope coefficient and adding a constant to determine the dependent variable. While a curvilinear relationship is a relationship between variables that attempts to fit a *curve* as opposed to a straight line. While the values of two variables vary at the same rate in the same or opposite direction in linear relationship, the values of two variables vary at different rate in curvilinear relationship.

Self-Assessment Exercises (SAEs) 2

Attempt these exercises to measure what you have learnt so far. This should not take you more than 5 minutes.

- 1. The relationship between variables can come in the following forms.....
- 2. When the changes which can increase or decrease in either of the variables is followed by change in the other variable, a relationship between variables occurs.
- 3. When change in one variable is followed by a change in another variable and not the other way round, a..... relationship has taken place.
- 4. A relationship is when two variables seem to be related because of an intervening or third variables and the relationship may disappear if the third or intervening variable is controlled.
- 5. relationship is variables whose presence makes the relationship between two variables to be unnoticeable.



Summary

This unit have made effort to engage the phenomenon of variables in political and social science research. The unit started by giving several definitions of variables based on various understanding by different scholars. It further gave the categories or types of variables and discussed them in detail. The unit also made an inroad into the relationships that exists between these categories of variables and maintains that the knowledge of variables is very important in political and social research because it gives the researcher and political scientist the understanding how to identify research variable and understand how things relates in the research process. It also gives him the capacity to determine how right conclusions are made in research study.

Variables are important component of a research of a research process because they are the basic units of the data studied and interpreted in research studies. Thus, students and researchers discretely analyze and interpret the value(s) of each variable to explain how things relate to each other in descriptive research or what has taken place in an experiment. Variables can be a person, place, thing, or phenomenon a researcher is trying to measure be it qualitatively or quantitatively.

Operationally variables are categorized into two viz, independent, and dependent variables. In its conceptual sense, variables have other categories such as, active and attribute variables, continuous, discrete and categorial variables, extraneous variables, and demographic variables. These variables enjoy some form relationship which are categorized in this work as symmetrical, asymmetrical, spurious, suppressed, or distorted, linear, and curvilinear relationships. Understanding the relationship between these variables will enable a student or research to draw the right conclusion from especially statistical analysis or put differently, it determines how the right conclusions are reached in a research process.

2.7. Glossary

Variables: An element which characteristics or feature can vary in values during measurement and quantification.

Independent Variables: These are variables whose characteristics or features are not determined or dependent on another variable. It can be called the "cause variable".

Dependent Variables: These are variables whose characteristics or features are determined or dependent on another variable and it is most often referred to as "effect variable"

Symmetrical Relationship: Symmetrical relationship exists between variables when the independent and dependent variables can cause and effect each other respectively.

Asymmetrical Relationship: Asymmetrical relationship occurs when the independent variable can cause and effect the dependent variable, but the dependent variable may not be able to have such a cause-andeffect impact on the independent variable.

Spurious Relationship: A spurious relationship exists between variables when there is a presence of third or intervening variable regulating the relationship between independent and dependent variable as such that when the third or intervening variable is controlled, the relationship may seize to exist.

Suppressed or Distorted Relationship: Suppressed or distorted relationship exists between variable when there is a presence of a third or intervening variable suppressing or distorting the relationship between the independent and dependent variable as such that, when the third or intervening variable is controlled or removed the relationship will flourish but its presence distorts or suppresses the relationship.

Linear and Curvilinear Relationship: Linear relationship between variable is used to describe a straight-line relationship between dependent and independent variables while curvilinear relationship is used to describe a relationship between independent and dependent variable. If the ratio of change in the two variables is continuous, there is a linear association. These coordinates will result in a straight line if it is plotted on a graph. If the changes in the variables are not continuous, then there is a curvilinear association.



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Possible Answers to SAEs

SAEs1

- 1. Variable
- 2. Attribute
- 3. Male and Female, High, Medium and Low
- 4. Independent Variable, Dependent Variable, Active and Attribute Variables, Continuous, Discrete and Categorial Variables Extraneous Variables, Demographic Variables
- 5. Independent Variable
- 6. Dependent Variable

SAEs2

- 1. Symmetrical relationship, asymmetrical relationship, spurious relationship, suppressed or distorted relationship, linear and curvilinear relationship.
- 2. Symmetrical Relationship
- 3. Asymmetrical Relationship
- 4. Spurious Relationship
- 5. Suppressed or distorted Relationship

Unit 3 Example 3: Concepts.

Unit Structure

- 3.1 Introduction
- 3.2 Leaning Outcome
- 3.3 Some Meaning of Concepts
- 3.4 Types of Concepts
 - 3.4.1 Superordinate Concept
 - 3.4.2 Subordinate Concept
 - 3.4.3 Basic Concept
- 3.4 Importance of Concepts
- 3.5 Concepts and Construct
- 3.6 Summary
- 3.7 Glossary
- 3.8 References/Further Reading
- 3.9 Possible Answers to SAEs



1 Introduction

The research process follows a systematic way in order to reach a valid and reliable outcome. Concepts are one of the important research processes that enables researchers to develop ideas formally and logically about classes of phenomenon that they want to study. In political science research, definition of concepts is linked to validity and reliability. Validity is described as the degree to which a research study measures what it intends to measure. It is the extent to which a concept, conclusion or measurement is well-founded and corresponds accurately to the real world. Validity refers to how well a test measures what it is purported to measure. The validity of our definitions of concepts flows from their acceptance by community of scholars in our field of research. Theories which serve as an explanation mechanism for researchers rest on concepts, thereby making concepts the building blocks of a theory.

When a researcher formulates a proposition, he/she uses concepts as symbols of the phenomenon he/she seeks to study. A concept may have a single or different categories or values. Thus, those concepts that contain different categories are called variables. Research is guided by concepts conventionally and since science tries to study sections or aspects of reality with an abstract system of thought to interpret those segments, it is not surprising that each science establishes its own concepts for communicating its data and outcomes. Hence, we may refer to theoretical system of science as a conceptual system. Again, due to the differences between the commonsense framework and the scientific way of looking at the world, careful definition of concepts is a research necessity. Since concepts are import engine of research and political inquiry process, the political scientist must therefore be involved in the process of clarification, reconceptualization, or operationalization of concepts in use. This unit will be devoted to developing operational meaning of concepts, its types and important so that at the end of the unit, students and political scientists should be able to:



Learning Outcomes

At the end of this unit, you will be able to:

- explain the meaning of concepts in research and political inquiry
- state and explain the different types of concepts
- discuss the importance of concepts in research in political inquiry



Some Meaning of Concepts

Concepts are mental images, pictures, or perceptions, expressed or written. Concepts are therefore words used to express some types of ideas or symbolic meaning. Unanka (2002) noted that they are logically constructs created from sense impression, percepts, or even complex experiences. In the same vein, Babbie (2004) opined that concept are formally and logically developed ideas about classes of phenomena that a researcher seeks to study. Concepts are the building blocks of theory.

Burge (1993) notes that first, "Concepts are sub-components of thought contents. Such contents type propositional mental events and abilities that may be common to different thinkers or constant in one thinker over time. Having a concept is just being able to think thoughts that contain the concept" and second, in being components of thought contents, concepts constitute ways a thinker thinks about things, properties, relations, and so on"

Concepts are components of thought content and ways of thinking and in being components of thought content and ways of thinking, concepts are representational or intentional. They need not apply to actual objects, but their function is such that they purport to apply; they have intentional or referential functions (p.310). Finally, Concepts' identities are inseparable from their specific intentional properties or functions, for instance, a concept of an eclipse could not be what it is unless it represented or was about eclipses. It would not be the concept eclipse if a concept was discovered to apply to phenomena in the world that were not eclipses. Concepts are commonly expressed in language. They constitute meanings of the speaker's word and according to Unanka (2002) there are basically two languages in the academia viz the layman's language and the scientist's language. Accordingly, the layman uses concepts, but his concepts are used loosely. In contrast, the scientist's concepts are precise and not often clear to the layman.

3.3.1 Types of Concepts

Concepts can be classified into three viz, superordinate concept, subordinate concept, and basic concept.

3.3.2 Superordinate Concept: A hierarchical approach of idea categorization that allows you to be very general or very detailed when classifying something. Consider the hierarchy in the form of a pyramid. At the bottom are the more general classes, while at the top are the more precise classifications. Superordinate concepts, which are the most general method to classify something, are at the bottom of the pyramid. It's at the bottom because a superordinate concept might encompass a wide range of things.

Consider the dog: an animal or mammal classification would be a superordinate concept because it provides some information for people to know that we are talking about an animal rather than a tree, but it doesn't provide much more clue than that. A term like 'home' is a superordinate concept. A home can be an apartment or a house, a boat, or a shack. It can be huge or a single room. Home is a general concept that goes at the very bottom of the hierarchy.

Perkasa and Santoso (2019) argued that superordinate concept is a concept that is higher-up. They maintained that superordinate concepts can be called (hypernyms, anaphoric nouns, or discourse-organizing words). It is that which as a form of word level the highest which has the earliest meaning of each word, The good thing that can be learned in superordinate concept is that the meaning of the word will not become complicated, for instance, vehicle is the superordinate concept for lorry, automobile, bicycle, and train. A concept is superordinate because it acts an umbrella term that includes within it the meaning of other words.

3.3.3 Subordinate Concepts: These are concepts that are under the control of something else. A concept is subordinate when it is under the umbrella of another concept. For instances, all mansions are houses, but not all houses are mansions. Thus, the concept of mansion under the umbrella of houses. Meaning that it is subordinate to the more general concept. It can equally be said to be a hierarchical system, which can be

categorized together with at least one more concept of the same level to form a higher-ranking concept.

3.3.4 Basic Concepts: Words, propositions and terms that enable individuals or people to understand, perceive and describe the world they live in is basically referred to as basic concepts. They are basic because they are learned and acquired from the basic level of language acquisition which are normally done at the home and formative levels of leaning. When a child learns the names of colors or geometrical objects, he or she gains skills to help him or her perceive stimuli in his or her environment more precisely. The path to environmental organization is laid by paying attention to these characteristics.

Basic concepts not only enrich children's language development, but also provide them with some of the skills they need to build their thinking processes. Basic concept acquisition aids a child's learning of mental operations (such as matching, comparing, classifying, inferring, perspective taking, seriation, and conserving), which are the aims of cognitive growth. As a result, basic ideas are a crucial determinant of a child's preparation for formal schooling and future academic performance. Basic Concepts help children make new connections, build comprehension, and come up with their own ideas.

Self-Assessment Exercises (SAEs) 1

Attempt these exercises to measure what you have learnt so far. This
should not take you more than 5 minutes
1 are logically constructs created
from sense impression, percepts, or even complex experiences or
mental images, pictures, or perceptions, expressed or written.
Concepts are therefore words used to express some types of ideas
or symbolic meaning
2 defined concept as formally and logically
developed ideas about classes of phenomena that a researcher
seeks to study. Concepts are the building blocks of theory.
3. Concepts are expressed inand
there are two types of () namely
4. Concepts can be categorized
intonamely
5 is a hierarchical approach of idea
categorization that allows you to be very general or very detailed
when classifying something.

3.4 Importance of Concepts

One of the core imports of concepts lies on its ability to accelerate exchange of ideas and information. Worried by the slow pace by which ideas and information are exchanged among social scientists, A Conference on Social Science Information met in Valescure in France in June 1974 under the auspices of UNESCO. In that conference, one of the issues debated was how exchange of ideas and information among social scientist are hampered due to the relative lack of precision of social science concepts and the greater ambiguity of it technical terms. As a remedy to the challenge, it was suggested that terminology bank for the social sciences known as "INTERCONCEPT" be established to accelerate the exchange of information and ideas among social scientists (Riggs, 1979).

Concepts allow us to categorize our world and make sense out of what we see, hear, feel, and experience. For example, consider having no understanding of notions such as "apple," "school," or "friendship," and can only witness what you directly notice. Only a roundish, reddish object with a diameter of 7 to 8 cm is visible. How valuable is this knowledge on its own? What conclusions can you draw from this? Not much if you know nothing about apples in general. But if you can categorize this item as an "apple," you suddenly know a lot more about it: that you can eat it, that it tastes sweet, that it is nutritious, that you can make pie or juice out of it, that you can toss it (and that it will probably hurt if someone throws one at you), and a lot more. All of this knowledge is related to the notion of an apple; you are familiar with how apples appear, what you can do with them, how heavy they are, and so on. Furthermore, understanding that this object is an apple implies that it is a fruit. If you've been asked to bring some fruits, knowing that the item you are looking at is an apple and therefore a fruit will come in handy.

Concepts assist us in mentally organizing the world. There has been a lot of psychological study on ideas, and it is believed they are crucial for artificial intelligence as well: Given their importance in the human mind, any artificial mind would very certainly require a comparable system to become capable of comprehending and acting in the world. Thus, propositional mental abilities are type-individuated in terms of concepts partly because concepts enable one to capture a thinker's ability to relate different thoughts to one another according to rational inferential patterns.

There must be a common ground on which to interpret and share knowledge about things and situations. Concepts helps us to accomplish this. A concept is a set of recognized meanings or traits connected to certain actions, things, states, circumstances, and behaviors. Concepts are produced by classifying and categorizing things or occurrences that share traits beyond a single observation. We take these meanings out of our experiences and name them with words. A guy can be running, walking, skipping, crawling, or hopping when we observe him passing. All these motions stand for ideas. Additionally, we have abstracted key visual cues that help us recognize that the moving item is a man rather than a woman or a vehicle.

3.5 Concepts and Construct

A construct is an image or notion that was created for a specific theory or research topic, but a concept is a commonly recognized set of meanings or traits that are concrete. The degree of abstraction of a concept refers to how much of an objective reality it possesses or lacks. For instance, a table is an abstract idea. We can point to a table and instantly visualize the traits that all tables share. It is far more challenging to grasp an abstraction like personality. Constructs are a common name for such ephemeral ideas. A construct is a picture or an abstract concept that has been specifically created for a particular research project or theory-building objective.

According to David Kelly "the definition relies heavily on semantics. Words that mean one thing to me can probably mean something else to others. A concept is an external and general idea that should be able to be shared and understood in common with many individuals. A concept should be open to testing so that over time, suggestions that is not a true version of reality will fail to establish that it is not correct. But it can continue to be teste".

Self-Assessment Exercises (SAEs) 2



Summary

Concepts are generalizations (generic, fundamental form) or abstraction (mental impression) of a specific collection of examples or happenings maintained in the mind because of experience, logic, and/or imagination. Concepts can be categorized into three, viz, superordinate concepts, subordinate concepts, and basic concepts. The import of concepts cannot be overemphasized as it helps to accelerate the exchange of information, knowledge, and ideas between social scientists. Again, concepts help in the organization of the type of world we have in our minds so as to make sense of what we see and feel.

3.7 Glossary

Concept: A set of logically constructs created from sense impression, percepts, or even complex experiences. It is how we make meaning out of what we see, feel, and think. It is a general notion or a way to classify a word or idea in your mind.

Superordinate Concept: Superordinate concepts can be called (hypernyms, anaphoric nouns, or discourse-organizing words). It is that which as a form of word level the highest which has the earliest meaning of each word. The good thing that can be learned in superordinate concept is that the meaning of the word will not become complicated.

Subordinate Concept: Subordinate concept is that which is under the control of something else. A concept is subordinate when it is under the umbrella of another concept. It is a hierarchical system, which can be categorized together with at least one more concepts of the same level to form a higher-ranking concept.

Basic Concept: Basic concept is a concept that enable individuals or people to understand, perceive and describe the world they live in. It is basic because it is learned and acquired from the basic level of language acquisition which are normally done at the home and formative levels of leaning.



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Possible Answers to Self-Assessment Exercises (SAEs)

SAEs 1

- 1. Concepts
- 2. Babbie
- 3. Language. Layman and academic language
- 4. Three. Superordinate Concepts, Subordinate Concept and Basic Concept
- 5. Superordinate Concept

SAEs 2

- 1. "INTERCONCEPT"
- 2. Construct
- 3. David Kelly
- 4. Concept

Unit 4 Example 4: Operationalization of Concepts and Empirical Referents

Unit Structure

- 4.1 Introduction
- 4.2 Learning Outcome
- 4.3 Operationalization of Concepts and Empirical Referents
 - 4.3.1 What is Operationalization of Concepts
 - 4.3.2 What is Empirical Referents
 - 4.4 Steps of Operationalization of Concept
 - 4.4.1 What is the Topic
 - 4.4.2 What is the Problem
- 4.5 Advantages and Disadvantages of Operationalization
- 4.6 Summary
- 4.7 Glossary
- 4.8. References/Further Reading
- 4.9 Possible Answers to SAEs



4.1 Introduction

To conduct quantitative research, an individual researcher needs properly specified variables to do quantitative research. Because certain abstract ideas cannot be effectively measured, they must first be operationalized before being explored. The process by which quantitative researchers lay out exactly how an idea will be examined is known as operationalization. It entails determining the exact study methodologies that will be employed to collect data about an ideas.

Obviously, it is important to first determine which research method(s) to use to understand the concepts. Operationalization involves choosing indicators that will be used to describe the concepts that is to be researched. For instance, if a researcher wants to research on masculinity, some of the social tasks allocated to males in society, such as breadwinning or parenting, may be used as indicators. As a result, being a breadwinner or a father may be regarded as indicators of a person's masculinity. The degree to which a man performs either of these responsibilities might be seen as indications (or indicators) about his masculinity. For example, Gallup pollsters' poll 1,000 Americans at random to ask about their happiness. Gallup asks its respondents to answer questions about their physical, emotional, and mental health, as well as their work environment, life appraisal, healthy practices, and access to basic requirements. These six characteristics are used by Gallup as indicators of the idea they are most interested in, which is happiness.

Empirical referents are groups or classifications of authentic occurrences that, by virtue of their existence or presence, indicate the concept's reality.

Brush et al. (2011) maintained that empirical referents is a phrase used in research to describe the quantifiable part of a notion of significance. They basically pertain to quantitative characteristics that show variations in interest in an idea. For example, in trying to quantify pain, there would be objective and subjective empirical referents that quantify pain. The objective empirical referents would refer to the measures of pain that an independent observer notes while subjective empirical referents would refer to how the patient interprets the pain in terms of verbal and non-verbal expressions and experiences. In this case, pain is the concept of interest while the subjective and objective empirical referents are the measurable pain attributes (p.160).



At the end of this unit, you should be able to:

- explain the process of integrating abstract ideas into quantifiable observations.
- explain how to measure, observe, and alter an idea.
- learn how to gather and assess phenomena that cannot be witnessed directly.



4.3 Operationalization of Concepts and Empirical Referents

4.3.1 What is Operationalization of Concepts

The process of integrating abstract ideas into quantifiable observations can be termed as operationalization. It entails figuring out how to measure, observe, and alter an idea. Researchers can gather and assess phenomena that cannot be witnessed directly through operationalization. When studying phenomena that are not empirically testable, such as the phenomenon of health, operationalization is essential.

Empirically measuring health is problematic. However, multiple measures such as body mass index, cholesterol levels, and blood sugar levels can be used to operationalize it.

4.3.2 What is Empirical Referents

An empirical referent is a measurable approach for detailing the components and occurrences of a concept, acting as a tool that quantifies the processes associated with the concept and their outcomes. Empirical referent is the last step of concept analysis. It is the method to measure or defining the attributes of the concept. This step answers the question of, how concept can be measured or what are the application of this concept? Empirical referents are closely related to the defining attributes and are connected to the theoretical foundation of the concept. For instance, the empirical referents of spiritual care are, (1) Patient to be assisted in developing their personal spiritual coping strategies. Spiritual care is important in finding hope and meaning in life through faith, love, and hope. When health care professionals create a loving and compassionate environment that motivate acceptance and hope, the spiritual life of patient is enhanced (Mok et al. 2010; Liu et al., 2014).

4.4 Steps of Operationalization of Concept

4.4.1 Outline the Concepts you want to Study: The research question will be determined by the topic an individual researcher is intending to research on. A research question is the question that a study aims to answer. For instance, assuming a researcher want to examine the impact of social media on depression among pregnant women. The following is your research question: What is the effect of social media use on the mental health of pregnant women. The concepts being studied in this question are social media use and depression.

4.4.2 Select Variables to represent each Concept: The next stage is to determine the variables that is to be measured. The core idea may contain a variety of quantifiable variables, but the researcher must choose the variables that will best to assist answer the research question. The researcher may also choose variables by looking at previous research on the same topic to see which factors are the most important. For instance, the researcher can examine which social media pregnant women use or how often they use social media.

4.4.3 Select Variable Indicators: The researcher can choose indicators for each variable after he or she has chosen a variable to represent each idea being examined. These indicators will provide him or her with a statistical representation of the variable, allowing him or her to measure and examine it. The researcher can also review related research for this stage to gain understanding of the many practical approaches that can be used to measure the chosen variables. Suppose a researcher chose

frequency as the variable to measure social media behavior. The volume of logins during the day or the total amount of time spent on social media daily may be used as a frequency indicator in this scenario. Also, if he/she choose type as a variable to measure social media behavior, the type of social media handle used such as twitter, Facebook, snap chart, WhatsApp etc. can be used as indicators.

4.5. Advantages and Disadvantages of Operationalization of Concepts

4.5.1 Consistency: Operationalization facilitates the replication and expansion of any study that uses it by ensuring consistency in data gathering and analysis.

4.5.2 Objectivity and Precision: It specifies how a topic may be quantified, limiting, or avoiding subjective or prejudiced judgments.

4.5.3 Recognition challenge: Abstract ideas may often be described in a variety of methods. As a result, other researchers frequently challenge the relationship between a study's operationalization methods and the theoretical idea.

4.5.4 Reductiveness: Because operationalization entails analyzing and breaking down a large abstract idea into more precise and objective observations, the original concept may lose part of its originality.

Self-Assessment Exercises (SAEs) 1

Attempt these exercises to measure what you have learnt so far. This should not take you more than 10 minutes.

- 1. The process of converting abstract thoughts into measurable observations is known as.....
- 2 is a quantifiable method for describing the elements and occurrences of a concept, serving as a tool to measure the processes and results of the concept.
- 3. What is the last phase of concept analysis.....
- 4 are the various steps of operationalizing a concept
- 5. If consistency, precision and objectivity are the merits of operationalization of concepts, and are its demerits.



It is a matter of increasing clarity as researchers progress through the processes of identification, conceptualization, and operationalization.

Research starts with a broad interest until it is narrowed down to a few key concepts, then the concepts are defined and laid down on the exact way to measure them. The last level of quantitative research is known as operationalization. Operationalization is made up of the variable being measured, the measure a researcher will employ, and how he/she will interpret the outcomes of that measure. Empirical referents are groups or classifications of real-world experiences that, by virtue of their reality or occurrence, establish the idea's existence; thus, empirical referents are required to make the idea measurable.

4.7 Glossary

4.7.1 Operationalization: A strategy through which quantitative researchers specify how a topic will be measured and how that measurement will be interpreted.

4.7.2 Indicators: These are the elements that the researcher wants to investigate.

4.7.3 Empirical: That which is founded on the researcher's personal observation and measurement of facts. The information obtained may be contrasted to a theory or hypothesis, but the outcomes are still dependent on real-world experience



8

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Possible Answers to Self-Assessment Exercises (SAEs)

- 1. Operationalization
- 2. Empirical Referent
- 3. Empirical Referent

4. Outlining of concepts, selection of variables for each concept, and selection variable indicators

5. Recognition challenge and Reductiveness.

MODULE 2 CONVENTIONAL RESEARCH FORMAT AND RESEARCH PROCESS

- Unit 1 What is Conventional Research
- Unit 2 Theorizing, Hypotheses, and Problem Formulation
- Unit 3 Research Design
- Unit 4 Qualitative and Quantitative Testing of Hypothesis

Unit 1 Conventional Research and Research Process

Unit Structure

- 1.1 Introduction
- 1.2 Learning Outcomes
- 1.3 Conventional Research and Research Process
 1.3.1 What is Conventional Research
 1.3.2 Conventional Research Format
- 1.4 Stages of Research Process
- 1.5 Features of a Research Process
- 1.6 Summary
- 1.7 Glossary
- 1.8 References/Further Reading
- 1.9 Possible Answer to SAEs



1.1 Introduction

All research activity takes place in a logical sequence of steps or stages. McDowell (2002) emphatically argued that every research process involves as many as twenty distinct steps. Irrespective of how many steps are identified, most researchers would probably agree that research involves at a minimum the following distinct activities. First, someone must identify a problem, circumstance, question, event, or situation. At this point, a research problem is identified. Second, to solve this problem which has been identified, the person designs a method for gathering information that have the propensity of offering effective solution of the problem, question, circumstance, event, or situation. At this point, planning a research strategy has been established. Third, the person gathers the information for the study. Thus, the information gathered might be qualitative and equally be quantitative depending on the research design. After the information has been collected, the fourth stage requires processing and finding the meaning of the information collected and this stage requires data presentation, analysis, and interpretation. After this stage, the person must communicate the outcome of the study or research to the targeted audience or the public and this is where research report of the study findings come in. The findings of the research which are reported either by written or oral is thereby implemented for the resolution of the problem identified from the beginning.

This unit will be devoted to demystifying the systematic steps and process of conducting research in political and social sciences. It examines the process by explaining each of the steps in details. However, the steps have been compressed to make it suitable for all research approaches.



Learning Outcomes

At the end of this unit, you should be able to;

- explain the research process.
- identify the steps needed in carrying out systematic research in political science and any other social science discipline irrespective of the approach and design employed.
- apply these processes in their research activities for the resolution and solving of personal, group and societal problems.

1.3 Conventional Research and Research Process

It is useful to offer a quick summary of the research process before diving into the intricacies of research methodology and procedures. The research process is made up of a set of acts or procedures that must be completed in a certain order to achieve research objectives successfully. The diagram in Figure (1) below depicts the research process nicely. However, in research process, rather than following a rigid order, such actions overlap frequently. The conventional research method, according to Starovoytova (2017), consists of seven steps: develop a research question/problem, make background observations, establish a hypothesis, plan the experiment, test the hypothesis/collect data, interpret/analyze the results, and publish the findings. In contrast to Starovoytova (2017) classification, Unanka (2002) developed nine systematic steps needed to carry out scientific research which aims at description, explanation, discovery, prediction, control and storing of knowledge. These stages according to him includes, choosing the research problem (including literature review), Stating of hypothesis (optional), formulating methodology. the research design/ operationalization and measurement, coding, data collection, data processing (including decoding), data analysis and interpretation, publication (research report). McNabb (2009) developed seven steps for systematic research in political science and other social science

disciplines. The seven steps include, identification of research problems, establishment of research objectives, selection of research strategy, preparation of research plan, gathering of data, analyzing and interpretation of data and writing and presentation of research findings.

1.3.1 What is Conventional Research

The central purpose of any research is to solve problems and improve the welfare of society. Research is a careful or diligent search, studious inquiry or examination, especially an investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts or practical application of such new or revised theories or laws (Mbah, 2020:1). In other words, research is the process of arriving at a dependable solution to problems through planned and systematic collection, analysis, and interpretation of data. It employs both inductive and deductive reasoning in revealing the causes. impacts, influence, and relationship between variables. Leege and Francis (1974: 35) posit that scientific theories have both inductive and deductive components. The inductive component consists of a body of statements made tenable by empirical observation; that is, the events which were supposed to occur do occur and we have apparently uncovered a mechanism that leads to their occurrence. The deductive component consists of a body of statements which are deducible from other statements: they are valid. On the other hand, induction which is the reverse of deduction begins with particular observations or cases and develops generalizations about them. Hence, analysis moves from the particular to the general. Most social sciences analysis begins inductively, and this is important for selecting a theoretical framework of analysis for research. This is because the ability to generalize from specific cases often depends on the extensiveness of our knowledge about theory or theoretical positions of scholars and issues (Mbah, 2020:62). Intense data collection is appropriate when we know little about a situation. In the light of the forgoing, deductive procedures validate an observable event, while inductive procedures examine it. Again, qualitative research uses inductive methods, whereas quantitative research uses deductive methods.

1.3.2 Characteristics of a good research

- 1. Good research follows a systematic approach to capture accurate data. Researchers need to practice ethics and a code of conduct while making observations or drawing conclusions.
- 2. The analysis is based on rational thinking and employs both inductive and deductive procedures.

- 3. Empirical evidence in realistic situations provide real-time data and information.
- 4. There is a thorough examination of every data obtained to ensure that there are no irregularities.
- 5. It lays the foundation for new questions to emerge. Existing data aids in the development of new research prospects.
- 6. It is critical and makes use of all relevant data to ensure that assumptions are clear.

1.3.3. Types of Research

It is the goal of research to thoroughly examine a subject or question in order to produce new understanding about it. It is an essential tool for advancing science since it enables researchers to validate or invalidate hypotheses based on parameters, contexts, and assumptions that are precisely described. As a result, it makes it possible for research to be validated and replicated, which empowers researchers to effectively contribute to the body of knowledge (Johnson and Joslyn, 1995).

According to their purpose, level of study, data analysis, length of time required to examine the phenomenon, and other characteristics. Research can be classified into different types. However, it is crucial to acknowledge that a research project will probably use more than one type of study and won't be restricted to just one.

Types according to Purpose

Theoretical Research

The goal of theoretical research, also known as pure or basic research, is to create knowledge independent of how it will be used in the real world. Here, gathering data is done to develop new general ideas for a deeper comprehension of a particular topic or to respond to a theoretical research inquiry. These kinds of findings typically focus on the development of theories and are founded on document analysis, the creation of mathematical formulas, and the reflection of top scholars. An example of theoretical or basic research is a philosophical dissertation which does not address how its conclusions might be applied or implemented in practice, but rather seeks to develop new approaches from current facts (Guthrie, 2010).

Applied Research

The term "applied research" describes scientific inquiry and investigation that aims to address real-world issues. This kind of research is crucial in addressing issues that arise on a daily basis and

frequently affect quality of life, productivity, health, and general wellbeing. There are several methods to use this kind of study. For example, it is employed to create novel technology, find remedies for diseases, and solve everyday issues (Hedric et al., 1993). Accordingly, applied research can be subdivided into two:

Technological Applied Research: This type of research examines how procedures or equipment associated to specified productive processes might be improved in order to increase efficiency in a certain productive sector.

Scientific Applied Research: This type has predictive capabilities. With the help of this type of study methodology, we may measure certain factors to forecast behaviors beneficial to the goods and services industry, such as consumption trends and the likelihood that business ventures would succeed. It is important to state that applied research is often based on knowledge or results obtained through theoretical research.

Types of Research according to Depth of Scope Exploratory Research

Exploratory research is used to investigate a topic that has not yet been thoroughly studied or comprehended. It establishes a framework and a hypothesis from which a thorough investigation may be built, allowing for the generation of conclusive results. Exploratory research depends less on theory and more on data gathering to find patterns that explain certain events because it is centered on the study of understudied phenomena (Stebbins, 1995). For instance, exploratory research can be the role of social media in determining the outcome of Presidential Elections in Developing Societies.

Descriptive Research

The main goal of descriptive research is to identify the traits of a certain event without necessarily focusing on the factors that contribute to its occurrence. When conducting this kind of research, the researcher must take extra care to avoid influencing the object or phenomenon being studied because doing so could alter how it responds (Boudah, 2011).

Explanatory Research

The most prevalent form of research is explanatory research, which is in form of creating cause-and-effect connections that enables generalizations to be made to related realities. Although it offers

more details on the observed object and its interactions with the environment, it is closely related to descriptive research.

Correlational Research

Finding the correlation between two or more variables is the aim of this kind of scientific study. When a variable changes, a correlational study looks at how much the other components of the observed system also change.

Types of Research according to Data

Qualitative Research

Qualitative research is employed in the social sciences to gather, compare, and interpret data. These approaches include discourse analysis, interviews, surveys, records, and participant observation. The observations gathered must be numerically assessed in order to apply statistical procedures to verify their conclusions. But because not all data can be completely controlled, qualitative research frequently tends to be subjective. This kind of study approach is therefore better suited to determining the significance of an occurrence or phenomenon (the "why") than its cause (the "how") (Hennink, 2020).

Quantitative Research

Quantitative research explores a phenomenon by gathering quantitative data and measuring it using methods from mathematics, statistics, and computer technology. This makes it possible to extrapolate generalized results across time.

Types of Research according to Degree of Manipulation of Variables

Experimental Research

Experimental research involves creating or reproducing a phenomenon whose variables are altered under very precise controls in order to recognize or understand its impact on a different independent variable or object. Measurements of the phenomenon under study are made using study and control groups and in accordance with the rules of the scientific method (Srinagesh, 2005).

Non-Experimental Research

Non-Experimental research focuses on the analysis of a phenomenon in its natural setting and is also known as observational research. As a result, the researcher refrains from taking direct action and instead restricts their involvement to collecting the data needed for the study. It is frequently utilized in descriptive research because it is observational in nature

Quasi-Experimental Research

Quasi-Experimental research is not totally experimental because it simply manipulates a portion of the factors influencing the phenomenon being studied. Because of this, the research and focus group were not picked at random but rather from existing populations or groupings. This will guarantee that the information gathered is pertinent and that the population's knowledge, viewpoints, and views may be taken into account when conducting the study (Thyer, 2012).

Self-Assessment Exercises (SAEs) 1

Attempt these exercises to measure what you have learnt so far. This should not take you more than 5 minutes.

1. A sequence of actions or processes that must be carried out in order to successfully complete research objective is known as 2. The aims of scientific research process are..... 3. is a systematic effort to characterize, explain, forecast, and manage observable phenomena 4 research validate an observable event, while..... research examine it. 5. The features of a good research are 6. What are the types of research according to purpose and depth of *scop*

1.4 Stages of Research Process

Starovoytova (2017) states that the conventional research process consists of seven steps: formulate a research question/problem, make background observations, formulate a hypothesis, design the experiment, test the hypothesis/collect data, interpret/analyze the results, publish the findings and in line with his postulation, we adopt McNabb (2009) seven stages of a research process.

Figure 1 **Step 1: Identify the Research Problem** (Why should effort be spent on this research topic; what research questions should be answered; what the research hypothesis is?). **Step 2: Establish Research Objectives** (What information must be collected to answer the research questions and improve the quality of the final research report?). **Step 3: Select the Research Strategy** (What is the best and most cost-effective way to gather this information from these sources following the selected strategy?). **Step 4: Prepare a Research Plan** What specific steps must be taken to gather this information from these sources following the selected strategy?). **Step 5: Gather the Data** (What activities are needed to monitor and manage the process to be sure the right data are collected?). **Step 6: Analyze and Interpret the Data** (What do the data mean, specifically in terms of the problem?). **Step 7: Prepare and Present the Research Findings** (Does the interpreted information address the research problem and answer study questions; what are the implications of the research findings?). Source: (McNabb, 2009:68). Although there are variations on the number of steps in the political and social science research process, these steps are often interrelated.

Against this backdrop, the McNabb seven steps will be adopted to

achieve the objective of this section of the unit.

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Step 1. Identification of the Research Problem

It is imperative to state that there will not be any need for a research if there is no problem. Although this statement is mostly relevant in applied research, but, basic research is equally motivated for the need to advance human civilization and societal progress. Hence, the research starts from the moment a problem or problems have been established. Frankfort-Nachimas and Nachimas (1996) equivocally stressed that research problem is an intellectual stimulus calling for the response in the form of scientific inquiry, they further argued that the problem is typically described in a set of concepts that have been identified or selected by the researcher. The problem concepts are, in turn, the variables evaluated in the study.

The label "study problem" is not always used to describe this initial activity in the research process. In the social sciences, it is often replaced with the phase defining the study question. Other authors referred to it as a process of establishing a rationale for the study. The "question" has also been called the research topic, the research situation, the information need, and other things. The labels all mean the same: establishing a reason for expanding the time and effort required to complete a research project before starting the process. Researchers agree that clearly identifying the study problem is among the most important steps in the entire research process (Berg, 2004). If defining the study problem is not done correctly, it is likely that the remaining activities will be a waste of the time and labor of the researcher. Data will have been gathered, but the reason and meaning of that data will be lost. There are usually no simple answers to study questions; instead, each involves many subcomponents and antecedence factors. The research problem often consists of two key components. It is important to not confuse one with the other. The first is a statement of the problem as it is seen by the researcher; the second is the set of research questions that will be addressed in the study.

Unanka (2002) noted that before any research work is undertaken, it is conventional that the investigator must initiate the inquiry by identifying and defining problem. The process of initiation of inquiry requires painstaking care and thought. The researcher may line up the most precise and sophisticated methods or procedure for the inquiry, but these can be used more readily only when the initial stages and basic assumptions are clearly outlined and mastered. Thus, for a completion of a research process, a researcher must formulate a problem that he/she considers important and above all, that he/she can get involved in.

Step 2. Establishing Research Objectives

This stage involves spelling out in advance and in details what is to accomplish by the research. These are the objectives of the research. This step is closely linked to the first step. Both steps address the reasons for carrying out the research. At this stage, the objectives may still be tentative, a final set of objectives may not emerge until after a review of the literature pertaining to the study question has been completed.

Accordingly, if the research problem is a statement of the reason for doing the research, research objectives are the statements of what the researcher wants to study or accomplish. For instance, let's say that an appointed special assistance to the governor or president on women affairs who manages a pet project on how to generate ideas on the methods to reduce domestic violence on women in Nigeria and she believes that it is imperative to start the study with a research project identify students' current awareness on domestic violence. The research objective can be, to determine the student's current awareness of domestic violence, causes and ways of preventing its occurrence.

Step 3. Deciding the Research Strategy

Deciding the research strategy entails, first, providing the most costeffective way of gathering the needed information, second, producing the best possible answers for the research questions. A partial list of the positivist and postpositivist strategies followed by political scientists today include intuitionalism, behavioralism and rational choice theory among the positivist approaches, and the feminist, Marxist, and the variety of other interpretative designs under the postpositivist canopy.

These strategies provide the researcher with options of data collection technique and specific methods on data processing and analysis.

Positivist strategies basically involves sample research, quantified data such as mathematical model, correlation, regression analysis, time series, and other methods demanding for statistical analysis. Postpositivist strategies may employ ethnographic methods common in anthropology, participant observation methods used in sociology, hermeneutic and symbiotic methods used in historical and literary approaches or in-depth personal and focus group interviews found in psychological research. The essence of the decision is to make sure that the correct methods are matched with the specified strategy (McNabb, 2009:72).

Step 4. Preparing Research Plan

At this stage of the research, the researcher starts preparing a comprehensive plan that details each subsequent research activity. This implies identifying in advance the research subject or sample, the methods for collecting and processing data and the timeline to complete the research. It is imperative to state that designing a good research plan requires decisions on the following issues, the sources of data, the research approach, the instrument for collection of data, sampling technique, method of reach the research respondents or participants.

Step 5. Collection of Data

There are different ways of data collection in research activity. One of the earliest ways of collecting data is through participant and nonparticipant observation, for example, one can take part in social situation and record the findings. Data can equally be collected overtly and covertly observation of the behavior of subject. Interviewing subjects one at a time or in groups can be a way of collecting data, administering a questionnaire or survey the attitudes of a sample of voters, reviewing documents of other information sources to mention but a few are ways to collect data in social research. Data collection can be either primary or secondary. The data can come from internal or external sources.

Primary Data: Primary data is an original information that a researcher collects from the original sources. Primary data can come in form of response from a questionnaire administered to research respondents or participants, an interview and Focus Group Discussion and other types of measurement.

Secondary Data: This is a data that have been collected by and used by another person but are still relevant to examine other research problems. This type of data can come from government statistical report like the Central Bank of Nigeria Statistical Bulletin, National Bureau of Statistics Abstract of Statistics etc., it can also be in form of articles in professional journals, online information from reliable and academic sites and libraries such as google scholar, jostor etc. Both primary and secondary data have no superiority as any of them chosen by a researcher as a source of data must be able to speak to the research objective and answer relevant research questions.

McNabb (2009) maintained that investigators deploy countless of methods in the data collection exercise. These methods can be questionnaire, interview discussion guides, tape recorders, video cameras, and other recording devices.

Step 6. Analyzing and Interpretation of Data

After data collection, the researcher will have to develop some order in the analysis of data to determine their meaning and significance. Unanka (2002) argued that the process of data analysis, and interpretation is continuous, though conventionally believed to begin when the data have been gathered. Analysis to him is a means of finding and establishing the connection between data and the relationship between variables. In data analysis, data connections and relationship between variables may be established by judicious reflection (quantitative analysis) or by statistical correlation and inferences (quantitative analysis).

Data interpretation is an integral part of the analysis. It is basically the process of relating findings of the study to an existing or new theory. In practical usage, data interpretation argues why the connections between data exist. Interpretation of data can lead the acceptance and rejection of research hypothesis. It can equally lead to a generalization, improvement of an existing theory or the formulation of a new theory or scientific law in the case of natural science.

Step 7. Prepare and Present the Research Findings

This is the final step of a research process. The research report follows the same outline developed during the preparation of research plan. As there are different ways of conducting a research project, so also there are different way of communicating research findings. Ultimately, some researchers sit down and write out the results of the study. These results must then be passed on to either a research team leader, a fellow researcher, members of a funding organization, or published in a brochure, report, or professional journal.

1.5 Features of a Research Process

Research process is characterized by two fundamental features viz., circularity or research circle and replication.

1.5.1 Circularity and Replication

The process of conducting research, moving from theory to data and back again, or from data to theory and back again, is regarded as circularity. The stages of the research process suggest a beginning and perhaps an end. It was often argued that everything that has a beginning, there is an end but in scientific research, it is not the same. To an individual researcher, one can assume the beginning of the research the period one selects a topic and expresses the research problem, but that is all. The scientific researcher cannot identify the end of any piece of research because there is no end for any research process. As a matter of fact, publication of a research project is not the end of the research on the topic or problem. This fact reflects more vividly when we conceive the social research process as a circle rather than as stages. If this is done, then, it becomes clear that as the data is analyzed and interpreted and perhaps linked to the theory, then a new problem could emerge therefrom for another movement along the entire stages of the research process. This process could go on and on for as long as mankind's quest for knowledge is kept alive.

1.5.2 Replication

Any individual researcher can abandon research process at the interpretation stage and perhaps at the stage where the findings of the research are linked up to an existing or new theory. At this stage, the original researcher or any other research not connected to the original researcher can pick up the same topic or the same problem statement, drawing from the previous research findings and theory and formulating another research problem. This creates another process of research in motion and the whole process of going round the research process again is what is described as replication.

Self-Assessment Exercises (SAEs) 2

should not take you more than 10 minutes
1. Conventional research is hospitable to different steps but limited it to seven steps
2. What are the seven steps of conventional research according answer of number one
3. If the research problem is a statement of the reason for doing the research are the statements of what the researcher wants to study or accomplish
4. Data collection can be categorized into two and
5. The process of identifying in advance the research subject or sample, the methods for collecting and processing data and the timeline to complete the research is called
b. A research process is characterized withand
0. A research process is characterized withand 7. The practice of switching back and forth between theory and data or data and theory is called



Summary

Research is a systematic and rigorous inquiry into the unknown phenomenon. Research is categorized into basic and applied research. In basic research, the investigator is interested in developing new knowledge or discovery knew idea, but in applied research, the investigator is engaged in finding solution to an existing problem. There are a lot of problem confronting man and the society in which in lives in, it is the duty of the political scientist and other social scientists to find solutions to these issues such as the issue of poverty, unemployment, war, terrorism, famine, leadership, and environmental degradation.

To research on these issues, the researcher is provided with a systematic process which will lead him/her to the actualization of an objective findings that can lead to the solution of the problem that he or she is investigating, the systematic process which guides the researcher in his/her research is what we describe as research process. Although, scholars are not in consensus on the number of steps a research process should follow but, this paper adopted McNabb (2009) seven steps of a research process which includes, identification of research problem, developing of research objectives, selection of research strategy, preparation of research plan, collection of data, analyzing and interpretation of data, preparation, and presentation of research findings. Research in political science is guided by the principles of circularity and replication.

1.7 Glossary

Research: Research is a systematic method of exploring, discovering, predicting, and storing information on an unknown and unexplored political and social phenomenon for societal growth and development.

Research process: These are stages or steps that scientific research undergoes for a successful and objective investigation.

Circularity: This is the process of conducting research, moving from theory to data and back again, or from data to theory and back again, is regarded as circularity.

Replication: This the process of repeating a study's procedure and observing if the previous findings are replicated in similar condition and pattern. Thus, research is replicated when the outcome of the original research is corelated with the result of the new finding.



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Possible Answers to Self-Assessment Exercises (SAEs)

Answers to SAEs 1

- 1. Research Process
- 2. Explanation, Discovery, Description, Prediction and Storage of Information
- 3. Conventional Research
- 4. Deductive and Inductive
- 5. Accurate, deductive and inductive procedure and devoid of irregularity.
- 6. Theoretical or basic research, Applied research, exploratory resear ch, descriptive research, explanatory research and correlational research.

Answers to SAEs 2

- 1. Starovoytova
- 2. problem identification, development of research objectives, selection of research strategy, preparation of research plan, collection of data, analysis and interpretation of data and preparation and presentation of research findings.
- 3. Research Objectives
- 4. Primary and Secondary Data
- 5. Research Plan
- 6. Circularity and Replication
- 7. Replication
- 8. Circle

Unit 2 Theorizing, Hypotheses, and Problem Formulation

Unit Structure

- 2.1 Introduction
- 2.2 Learning Outcome
- 2.3 Understanding the Importance of Theory, Hypothesis in Research 2.3.1 What is a Theory
 - 2.3.2 Types of Theory
 - 2.3.3 Structures and Components of Theory
- 2.4 Hypotheses
 - 2.4.1 Strategies for Formulating a good Hypotheses
- 2.5 Problem Formulation
- 2.6 Summary
- 2.7 Glossary
- 2.8 References/Further Reading
- 2.9 Tutor Marked Assignment



2.1 Introduction

Finding a standpoint or 'lens' through which to see an issue, as well as an approach to see the problem in a new or improved perspective, is part of the theory-making process. Theorizing may be broken down into three stages: Identifying a gap (both in terms of evidence about a topic and in terms of epistemological foundations); Offering and expressing a different perspective (typically in terms of widening the subject); Justifying the alternative both logically and experimentally (even if the data and theoretical framework linkage was not always explicit).

Theorizing is a component of theory. The process of theorizing leads to theory, theory is built, and theorizing is the process of building. Theorizing is more concerned with discovery than with justification; justification comes afterwards. The purpose of theorizing might be interpreted as theory, although theory had a wide range of meanings, as evidenced in the discussion of Abend and Krause (Abend, 2008). However, it was beneficial to have theory play an integrating function, one that included, in Merton's words, "finding patterns and regularities" in the data (texts, pictures, and primary data), with such identification having explanatory power. 'Explanatory power' may relate to collecting viewpoints on phenomena and recognizing the implications of agency, as it does frequently in qualitative research.

If research were reduced to only collecting data, scientific knowledge could not progress. Many academics think that science is basically a fact-finding activity. It is a wrong notion as Cohen cited in Hayes and Hedlung (1970) rightly argued:

There is no genuine progress in scientific insight through the Baconian method of accumulating empirical facts without hypotheses or anticipation of nature. Without some guiding idea we do not know what facts to gather. Without something to prove, we cannot determine what is relevant and what is irrelevant.

People who are scientifically uninformed are often filled with the notion that the scientist is a highly objective person who collects data without preconceived ideas. It is against this backdrop that Pointcare some decades ago discountenanced that forging idea as he argued "it is often said that experiment should be made without a preconceived idea. It is impossible, not only will it make every experiment fruitless, but even if we wished to do so, it could not be done"

There are two kinds of research problems: those that deal with natural phenomena and those that deal with relationships between variables. The researcher must first identify the problem he wishes to investigate, i.e., the broad area of interest or feature of a subject matter that he wishes to investigate. The problem can be presented in broad terms at first, and then any uncertainties about the situation can be cleared. The practicality of a certain solution must then be addressed before a functional problem formulation can be established. The transformation of a broad topic into a specific research problem is thus the first stage in every scientific investigation. In framing the research problem, there are principally two steps, namely, properly grasping the problem and rewording it into relevant expression from an analytical position.



2.2 Learning Outcomes

At the end of this unit, you should be able to:

- explain the meaning of theorizing which is a process of building a theory.
- explain the meaning of hypotheses, how to formulate and identify hypotheses.
- explain how to develop a problem statement for a research study



Understanding the Importance of Theorizing, Hypothesis and Problem Statement in Research

The building of theories to explain social phenomena have often characterized the historical development of scientific disciplines. Many of these theories ae empirical products of one or many social scientists; others are normative ideas of philosophers or intellectuals of the social sciences. Few theories have been accepted in political science, others have been subjected to constant controversy, interrogation, frequent changes, and refinements. It is instructive to note that political science and social theories do not directly provide the answers to the questions we confront as we formulate research topics and research problems. It provides the research problem with the areas on which the researcher should focus and the hypotheses or propositions to consider (Schutt, 1999). Theories in political science includes, deterrence theory, group theory, conflict theory to mention but a few.

2.3.1 What is a Theory?

The term "theory" has a varied connotation in the humanities. Theory as the disciplined investigation of problems has in the main been the province of social scientists. Social science theories are quite simply social scientists attempts to consciously understand and solve the problems of society and organizations. A theory predicts events in a broad, general context. Consequently, social science theory is an intellectual tradition and its history consists of the evolution of man's thoughts about social problems in society over time and space (Mbah, 2020:60). A theory is, therefore, the explanation of the general principles of an art or science. It is based on the use of abstract deductions and reasoning that enable conclusion to be drawn from a set of initial hypotheses or assumptions about any real-world problems (Fajana, 1995: 3 cited in Mbah, 2014: 103). A theory can be normative or prescriptive. This means that it is a postulation about what ought to be; and this provides "goals, norms, and standards for understanding reality. On the other hand, a theory can be a body of knowledge, which may or may not be associated with particular explanatory models. To theorize is to develop this body of knowledge (Mbah, 2020). Theories, therefore, are analytical tools for understanding, explaining, and making predictions about a given subject-matter.

The word "social theory," for example, refers to the use of theoretical frameworks to investigate and explain social structures and phenomena within a specific school of thought. Social theories are multidisciplinary, taking ideas from and contributing to fields such as political science, anthropology, economics, history, human geography, literary

theory, mass communications, philosophy, sociology, and theology. David Silvermann proposed an ideal hierarchy of phases required in undertaking social research in his book titled "Doing Qualitative Research, Placing Theory after Models and Concepts before Hypotheses, Methodology, Method, and Findings" (Silvermann, 2000). Theories are collections of concepts that are used to define and explain a phenomenon. Theories are made up of reasonable linkages between ideas and sets of concepts, and they serve as a framework for critically comprehending a phenomenon as well as a foundation for thinking about how the unknown may be structured. As Silvermann points out, theories give the drive for investigation. According to Schutt (1999:35) quoted in Unanka (2002), a theory is a logically interrelated set of propositions about empirical reality. It is the process of providing explanations and predictions of social phenomenon, generally by relating the subject of interest to some other phenomenon. Kawulich (2009) maintained that a theory is a set of basic ideas proposed to explain a phenomenon. Because of the significance they provide to study objectives, theories continue to be an important aspect of research. In addition, theory aids researchers in the discovery of explanations for many elements of their investigation. It is a formal logical explanation of some occurrences that includes predictions of how objects relate to one another.

To be good theory, a theory must follow the virtues (criteria) for `good' theory, including uniqueness, parsimony, conservation, generalizability, fecundity, internal consistency, empirical riskiness, and abstraction, which apply to all research methods (Wacker, 1998). Consequently, underpins social science endeavours by providing the theory philosophical assumptions on the following aspects: aspects that constitute social reality (ontology); is accepted as valid evidence of that reality (epistemology); the means to investigate the context (methodology); and the manner in which evidence is gathered (methods). Both positivists and interpretivists generally concur that theory occupies a central role in scientific inquiry into the social world. In disciplines of applied social science such as Political Science and Public Administration, research generally fosters the transition from theory to practice. In this respect, theory underlies the designs, methods, and findings of the research process.

2.3.2 Types of Theory

1. Normative Theory

Theory is used vaguely in political science to refer to high-order ideas about prescriptive or recommendatory (normative) aspects of social or political life, and as such it is used to refer to more than empirical theory. However, there are two distinct types of theory that guides political research; normative and empirical theories. Normative theory includes values that justify an end which is usually the good society. It describes an ideal situation, for instance, Nigerian is going to be an egalitarian society. This is an ideal situation and it deals with what ought to be, not what is. It is an idealistic theory like the perfect state of Plato. It is just what one thinks may exist. It is based on speculation and logic and is concerned with laws and conditions largely created or adopted by human society, which are alterable. It seeks to determine and prescribe values. It tends to express preference for a particular type of order by commitment to moral principles (Mbah, 2020). It is validly depended upon how they are accepted by the respective individuals as they can be either right or wrong.

A normative theory is a theory that asserts norms, ideals, or actual solutions that criticize current structures and hence advocate for change to achieve a better future. Normative theory in political science was developed in ancient Greece and provided the foundations for political research. Its role was never questioned until the rise of logical positivism and empirical social science with its claims to be truly scientific that is, value neutral (Pietrzyk-Reeves, 2017). Political science integrates the humanities' and social sciences' perspectives and methodologies. Although today's methodologies are mostly empirical, political science's underpinnings are normative in nature and address the central question in political philosophy: what is a decent political order? Since the ancient Greek tradition, philosophical insights into the nature of politics have established the groundwork for political theories. Many years ago, nevertheless, many political scientists who favored a neutral empirical approach to the study of politics questioned the relevance of these philosophical insights, and more broadly, the role of a normative theory of politics. It was clear that normative political theory required some type of justification and explanation of its role and purpose in fields like political science and international relations.

A given explanatory framework secretes a notion of good, and a set of valuations, which cannot be done away with though they can be overridden unless we do away with the framework,' Charles Taylor argued in his famous article 'Neutrality in Political Science,' published in 1976, in which he argued, against the prevailing intellectual current at the time, that the findings of political science are not and will never be value-free: 'a given explanatory He illustrates how empirical theories or ostensibly pure assumptions about facts have normative repercussions stated in assertions about what is good or desirable in politics, using various instances, including Seymour Lipsett's description of democracy in his Political Man. As a result, it demonstrates that a "link between factual ground and valuation is built in, as it were, to the conceptual

framework" (Taylor, 1994, p. 559). The range of values that may be chosen when building a framework for political analysis must be constrained, and hence value orientation cannot be totally avoided. As a result, "political science cannot cease producing normative theory to the degree that it cannot do away with theory, with the quest for a framework" (Taylor, 1994, p. 569).

Plato's Republic gives a systematic normative theory of the state while John Stuart Mill's On Liberty gives a specific normative theory of politics. Normative theory however involves classical social or political thoughts or philosophies of Emile Durkeim, Marx Weber, to mention but a few. The study of norms or normative principles is referred to as normative theory. 'A broad command that instructs agents what (they ought, or ought not) to do' is what a normative principle is defined as (Cohen, 2003, p. 211). All our notions must bring meaning to the social world of facts, values, norms, patterns, and standards in addition to 'describing' reality. As a result, in addition to descriptive arguments developed by empirically focused political scientists, theorists concerned with norm justification formulate evaluative or prescriptive arguments. Norms, in a broad sense, are the regularities of events. In the social and political environment, norms can be described as standards of social and political action behavior, or they can be regarded prescriptively as reasons that mandate a specific course of action.

A normative theory attempts to identify what criteria in a political society should be observed (domestic or international). As with any other theory, normative theory must address the question of what constitutes a viable subject of scientific investigation. Scientific social theory may be confirmed by reference to facts using conventional inductive procedures, according to a popular distinction made since at least the 1950s (e.g., Bernard, 1950, p. 481). It is possible to claim that normative social and political theory "preserves the aims of practical philosophy to logically define a more suitable form of human life and enlighten people in its realization" (Benhabib, 1986, p. 5). The phrase 'normative' does not just apply to something that' should be,' but also to something that is. The term 'normative' alludes to norms and their importance in the political world, not just something that 'ought to be.' Normative theory allows for not just a solid foundation and knowledge of current norms, but also a critical examination of those standards and their origins. Normative analysis allows the barrier between politics and ethics to be bridged by providing a critical examination of the assumptions and philosophical grounds of political activity.

2. Empirical or Positivist Theory

Steps to develop empirical theories of politics have been met with bottlenecks due to the tradition of normative theory in political science. Thus, the use of idea in political science research has often projected its normative sense. In his preface to Philosophy, Politics, and Society (1956), Peter Laslett famously proclaimed that "political philosophy is dead" for the time being. Its demise was partly due to the advent of logical positivism, which showed a strong belief in scientific understanding and indicated that statements that cannot be experimentally verified are useless. Political science, like natural science, must dispassionately research facts since science can only be concerned with "what has been, is, or will be, independent of the "ought" of the situation," according to logical empiricists (van Dyke, 1960, p. 192). This interpretation ruled out political philosophy as a source of "alleged" normative knowledge.

Several political scientists stated that their research focused on the empirical premises of political science not with 'the value judgments of political doctrine' (Laswell, 1951, p. xiii).

The empirical political scientist is interested in what is, rather than what should be. The behaviorally minded political researcher is willing to characterize values as empirical facts, but as a scientist he avoids prescription or research into the grounds on which good value judgements might be formed (Dahl, 1961, pp. 770–771). Social sciences especially political science seeks to develop empirical theory. "Empirical" refers to things that can be experienced through the five senses of seeing, hearing, touching, tasting and smelling. The theory basically means explanation, and an empirical theory of politics is an explanation of why people behave the way they do politically (Mbah, 2020). It attempts to be unbiased by clearly portraying its methods so that at least technically the study can be repeated. It usually employs the scientific method which its stages include hypothesis, i.e., stating the problem, experimentation, i.e., examining the problem and conclusion. It uses facts and figures to draw conclusion, and it can be used to explain the voting pattern of the Igbos in the last general elections and deductive conclusions can be drawn. To be empirical means to observe and record observations. It involves analysis, i.e., it is analytic, explanatory, and predictive rather than merely descriptive of human behavior (Mbah, 2020). It equally involves systematic research which combines with theory to form a coherent methodological system. This approach has become a very important part of political science. This is because political science seeks to provide explanations of human behaviour in the domain of politics. Therefore, it seeks to discover and describe facts in a scientific manner and its accuracy can be tested.

Thus, Unanka (2002) posits that empirical theories are sets of logically connected, tested or testable ideas or propositions about social phenomena. Put differently, empirical theory presupposes that a theory must be tested and testable. Thus, the gap between empirical theory and normative theory is that the former is empirically tested and stated as sets of interconnected hypotheses.

2.3.3 Structures and Components of Theory

In political science, explanation and predictions are provided by theories. Therefore, theorizing is the process of explaining and predicting social and political phenomenon by associating some problems (through concepts and variables) to some other phenomena in so as to give answer to social political questions. For instance, associating militancy to relative deprivation theory and "conflict" to "frustration aggression theory" explains why insurgency occurs and the reasons for aggression by a group of people. Thus, the structure and components of theory is made up of concepts, variables, and propositions. Under components, we have components like axioms, postulates, theorem, hypothesis, and empirical generalization.

Self-Assessment Exercises (SAEs) 1

Attempt these exercises to measure what you have learnt so far. This should not take you more than 5 minutes.

1. A logically interrelated set of propositions about empirical reality or a process of providing explanations and predictions of social phenomenon, generally by relating the subject of interest to some other phenomenon is referred to as 2. Α good theory is characterized bv the following..... 3. A theory is categorized into two, viz..... A set of logically connected, tested or testable ideas or 4 propositions about social phenomena is known as..... 5. That which allows for not just a solid foundation and knowledge of current norms, but also a critical examination of those standards and their origins is known as..... 6. Concepts, variables, and propositions are

2.4 Hypotheses

Hypothesis is a very important and indispensable element of scientific research because, first, a hypothesis is the working instrument of a theory. Hypothesis can be deduced from theory and from another hypothesis. For example, if a researcher is working on the theory of relative deprivation, he or she is presumably looking for the cause and effect of aggressive behavior. The researcher might have witnessed series of aggressive behavior after long history of deprivation on some people or group of people. Second, hypothesis are powerful tools for the propagation and advancement of knowledge. This is because they help the research and human society to get outside of itself. When stated and tested, it can prove or disapprove a statement and as such lead to the true scientific knowledge. In fact, it is proper to state that there would be no science in any complete sense without hypotheses.

Hypothesis is a proposition that is stated in a testable pattern and that predicts or suggests a particular relationship between two or more variables (Bailey, 1978:35) cited in Unanka (2002). It is a tentative answer to a research question or in other words, it is a tentative assumption, a tentative explanation, or a hunch for which the evidence necessary for testing is at least potentially available. Fred Kerlinger asserted that a hypothesis is a conjectural statement of the relation between two or more variables. It usually in a declarative sentence form, and they relate, either generally or specifically, variables to variables.

Hypothesis carry clear implication for testing the relationship between variables. This implies that hypothesis statements contain two or more variables that are measurable or potentially measurable and that they specify how the variables are related. Thus, a statement that lacks either or both above characteristics is a no hypothesis in the scientific sense of the word. A hypothesis may be proven right or wrong, and must be capable of refutation. If it remains un-refuted by facts, it is said to be verified and this brings us to the concept of falsifiability or refutability.

Falsifiability is the capacity for some proposition, statement, theory or hypothesis to be proven wrong. That capacity is an essential component of the scientific method and hypothesis testing. Hence, a satisfactory hypothesis should have relevant and logical possibility about the relationship of variables included in it.

Hypothesis is ultimately not a statement of wishful thinking or a valueladen statement. However, whenever a research problem is stated, the researcher attempts to specify some of the anticipated results. These expected outcomes stated as predictions are what is known as hypothesis. Put differently, hypothesis is a statement of expected outcome, they are not just ordinary statements, they are predictive and declarative sentences about an expected relationship between all the variables contained in a study. Formal hypothesis is not a must for every research process, hypothesis is stated depending on the research design, some research design doesn't need a research hypothesis where a research question can do justice to the study. However, if research must use a hypothesis, it must be properly stated, the variables contained in the hypothesis must be measurable and testable so that it can properly guide the research process to achieve the objective of the study.

2.4.1 Strategies for Formulating a good Hypotheses

Because a research hypothesis is a testable prediction about what you expect to happen in a study, you might want to draw hypothesis from previously published research that is based on the theory. A sound research hypothesis needs more than a guess. Your hypothesis could start with a query that can be investigated further through background research. To formulate as good hypothesis, the following questions needs to be asked by a researcher.

- 1. Is the vocabulary concise and clear?
- 2. How do the hypothesis and the research topic relate to one another?
- 3. Can the hypothesis be tested? If that's the case, what's the best way to go about it?
- 4. What are some plausible possibilities that the investigator may investigate?
- 5. Is there an independent and dependent variable in the hypothesis?
- 6. Is it possible to modify variables without jeopardizing the ethical standard?

2.5 Problem Formulation

Research questions are mostly aimed at ascertaining the reason or reasons for the existence of the problem or problems under investigation (Onwe and Inua, n:d). They attempt to unravel the basic questions to be answered in the course of the research process. Answer to these questions provides the basis for solving identified research problem and testing the research hypotheses (Mbah, 2020:47). He argues that research question begins with a research problem, an issue someone would like to know more about or a situation or a societal problem that needs to be changed or addressed, such as:

- Areas of concern
- Conditions that could be improved

- Difficulties that need to be eliminated
- Questions seeking answers

Thus, research commences with a formulation of a problem. There is no research especially applied research without a problem. Therefore, formulating a research problem is an indispensable element of a political research. Fred Kerlinger argued that it is not always possible for a researcher to formulate a research problem simply, clearly, and completely. He may have a general, diffuse, and even confused knowledge of the problem. The complexity of political science research is that it might take research many years to be able to come to grip with the type of problem he wants so investigate and the kind of question to answer. Although, stating a perfect problem might look impossible but it is also important to note that one must understand a problem before he can give answers or solutions to the problem. Therefore, a good problem statement is the bedrock of a scientific research, and it is at the heart of political science research.

Thus, a problem statement is an interrogative sentence of statement that ask: What relation exists between two or more variables? The answer to these questions always forms the foundation of what the research is all about. Three criteria are needed to formulate a good problem, first, the problem must explain the relation between two or more variables, second, the problem must be expressed in a clear and unambiguous language and finally, the problem should be stated in a manner that it can be scientifically tested, although this third criteria has not always been the case as political research most often deal with variables that are not measurable such as happiness, the greatest good of the greatest majority to mention but a few.

Self-Assessment Exercises (SAEs) 2

Attempt these exercises to measure what you have learnt so far. This should not take you more than 5 minutes.

1. A proposition that is stated in a testable pattern and that predicts or suggests a particular relationship between two or more variables is called

2. A good hypothesis must be clear and concise (True/False)

3. An interrogative sentence of statement that ask: What relation exists between two or more variables is called.....

4. Independent and Dependent variables are features of.....



Summary

Theorizing is the process of explaining and predicting by relating some problems to other phenomenon. It is the whole process through which a theory is developed. A theory is a mental construct or ideas developed to explain social and political phenomenon. It is an idea used to account for a situation or justify a course of action. Theories are categorized into two viz, normative, and empirical (positivist) theory. Normative theories are theories that points to what ought to be and not what is. They are speculative and fashions ideal principles and ideas as the prism for understanding social and pollical issues. These theories cannot be subjected to scientific replication. They are theories used by early political philosophers such as Socrates, Plato, and Aristotle. On other hand, empirical theories are scientific theories that are developed through a rigorous scientific process. They are theories based on observation and measurement of phenomena as experienced. The structure and components of a theory is made up of concepts, variables, and propositions. Under components, we have components like axioms, postulates, theorem, hypothesis, and empirical generalization. Thus, a hypothesis is a tentative answer to a research question. Every research problem has a given solution or answer, this solution or answer must be measurable and testable before it can validate. Hypothesis is the unvalidated solution to a research problem. When it is validated, it can be called a theory. It is not a wishful thinking but a statement of facts that gives a research problem an empirical connotation. Accordingly, certain perquisites are needed to formulate a good hypothesis, such conditions include, there must be the presence of independent and dependent variables, and it must be testable and measurable as well. The language must be clear and unambiguous, and the statement must relate to the research problem. A problem formulation is another important aspect of research, thus, research starts from the identification of a problem, to formulate the research problem is not always an easy task, it is most times confusing and mixed. Forming a research problem entail stating the issue in a form that can be investigated. It entails structuring the study issue in such a way that it may be investigated scientifically. However, certain steps are necessary for a researchable problem formulation, viz, determining variable relationships, considering the possible repercussions of different techniques, establishing research goals, evaluate background or environment of the research, exploring nature of the research establishing the relationship between variable and consideration of the possible ramifications of other approaches.

2.7 Glossary

Theorizing: The process of theorizing involves fusing various components or concepts into a logical whole that is dependent on broad principles and capable of explaining crucial details or data. Reasoning, abstract thinking, conceptualizing, and defining are all approaches used in the theory-building process.

Theory: Theories are developed to explain, predict, and comprehend occurrences, as well as to question and extend current knowledge within the confines of crucial confining assumptions in many circumstances.

Hypothesis: A research hypothesis is a predictive or statement of expectation that will be evaluated through research study.

Problem Formation: The problem formulation is based on the logic you came up with throughout exploratory search, and it might be the first thing to write about in a thesis. It also serves as a framework for research.



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Answers to SAEs 1

1. Theory

2. Uniqueness, parsimony, conservation, generalizability, fecundity, i nternal consistency, empirical riskiness, and abstraction.

- 3. Normative and Empirical Theory
- 4. Empirical Theory
- 5. Normative Theory
- 6. Structures and Components of a Theory

Answers to SAEs 2

- 1. Hypothesis
- 2. True
- 3. Problem Statement
- 4. Hypotheses

Unit 3 Research Design

Unit Structure

- 3.1 Introduction
- 3.2 Learning Outcome
- 3.3 Research Design and Research Method
 3.3.1 What is Research Design
 3.3.2 Types of Research Design
 3.3.3 Strategies for Stating a Research Design
- 3.4 Characteristics of Research Design
- 3.5 Importance of Research Design
- 3.6 Summary
- 3.7 Glossary
- 3.8 Tutor Marked Assignment
- 3.9 References/Further Reading



l Introduction

Research design is a term used to refer how a researcher applies a logical structure to his or her study. The function of research design in the research process is to make sure that the data collected are sufficient and appropriate for answering the research questions completely and clearly (de Vaus, 2001, McNabb, 2004). Some scholars erroneously equate research design to be the same as research method, research design and research method do not necessarily mean the same, research design is a component of research method, it is like a design for the research. Again, while research design is a plan to answer the research questions, research method is the strategy to execute the plan. Like an architectural design which provides the plan of a building in terms of structure, mechanical and electrical, so also research is supposed to be designed so that the investigator will have a plan to follow to get the right data and the right way to process the data collected. Without a proper plan or research design, without a proper and adequate research design, a researcher cannot answer research questions or test hypothesis properly and adequately, hence research design is the heart of scientific research.

Accordingly, political, and social science researchers are no longer expected to follow a single research design in the conduct of research investigation. There are multifarious approaches available for the researcher to explore. Hakim (2000) identified about eight types of research designs viz, (1) literature reviews, secondary data analysis, and meta-analysis of existing data, (2) qualitative research, including depth interviews and focus group discussion (FDG) (3) research based on administrative records and documentary evidence (4) ad hoc interview surveys (5) regular and continuous interview surveys (6) case studies (7) longitudinal studies (8) experimental social research. Other scholars like Bryman (2001) believed that research design can only be categorized into five such as (1) experimental design (2) cross-sectional (3) longitudinal design (4) case study design and (5) comparative design. Denga and Ali (1968) identified four types of research design, namely, (1) descriptive research design (2) causal comparative design (3) correlational design (4) experimental design. Finally, Schutt (1999) classified several research designs under two major criteria viz, research design to determine causality and research design to determine time and order.



At the end of this unit, you should be able to;

- explain the basic meaning of research design
- identify and list the various categories of research design
- analyze how to structure research deign
- mention and explain the research plan
- explain the importance of research design in a research process

3.3 Research Design and Research Method

A research design is a strategy for answering a specific research issue. A research method is a strategy for putting that plan into action. Research design and research method are often used interchangeably and it is imperative to state that both are important tools for engaging in a successful and productive research process. Thus, research design guarantees that the data a researcher gather will help him or her answer research questions more effectively, research design and techniques are distinct but closely connected.

3.3.1 What is Research Design

Leedy (1997) describes research design as a study plan that lays out the overarching structure for data collection. It is defined by MacMillan and Schumacher (2001:166) as a strategy for selecting people, study settings, and data collecting processes in order to answer the research question (s). They go on to say that the purpose of a good study design is to provide results that can be trusted. According to Durkheim (2004:29), research design is a strategic framework for action that acts as a link

between research questions and research strategy execution. A researcher's research design is the framework for the methodologies and strategies he or she uses to conduct research. Researchers may focus on research methodologies that are appropriate for the selected topic and set up their studies for success because of the design. The type of research (experimental, survey research, correlational, semi-experimental, and review) as well as its sub-types are explained by the design of a research topic (experimental design, research problem, descriptive case-study).

3.3.2 Types of Research Design

Depending on the type of research (qualitative and quantitative), research designs can be categorized into, exploratory design, descriptive design, explanatory design, interpretative design, and critical research deign.

Exploratory Research Design

Exploratory studies are small sample designs used basically for understanding and gaining ideas about research problems and the variables and issues associated with those problems. These types of studies are sometimes referred to as pilot studies. Exploratory research design helps the researcher gain greater understanding of the problem for which more information is desired. Exploratory research design also helps the researcher to identify variables that may be only tangentially related, and thus, should not be included in a more extensive research effort. However, data collection in exploratory research can be through qualitative or quantitative or a mixture of both. The data can also come from both primary and quantitative sources.

Descriptive Research Design

Descriptive research design is used to develop a picture of a particular issue of interest. Studies using descriptive research designs always engage large data sample. It provides a description of an event or issue, it helps define a set of attitudes, opinions, or behaviors that are observed or measured at a given time and in each environment. Thus, the focus of descriptive research design is a discrete designing of a situation or conglomerate of issues to describe what is taking place or what has taken place (Rosenthal and Rosnow, 1991). Descriptive research design can be cross-sectional or longitudinal.

Explanatory Research Design

Explanatory research design is a type of research design used by most mainstream qualitative research. The objective of the explanatory

research design is to go beyond the traditional descriptive designs of the positivist approach to provide meaning as well as description. It is also the objective of explanatory research to build theories and predict social and political issues and phenomenon. Thus, White (1986) argued that "explanatory research strives to build theories that explain and predict natural and social events. Theory building requires the development of a collection of related and testable law-like statements that express causal relationships among relevant variables. The ultimate goal of explanatory research design is the control of political and social events".

Interpretative Research Design

Interpretative research design is made up of a strong sense of connection between the researcher and the subjects which are part of an interpretative study. The objective of interpretative research design is to create an understanding between research participants and the researcher. White (1986) maintained that interpretative research design focuses on standards, norms, rules, and values held in common and how they all influence human relations. It seeks to establish the meaning of a circumstance, events, or social situation (McNabb, 2004). Stivers (2000) emphatically stressed that interpretative research design connotes sensemaking, taking an elementary bundle of events and process. What might be thought of as a situation or group of situations and putting a frame around them based on more or less conscious assumptions about what is likely to be important significant or meaning.

Critical Research Design

Critical research design is one of the least used research designs in political and social research. Its subjective nature might be the reason why it is less used by researchers in the political science and other social sciences. The objective of critical research design is to change people's beliefs, and actions in ways that the researchers believe will better satisfy their needs and wants.

3.3.3 Strategies for Stating a Research Design

Research depends on an articulated plan and strategies so as to answer the studies research question. For an adequate and proper design, a researcher requires to follow or adopt some strategies to engage in such an important aspect of a research process. Thus, Simon (1968) provides five strategies that aids a good research design, and they are as follows,

- 1. Think at length, think in detail, and think about everything before collecting data
- 2. Pretests are an important aid in planning. Run little pretests of method, materials, assistants, and everything else as long as you

can do it cheaply. If you will be using a questionnaire, try out the questions or friends or people in the street.

- 3. Many of the decisions at the design stage must be arbitrary. When there are no rules to follow, you must, make your own rule to guide your arbitrary decisions.
- 4. Draw up in outline the tables and charts that you expect your data to fill. The process forces you to think out the details of the research design.
- 5. Draw up a separate table for each relationship, each comparison, and each measurement that you hope your study will produce.

Self-Assessment Exercises (SAEs) 1

Attempt these exercises to measure what you have learnt so far. This should not take you more than 5 minutes.

1. Research design is 2. design Research can be categorized the into following..... 3. The objective ofresearch design is to create an understanding between research participants and the researcher. 4. Studies using research designs always engage large data sample 5. The objective ofresearch design is to change people's beliefs, and actions in ways that the researchers believe will better satisfy their needs and wants.

3.4 Characteristics of Research Design

Neutrality: You may have to make assumptions about the data you intend to obtain when planning your study. The study outcomes should be unbiased and free of prejudice. Consider those who agree with the produced results and get several people's viewpoints on the final evaluated scores and conclusions.

Reliability: The idea behind reliability is that any significant results must be more than a one-off finding and be inherently repeatable. In simple terms, research reliability is the degree to which research method produces stable and consistent results (Bernard, 2011:42). In other words, reliability is the repeatability of findings of a research output. When doing research on a regular basis, the researcher expects consistent findings. To ensure the quality of your results, your design should show how to formulate research questions. Only a trustworthy design will allow you to get the desired goals.

Validity: Validity encompasses the entire experimental concept and establishes whether the results obtained meet all of the requirements of the scientific research method. Validity simply means that a test or instrument is accurately measuring what it's supposed to. As a process,

validation involves collecting and analyzing data to assess the accuracy of an instrument. There are numerous statistical tests and measures to assess the validity of quantitative instruments, which generally involves pilot testing. A variety of measurement instruments are available. The only accurate measuring instruments, on the other hand, are those that assist a researcher in gauging outcomes in accordance with the study purpose. The questionnaire created as a result of this design will be legitimate.

Generalization: Your design's conclusion should be generalizable to the entire population, not simply a small sample. A generic design means that your survey may be done with equivalent accuracy on any segment of the population. Because the aforementioned criteria influence how respondents react to research questions, all of the aforementioned qualities should be balanced in a successful design. To choose which model to use for a study, a researcher needs have a good knowledge of the many types of research design. The design of your study, like research itself, may be divided into quantitative and qualitative categories.

3.5 Importance of Research Design

- 1. A well-thought-out research design ensures that research techniques are aligned with your research objectives.
- 2. It ensures that high quality data are collected for the research
- 3. It makes for utilization of an appropriate analytical tools to answer research questions.
- 4. Relying on reliable sources, research design helps a researcher to reach valid and reliable judgments or conclusions.

Self-Assessment Exercises (SAEs) 2

Attempt these exercises to measure what you have learnt so far. This should not take you more than 3 minutes.

 1.
 The characteristics of research design includes.

 2.
 State importance of research design.

 3.
 When study outcomes are unbiased and free of prejudice, we can say that the study research design *is*



Research design is an indispensable element of the research process because it is a plan which guides the research and the researcher as well towards collecting the appropriate data, using the appropriate analytical tools to analyze the data so that the research questions could be appropriately answered in other to make adequate, and logical conclusions. There are various types of research designs, however, in this unit, the various types were summarized into five different types, viz, exploratory, descriptive (experimental, causal), explanatory, interpretative and critical research designs. The social science researcher can explore any of these types of designs to structure and plan his or her research depending on the research type (qualitative and quantitative) and the objectives of the study. Thus, a good research design must be neutral, reliable, and valid and must lead to generalization. Accordingly, the importance of research design cannot be underestimated, hence, it ensures that high quality data are collected for the research, it makes for utilization of appropriate analytical tools to answer research questions, ensures that research techniques are aligned with research objectives, and it helps a researcher to reach valid and reliable judgments or conclusions.

3.7 Glossary

Research Design: A Research design is a plan and structure that guides the researchers objectives towards collecting the right data and deploying the right analytical techniques for the purpose of answering the research questions correctly and appropriately.

Exploratory Design: is a research design used to investigate a problem which is not well defined. It is carried out to gain a better knowledge of the current situation, but the results will not be definitive. For this type of design, a researcher begins with a broad concept and utilizes the research to discover difficulties that might be the subject of future study. **Explanatory Design:** Explanatory research design interrogates issues that have not previously been adequately explored, and it establishes priorities, has operational definitions, and produces a more thoroughly researched model. It's a form of research design that focuses on thoroughly discussing the many parts of your investigation.

Descriptive Design: Descriptive research design is a type of research design used to characterize a population, situation, or phenomena in a methodical and precise manner. It can answer the questions of what, where, when, and how, but not why.

Interpretative Design: Interpretive research design is used to investigate people's subjective perceptions of the outside world; as a result, they may subscribe to an inter-subjective epistemology and the ontological idea which reality is socially produced.

Critical Design: Critical research design focuses on promoting interdisciplinarity and so engage in the continuous reorganization of the social sciences and humanities by questioning established or 'current' conceptual frames and views.



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Answers to SAEs 1

1. Research design is a strategic framework for action that acts as a link between research questions and research strategy execution.

- 2. Exploratory, Explanatory, Descriptive, Interpretative and Critical
- 3. Interpretative Research Design
- 4. Descriptive Research Design
- 5. Critical Research Design

Answers to SAEs 2

1. Neutrality, Validity, Reliability and Generalizability

2. Research techniques must align with research objectives, collection of high-quality data, appropriate analytical tools to answer research questions and collection of data from reliable source.

3. Neural

Unit 4 Qualitative and Quantitative Test of Hypotheses

Unit Structure

- 4.1 Introduction
- 4.2 Learning Outcome
- 4.3 Main Content 4.3.1 Testing of Qualitative Hypotheses
 - 4.3.2 Testing of Quantitative Hypotheses
- 4.4. Types of Hypotheses
- 4.4.1 Classes of Hypotheses Tests
- 4.4.2 Probability and Hypotheses Testing
- 4.4.3 One Sample Hypotheses Test
- 4.5 Common Errors in Hypothesis Testing
- 4.6 Summary
- 4.7 Glossary
- 4.8 Tutor Marked Assignment
- 4.9 References/Further Reading



4.1 Introduction

A hypothesis is a clear statement about the problem to be researched that is used in qualitative research. Unlike quantitative research, where hypotheses are only produced to be tested, qualitative research can result in both hypothesis testing and hypothesis generation. Auerbach and Silverstein (2003) argued that "Qualitative hypothesis-generating research involves collecting interview data from research participants concerning a phenomenon of interest, and then using what they say in order to develop hypotheses. It uses the two principles of (1) questioning rather than measuring and (2) generating hypotheses using theoretical coding. Because the method involves developing hypotheses after the data are collected, it is called hypothesis-generating research rather than hypothesis-testing research". Qualitative research does not test but produce hypotheses for future research. These hypotheses become clear during the initial research; they are results of the research. The researcher does not know from the beginning what to expect during qualitative research. In the other hand, a researcher arranges hypotheses based on the formulation of problems and theoretical studies. For quantitative research, the hypothesis used is a statistical hypothesis, meaning that the hypothesis must be tested using statistical rules (Wazwaz, 2021). The difference between hypothesis testing in qualitative and quantitative research or between inductive and deductive research was captured very clearly in Oladejo (2021) who stressed that "the issue of hypothesis testing in qualitative research seems contentious. Hypothesis should be tested when stated especially in quantitative research to avoid Type 1 or Type 2 error. Hypothesis pave way for generalization. However, a qualitative researcher states working hypothesis which need not be tested but can be inferred contextually in a particular case analysis. Hypothesis can however come out of qualitative research. Therefore, hypothesis testing thrives better in deductive research". In qualitative research, a hypothesis is used in the form of a clear statement concerning the problem to be investigated. Unlike in quantitative research, where hypotheses are only developed to be tested, qualitative research can lead to hypothesis-testing and hypothesisgenerating outcomes



4.2 Learning Outcomes

At the end of this unit, the students should be able to;

- Explain the use of hypotheses in both qualitative (inductive) and quantitative (deductive) researches.
- Analyze how to test hypothesis in qualitative studies
- Mention how to test hypothesis in quantitative studies
- Explain the common errors in hypothesis testing in research



4.3 Testing of Hypothesis

Hypothesis can be written in many and different ways and for many different purposes. For instance, they can be formed to address relationships between variables, or as differences between variables. They can be stated as facts or as the way to responses are distributed. They can be written as predictions and as comparisons. They can refer as sample statistics, a population parameter, o a proportion (McNabb, 2004). In all approaches, they are often written as pairs, a null hypothesis and its antithesis, the alternate. The first pair (null hypothesis) is always stated in status quo terms; that is, a predicted change in attitude will not take place; variables are not related; opinion polls score by Nigerian educated elites will not differ from the collated voters score after election. These are called *null hypothesis* and is represented by the notation Ho. They exist as negative statements. For instance. There is no association between voters' apathy and poverty in Nigeria. In contrast, the alternate hypothesis is always paired with the null hypothesis. Alternate hypotheses are stated in an opposite form with the null hypothesis, they are often represented with notation Hi or HA. Researchers gather data to support the alternate hypothesis and to decide against the null hypothesis.

4.3.1 Testing of Qualitative Hypotheses

The act of employing qualitative research data to establish if the reality of an event (situation or scenario) stated in a certain hypothesis is true or untrue or has occurred or will occur is known as qualitative hypothesis testing. Hypothesis, it is suggested, is primarily a quantitative research aspect. This is because when you make a hypothesis, you are attempting to verify or refute it, which is a quantitative endeavor. In most qualitative research, instead of proving or disproving anything, you try to investigate, study, or analyze it. For instance, in critical qualitative research, you investigate the hidden inequities of a seemingly normal environment; in phenomenology, you describe and explain what is going on in a social reality, and so on. So, in qualitative research, it is always advised to develop research questions, and in quantitative research, Hypotheses Although this is not a definitive assertion because a single researcher may hold specific beliefs or observations about the world, he or she might utilize hypothesis to back up his or claim. Some scholars have equally argued that hypothesis testing in qualitative studies is dependent on the nature of the research question. For instance, Lisa Brick argued "If we are conducting qualitative research to find out how consumers will respond to an emerging product, we may have a hypothesis that a certain subset audience is predisposed to have greater appreciation than another and set recruiting parameters accordingly. If we are testing advertising, however, its less of a hypothesis around which ad will succeed or fail than a hunch based on experience about the types of ads that resonate versus others that don't."

4.3.2 Testing of Quantitative Hypotheses

Making assumptions about population parameters is what hypothesis testing is all about. Hypothesis is about the population, and hypothesis testing allows us to utilize sample data to see if our claim about the population is supported by the sample data. This procedure includes calculating a p-value. In quantitative studies, hypothesis testing involves using appropriate statistical tool depending on the research questions and objectives of studies. In other words, the nature of the research question and objectives of the studies determines the type of statistical tool to be deployed. There are three types of statistics relevant in testing of hypothesis and any of them could be deployed viz descriptive statistics, inferential statistics, and associational statistics. In quantitative research hypothesis testing, the researcher is not engaged in building a theory but testing an existing theory or proposition. When a researcher makes a decision about a hypothetical claim. This process is called hypothesis testing A hypothesis test involves collecting data from a sample and evaluating the data. Then, the researcher makes a decision as

to whether or not there is sufficient evidence, based upon analyses of the data, to reject the null hypothesis.

Self-Assessment Exercises (SAEs) 1

Attempt these exercises to measure what you have learnt so far. This should not take you more than 5 minutes.

1. The Null hypothesis is represented with the notation..... while alternate hypothesis...

2. is a tentative answer to a research question or research problem

3. The act of employing qualitative research data to establish if the reality of an event (situation or scenario) stated in a certain hypothesis is true or untrue or has occurred or will occur is called

5. is making assumptions about population parameters

4.4 Types of Hypotheses

In political science, there are three basic types of hypotheses, viz, comparative, predictive and association hypotheses.

Comparative Hypothesis

This type of hypothesis makes comparison between one population and the other. It makes comparisons between groups of voters, political parties, countries, products, and the likes (McNabb, 2004). For instance, a comparative hypothesis tests the differences in mean preference scores between two samples of energy beverage drinkers, and production rate differences witnessed after a change in environmental condition.

Predictive Hypothesis

It is a type of hypothesis that test and predict about the future value of a measurement. For, instance, hypothesis dealing on prediction about tax revenues in the next several years or predicting the movement of stock prices or government annual growth is known as predictive hypothesis.

Association Hypothesis

Association hypothesis is concerned with the level of relationship between two or more variables. Association hypothesis is used to find out if two variables are linked in some way, you're testing for association. Depending on the context, a researcher could be using a diagram (like a scatter plot) to show an association between variables or using a hypothesis test to demonstrate statistically that relationships exist between variables.

4.4.1 Classes of Hypotheses Tests

There are three types of hypotheses testing viz, tests dealing with a single subject, tests for a sample group or a sample and test of hypotheses about two or more groups. Thus, many hypothesis tests have been developed with each of these three classes of hypotheses test. The most commonly used in political science are z-test, t-test, analysis of variance (ANOVA), statistical package for social sciences (SPSS), more so, political scientist interest in using econometrics methods have resulted to the use of e-view data analysis to test hypothesis. Thus, single subject tests are used to know if the subject statistics is within the range that is acceptable of all possible statistics for the population. It seeks to know if the research sample is a representative of the population of the study and to know if the sample distribution is normal (McNabb, 2004). Two sample tests are basically used to test for statistical significance differences in a test's statistics between sets of samples or groups (p, 225).

4.4.2 Probability and Hypotheses Testing

Research conclusions reached through the use of inferential statistics is reached based on what is probably true and not what is actually true. Thus, probability is the basis of all statistical inference. According to McNabb (2004), researchers often have good data before them when they are expected to reach a conclusion on a research subject, in other not to make mistake and for the purpose of reach an erroneous conclusion, they use the result of the sample as an approximation of what is or what might be true of the population by making inferences about the population from the sample data.

4.4.3 One Sample Hypotheses Test

One sample hypotheses tests application are tests of a sample statistic, using the mean or a proportion, so as to make sure that the sample measurement is representative of the population from which it is drawn. It also used to make sure that the sample distribution is normal. Notably, how hypotheses are formed and which statistical test that is appropriate is determined by the specific decision to be made by the researcher.

4.5 Common Errors in Hypothesis Testing

There are two common errors associated with hypothesis testing in political science research are; Type 1 and Type 11 errors. In political

science research, the type 1 error is more of an issue than the type 11 error. Type 1 error happens when a null hypothesis that is supposed to be accepted because it is true is rejected. In research language, it is commonly referred to as falsely rejecting the null hypothesis (McNebb, 2004:227). Type 1 error is closely linked to the confidence level used for decision making. Accordingly, if the confidence level is at 90 percent, the researcher can falsely reject the null hypothesis 10 percent of the time. However, lowering the confidence level to 95 percent (an alpha of .05) suggests that the researcher can expect to be wrong only 5 percent of the time. Thus, tightening the confidence levels lowers the chances of Type 1 errors happening. It is instructive to state at this juncture that rejecting a null hypothesis does not mean that something is "true", it simply means that the null hypothesis must be rejected, and the alternate hypothesis accepted or retained.

In contrast, the Type 11 errors is less frequent in political science research unlike the Type 1 errors. Type 11 errors happens when a researcher fails to reject a null hypothesis that is actually false. A type II error produces a false negative, also known as an error of omission.

Self-Assessment Exercises (SAEs) 2

 Attempt these exercises to measure what you have learnt so far. This should not take you more than 5 minutes.

 1. Hypothesis in political science can be categorized into three, namely......

 2. The type of hypothesis that makes comparison between a population and others is called.......

 3. The type of hypothesis that predicts the future of measurement is called.......

 4. The type of hypothesis that is concerned with the level of relationship between two or more variables is known as

 5. The most commonly statistical tools used in testing hypothesis in political science are

4.6 Summary

Hypothesis is a very important aspect of political science research, but its function differs in both qualitative and quantitative research. Scholars have often been engaged in an inconclusive debate on the use of hypothesis in qualitative research. Some scholars have argued that hypothesis must be tested and if it must be tested, statistical tool must be involved, hence, qualitative research cannot test a hypothesis due to the absence of statistical instrument. Other scholars are of the opinion that regardless of the absence of statistical tools, that some form of hypothesis testing can be done in qualitative research. For instance, one can have an observation and raise a hypothetical statement to prove or disapprove such observation. In quantitative research, hypotheses are tested either to show if there is a relation between variables, if there is a significant difference between variables and if there is an association between variables. In the light of this, different types of statistical tools can be deployed such as descriptive statistics, inferential statistics, and associational statistics.

Hypothesis can be categorized into three in political science research, viz, comparative, predictive and association hypotheses. Hypothesis comes in pairs, null hypothesis represented with the Ho notation and the alternate or research hypothesis represented with the notation Hi or HA. In hypothesis testing in political science, two common errors occur known as Type 1 and Type 11 errors. However, Type 1errors is most common in political science research and it occurs when the null hypothesis is erroneously or falsely rejected. The Type 11 errors occur when a researcher fails to reject a null hypothesis that is actually false.

4.7 Glossary

Qualitative Research: Qualitative research is a type of research which collects and analyze non-numerical data (e.g., text, video, or audio) to comprehend concepts, opinions, or experiences. It can be used to gather in-depth insights into a problem or generate new ideas for research.

Quantitative Research: Quantitative research is based on data, reasoning, and a neutral viewpoint. Quantitative research relies on numeric and statistical data as well as thorough, convergent reasoning rather than divergent thinking, which is the spontaneous, free-flowing production of a range of ideas concerning a study subject.

Comparative Hypothesis: This type of hypothesis makes comparison between one population and the other.

Predictive Hypothesis: It is a type of hypothesis that test and predict about the future value of a measurement.

Association Hypothesis: Association hypothesis is concerned with the level of relationship between two or more variables.

Type 1 Errors: Type 1 errors is most common in political science research and it occurs when the null hypothesis is erroneously or falsely rejected.

Type 11 Errors: Type 11 errors occur when a researcher fails to reject a null hypothesis that is false.



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9 Possible Answers to Self-Assessment Exercises (SAEs)

Answers to SAEs 1

- 1. Ho and HA
- 2. Hypothesis
- 3. Qualitative hypothesis testing
- 4. Testing of quantitative hypothesis
- 5. Hypothesis Testing

Answers to SAEs 2

1. Comparative hypothesis, predictive hypothesis, and associational hypothesis

- 2. Comparative hypothesis
- 3. Predictive hypothesis
- 4. Associational hypothesis

5. z-test, t-test, analysis of variance (ANOVA), statistical package for social sciences (SPSS).

MODULE 3 UNDERSTANDING RESEARCH TECHNIQUES

- Unit 1 What is Research Technique
- Unit 2 Reliability and Validity
- Unit 3 Causation and Causal Interpretation
- Unit 4 Qualitative and Quantitative Measurement

Unit 1 Research Techniques.

Unit Structure

- 1.1 Introduction.
- 1.2 Learning Outcome.
- 1.3 Research Techniques in Political Science.
 - 1.3.1 What is research
 - 1.3.2 Types of Research Technique.
 - 1.3.3. Sample Procedure
 - 1.3.4. Types of Sample Procedure

1.3.5 Observation, Self-Report Techniques such as Survey, Interviewing and Questionnaire.

- 1.4 Research Technique in Qualitative Study
- 1.5 Research Technique in Quantitative Study.
- 1.6 Summary
- 1.7 Glossary
- 1.8 Tutor Marked Assignment.
- 1.9 References/Further Reading.

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IIIII	

1.1 Introduction.

When undertaking research, it is important for a researcher to make sure that he/she is using the right approaches and techniques. The research can only be carried out with the aid of appropriate tools. This is because research technique affects the research itself, if wrong research techniques are utilized, the results and inferences may not be valid. Apparently, research techniques result in the collection of important data and information, which can be analyzed to generate valuable insights. Using the correct technique will have an impact on not just the study but also the entire process, including data gathering and analysis. Techniques may be employed in some circumstances of a combination of research to eliminate mistakes and inconsistencies in the project.

Mixed-mode data gathering is a technique that is utilized when numerous data collecting approaches are required. All collecting procedures have flaws and strengths, and if a researcher spends enough time choosing the right technique, the errors that may occur during the analysis and measurement stage will be minimal.



Learning Outcome.

At the end of this unit, you should be able to:

- list and explain the type of data needed for both qualitative and quantitative research
- analyze the ways on how to collect these data
- determine how to characterize use and analyze the data



1.3 Research Technique in Political Science Research

Political science research is one of the oldest forms of research. From the Greek period, inquiry into political and social phenomenon was done in both empirical and theoretical methods and data collection was done in accordance with the technique specific techniques design for it. Qualitative or theoretical research has its own research technique while quantitative or empirical research have its own technique for data collection and data analysis. Thus, the essence of these techniques is to make sure that the right data is collected and equally to make sure that the right technique is employed for its presentation, analysis, or interpretation. It is crucial to apply more than one data gathering technique while collecting qualitative and quantitative data. Obtaining data on the same phenomenon in several techniques helps the researcher to triangulate the data, enhancing the research's rigor. For instance, qualitative data collection is inherently emergent, and the design is purposefully flexible to allow the researcher to dig further into themes (findings) as they develop.

1.3.1 What is Research Technique?

In political science, research techniques refer to the many types of methods that scholars and political scientists use to conduct research and test their hypotheses, create responses, or give sufficient evidence for what they are investigating. All the procedures/techniques used to do research may be categorized as research techniques. As a result, research techniques refer to the procedures that researchers employ when doing research. In other words, research techniques refer to all the approaches that a researcher employs when examining his or her research topic. Because the goal of research, especially applied research, is to find a solution to a specific problem, the accessible data and the
unknown parts of the problem must be linked in order for a solution to be attainable. Research techniques can be categorized into three different groups. First, the methods dealing with data collection are included in the first group. When the data presently available is insufficient to arrive at the needed answer, these approaches will be applied. Second, this concerns statistical techniques which includes those that are used to build links between data and unknowns. The third set of techniques comprises of those that are used to assess the correctness of the produced results.

Researchers must comprehend the principles that underlie various techniques, as well as the criteria by which they may determine whether some techniques and processes are suitable to certain situations, and which are not. All of this implies that the researcher must develop his approach for his problem, as it may differ from one to another. For example, an architect designing a building must deliberately assess the foundation of his decisions, i.e., why and on what basis he chooses a specific size, number, and position of doors, windows, and ventilators, utilizes specific materials rather than others, and so on. In the same vein, a political scientist or political science researcher must evaluate his decisions on the type of technique to be chosen for a specific research problem and issue

1.3.2 Types of Research Technique

Research technique differs in both empirical (quantitative) and theoretical (qualitative) studies. The various techniques which will be listed here can be assigned to both qualitative and quantitative studies. However, effort will be made in the section to discuss the research techniques in qualitative and quantitative studies in order to differentiate these techniques. The research techniques include. survey (Ouestionnaires, Interviews), observation, focus group, secondary data to mention but a few. These techniques are used to collect data for both qualitative and quantitative research. Data collected through these techniques, can equally be analyzed using the following techniques, descriptive statistics, inferential statistics, thematic technique, metaanalytical technique, experimental analytical techniques etc.

1.3.3. Sample Procedure and Technique.

A sample is a subset of a larger population. Just as a sample of blood is a subset of blood in a human body at a given time. When a sample is selected properly that it measures accurately the total pupation, it can help to reach a logical generalization about the whole population. Thus, Johnson (1995) argued that if the sample is selected properly, the information collected about the sample maybe used to make statement about the whole population (Johnson, 1995:174).

1.3.4 Types of Sample Procedure

Sample procedure can be divided into two, namely; probability and nonprobability sample technique. Probability samples a sample where each category in the total population have the known chance of being selected. With this, the researcher can measure how accurately the sample judge the population from which it is selected. Non- probability sample is a sample which not all members of the population have the same opportunity of taking part in the study. This prevents the measurement accuracy of the sample (Johson, 1995).

Accordingly, probability samples can be categorized into; simple random samples, stratified samples, purposive sample and cluster samples.

Simple Random Sample Technique

In a simple random sample, each member or category must have an equal chance of being selected to participate in the study (p.177). When simple random sample is utilized, each member of the population has a known probability of being chosen or an equal chance of being chosen (simple random sample). Because the traits of an appropriately chosen sample accurately reflect the parent population in all respects, the sample is said to be representative (Blair and Blair, 2015).

Stratified Sampling Technique

Stratified sample is another form of probability sample, to stratify is to categorize or divide people into groups based on certain traits, such as position, rank, income, education, sex, or ethnicity. Subsets or subgroups are the names for these various clusters. The population is segmented into groups, or strata, for a stratified random sample. Stratified random samples are generally more accurate in representing the population than are simple random samples. They also require more effort, and there is a practical limit to the number of strata used. Because participants are to be chosen randomly from each stratum, a complete list of the population within each stratum must be constructed. Stratified sampling is generally used in two different ways. In one, primary interest is in the representativeness of the sample for purposes of commenting on the population. In the other, the focus of interest is comparison between and among the strata (Blair and Blair, 2015).

Purposive Sample

Purposive sampling, sometimes referred to as judgmental, selective, or subjective sampling, is a non-probability sampling technique where researchers use their own judgment to pick sample from the population to take part in their studies. In qualitative research, purposive sampling is frequently employed to find and choose cases with enough relevant information on the topic under study (Patton, 2002). Finding and choosing people or groups of people who have particular expertise in or experience with an interest on a phenomenon entails purposive sampling (Cresswell & Plano, 2011). Bernard (2002) and Spradley (1979) emphasize the significance of availability, participation, and the capacity for clear, expressive, and reflective communication of experiences and opinions in addition to knowledge and experience.

Convenience Sampling

Because convenience sampling is rapid, affordable, and handy, it is used in most studies. Convenience samples are helpful in some situations and require very little preparation. Simply put, researchers use people who are currently available. When compared to random sampling, the process is informal and simple. Contrast this with random sampling, which requires that you have a well-defined population, create a list of the population's members if one is not already there, select individuals at random from the list, and then contact and use as many of them as you can. Convenience sampling calls for far less work. Convenience sampling is a form of non-probability sample.

1.3.5. Observation, Self-Report Techniques: Survey, Interviewing and Questionnaire.

Observation

Observational research is a type of research technique in which individuals and events are observed in their natural environments. This allows researchers to see their subjects' making decisions and reacting to problems in their natural environment, rather than in controlled environments such as research laboratories or focus groups. Observation can be categorized into two viz, participant, and non-participant observation. Participant observation occurs when a group of individuals with a common identity to obtain an insight of their community. This is accomplished through acquiring a better understanding of the actors, interactions, scenes, and events that occur at the study location. Nonparticipant observation also occurs when a researcher is observing participants of an issues of research without actively engaging. This method is used to comprehend a phenomenon by entering the community or social structure involved, while keeping distinct from the activity being watched.

Interview

Interviews are directed talks in which one person tries to elicit as much information as possible from the other. Interviews can be performed a person, face to face or by phoning the participant in one location. The main distinction between interviews and focus group discussions is that in a focus group discussion, numerous people are interviewed at the same time. In the case of interviews, however, the discussions are normally conducted one-on-one.

When the researcher prepares the questions ahead of time and tries to obtain all the questions answered from the respondent, the interview is referred to as structured. Non-structured or unstructured interviews, on the other hand, are those in which the researcher does not prepare the questions and the questions emerge as the discussion progresses based on the respondent's response. In both circumstances, the flow of the questions is assured, and the eventual goal of discovering the answers to the questions is set (Connaway and Powell, 2010).

Types of Interviews

Structured Interviews

Means a set of questions that have already been decided upon and are answered by each interviewee in a consistent manner. Because researchers may compare and analyze various answers provided to the same questions, data analysis typically tends to be simpler.

Unstructured Interviews

Are typically the least dependable from a research perspective because no interview questions are planned in advance and data gathering is done informally. Unstructured interviews can be quite biased, and because each respondents' questions are phrased differently, it can be challenging to compare the responses supplied by several respondents.

Semi-structured Interviews

Semi-structured interviews comprise both the organized and unstructured interview elements. In semi-structured interviews, the interviewer crafts a list of identical questions that all respondents must respond to. During interviews, more questions could be asked in order to elaborate on or clarify certain concerns.

Advantages of Interview in Research

- 1. Interview leads to the collection of detailed information about research questions
- 2. With interview method of gathering primary data, the researcher has complete control over how things proceed and the opportunity, if necessary, to clarify any concerns along the way (Boyce and Neale, 2006).
- 3. Interviews enables the researcher to receive unique and original data straight from a source in accordance with the needs of the study.
- 4. The target audience can be reached in big numbers through structured interviews.
- 5. Asking the right questions can lead to direct and comprehensive information about a topic or circumstance.
- 6. It allows for flexibility in the employment of various strategies to collect the needed information (Boyce and Neale, 2006).

Questionnaire.

A questionnaire is a set of questions or items intended to collect information about respondents' attitudes, experiences, or views. Questionnaires are useful for gathering quantitative data. Aryal (2022) argued that questionnaire is a research tool that consists of a series of questions, each with a set of possible responses, written or typed in a precise order on a form intended to collect specific information from respondents. In general, questionnaires are sent to the individuals concerned through post or mail or delivered in person by the researcher or research participant, with instructions to complete the questionnaire and return it. Respondents are expected to read the questions, comprehend them, and respond in the area provided on the questionnaire. The questionnaire is constructed in such a manner that it converts the needed data into a sequence of questions that informants can and will answer. Questionnaires can be open ended and can as well be close ended. Open-ended questions are those questions which allow the respondent to provide a detailed response. Closed-ended questions is comprised of restricted number of possible responses (such as A, B, C, or All of the Above) and can be responded with "Yes" or "No."

Types of Questionnaires

Questionnaire can be divided into two, namely, open-ended and closeended questionnaire **Open-ended Questionnaire**: Inquiries that require more explanation from the response than a simple "yes" or "no" are known as open-ended questions. for instance, as a researcher receive feedback in respondents' own words rather than pre-written responses, open-ended inquiries assist researchers in seeing things from respondent's viewpoint (Unanka, 2004).

Close- ended Questionnaire: Closed-ended questions are those questions that can be replied with a simple "yes" or "no," A question is considered to be closed-ended if a respondent can only provide a "yes" or "no" response to it. Simply because they only accept a yes-or-no response, closed-ended questions shouldn't necessarily be viewed as straightforward inquiries that anyone can swiftly respond to. Closed-ended inquiries can often be quite challenging. For instance, the closed-ended question "Is 1 in binary equal to 1 in counting numbers?" is one that not everyone would be able to rapidly respond to (Unanka, 2004).

Advantages of Questionnaire in a Research

- 1. Questionnaire can lead to gathering a lot of data quickly
- 2. If a uniform set of questions are selected for target audience, there is less likelihood of bias slipping in.
- 3. The questionnaire will remain standard for a group of respondents who fall into the same segment, but a researcher can modify the questions logically based on the respondents' responses.
- 4. The replies can be compared to historical data to determine how the respondents' preferences have changed.
- 5. The questionnaire allows respondents to respond anonymously. Additionally, a lot of survey software complies with strict privacy and data security laws (Unanka, 2004).

Self-Assessment Exercises (SAEs) 1

Attempt these exercises to measure what you have learnt so far. This should not take you more than 5 minutes.

1. The methods that scholars and political scientists use to conduct research and test their hypotheses, create responses, or give sufficient evidence for what they are investigating is known as

2. The goal of applied research is

3. The various types of research technique includes.....

4. The type of research technique in which individuals and events are observed in their natural environments is called

5..... occurs when a researcher is observing participants of an issues of research without actively engaging.

1.4 Research Technique in Qualitative Study

In qualitative research, research techniques involve methods used in collecting and analyzing qualitative information. Some of the research techniques used in qualitative research include survey (interview), focus group discussion and observation. Quantitative data collecting methods are more impersonal and "hands on." Qualitative data collection methods are more personal and "hands on." They also consider nonverbal communication and clues, rather than just what individuals say. Interview encompasses asking questions about a topic to individuals. Focus group discussions is a form of group interview in which members are encouraged to participate. Rather of interviewing participants, the person leading a focus group acts as a facilitator, encouraging them to talk. Observation is a form of research technique in which individuals and events are observed in their natural environments. This allows researchers to see their subjects' making decisions and reacting to problems in their natural environment, rather than in controlled environments such as research labs or focus groups. The research techniques for data analysis includes, content analysis, thematic analysis, discuss analysis, narrative analysis and grounded theory.

1.5 Research Technique in Quantitative Study

In quantitative research, research techniques are designed to collect empirical data. Some of the research techniques used in quantitative research includes, survey (questionnaire) and experiment. A survey aims to make inferences about a population by examining a sample from that population. This contrasts with a census which aims to make observations drawn from an entire population. A population here is the group of objects in the world in which the researcher interested, where objects may include individuals, families, students in a university class, and people sharing a nationality, ethnicity, or cultural background (Groves et al, 2009, Young, 2006). Creating valid and trustworthy questions that fulfill the research objectives, arranging them in a usable sequence, and selecting a suitable technique for administration are all part of designing a questionnaire. However, creating a questionnaire is only one part of the survey research process. Defining the population, a researcher is interested in, selecting an acceptable sampling strategy, administering questionnaires, data cleaning and analysis, and interpretation are all part of survey research (Bhandari, 2021). Questionnaires can be open ended and can as well be close ended. When questionnaires are open-ended, it allows the respondent to express his or herself and this type of questions are sometimes regarded as a qualitative instrument of data collection. In close ended questionnaires, respondents

are limited to answer questions provided through a scale like the Likert scale.

I found research in political science very demanding and interesting										
Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree						
	Х									

An example Likert scale item:

To analyze quantitative data, researchers can employ research techniques such as descriptive, correlational, causal-comparative, quasiexperimental, and experimental research techniques.

Self-Assessment Exercises (SAEs) 2

Attempt these exercises to measure what you have learnt so far. This should not take you more than 5 minutes

1. A form of group interview in which members are encouraged to participate is called

2. Creating valid and trustworthy questions that fulfill the research objectives, arranging them in a usable sequence, and selecting a suitable technique for administration are all part of

3. Questionnaire can be ----- and -----

4. Questionnaire that allows the respondent to express his or herself is called

5. In questionnaire, respondents are limited to answers through a scale



Research techniques in political science are a collection of instruments used in gathering and analyzing both qualitative and quantitative data. However, researcher techniques in qualitative and quantitative research are not the same. Research techniques in qualitative research is used to collect theoretical data while in quantitative research, the techniques used is used to collect empirical data. Since the instrument used in collecting data in both qualitative and quantitative data is not the same, the techniques used in analyzing data in both are not the same either. Some of the techniques used in data collection in qualitative research includes, survey (in-depth interview) observation, focus group discussion and data can be analyzed in this form of research with the use of research instruments like, thematic analysis, grounded theory, narrative technique etc. In quantitative research, the techniques for data collection are survey (questionnaire), observation and experiment. Also,

quantitative data can be analyzed with research techniques such as, descriptive analysis technique, correlational analysis technique, causalcomparative technique, Quasi-Experimental technique, and experimental research technique.

1.7 Glossary

Research Technique: This a method used in gathering of information used for a research investigation. It also involves a method of analyzing the information generated from the data collection.

Interview: This is one of the techniques used in collecting qualitative data for qualitative research. It entails asking logical questions that have been prepared before a meeting with the interviewee or respondent. The questions are scientifically arranged into leading questions and probing questions.

Questionnaire: This a research technique used in the collection of quantitative information for the purpose of quantitative research. The questions are either administered by the researcher, research assistant or members of a research group and the respondent are giving the instruction and directions on how to answer the questions. Questionnaire can be close-ended and open ended.

Observation: Observation is a method of acquiring information through observing behavior, events, or physical qualities in their natural environment. Observations can be overt (where everyone is aware that they are being watched) or covert (when no one is aware that they are being watched and the observer is hidden).

Focus Group Discussion: This another type of research techniques used in the collection of qualitative data for the purpose of qualitative research, it involves a group of people numbering 5-7 answering questions on the subject matter of a research topic

Open-end Questions: Open-ended questions are those that don't have a simple "yes" or "no" answer and need the respondents to elaborate on their arguments. Open-ended inquiries allow a researcher to see things from the respondent's point of view since the researcher obtains input in their own words rather than predetermined responses.

Close-ended Questions: Closed-ended questions are those questions that can only be replied by choosing from a restricted set of possibilities, such as multiple-choice questions with a single-word response, such as "yes" or "no," or a rating scale (ranging from strongly agree to strongly disagree).



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Possible Answers to Self-Assessment Exercises (SAEs)

Answers to SAEs 1

- 1. Research Technique
- 2. Find solution to problems
- 3. Interview, questionnaire, observation,
- 4. Observational research
- 5. Non-participant observation

Answers to SAEs 2

- 1. Focus Group Discussion
- 2. Questionnaire construction
- 3. Open ended and close ended
- 4. Open-ended
- 5. Close-ended

Unit 2 Reliability and Validity

Unit Structure

- 2.1 Introduction
- 2.2 Learners Outcome
- 2.3 Understanding the Concept of Reliability in Research
 - 2.3.1 Methods of Assessing Reliability
 - 2.3.2 Reliability in Qualitative Research
 - 2.3.3 Reliability in Quantitative Research
- 2.4 What is Validity
 - 2.4.1 Types of Validity Measurement
 - 2.4.2 Validity in Qualitative Research
 - 2.4.3 Validity in Quantitative Research
- 2.5 Improving Reliability and Validity
- 2.6 Summary
- 2.7 Glossary
- 2.8 Tutor Marked Assignment
- 2.9 References/ Further Readings



Introduction

The terms' reliability and validity are used to assess the quality of research. Reliability and validity are essentially measurement problems.

Since qualitative variables are basically classificatory, there is less concern with reliability and validity. This is why causality in social science is difficult to demonstrate theoretically as our theories are inadequate for the isolation of causes and difficult to demonstrate methodologically. Hence, survey methods usually do not give temporal sequences, but laboratory methods help to demonstrate causality since we control and sequence independent and dependent variables. The principles of validity and reliability are fundamental cornerstones of the scientific method. The two most important and fundamental characteristics of any measurement procedure are, therefore, reliability and validity. Reliability and validity explain whether research being carried out studies what it is meant to study and ensure that the measures used are consistent (Mbah, 2020:38). Hence, in order for research data to be of value and of use, they must be both reliable and valid. Validity and reliability are concepts that capture the measurement properties of a survey, questionnaire or another type of measure. Validity and reliability are important concepts in research. The everyday use of these terms provides a sense of what they mean (for example, your opinion is valid; your friends are reliable).

Thus, validity is concerned with a measure's precision, whereas reliability is concerned with its consistency. Validity gives context for how well the results measure what they're designed to measure. It is evaluated by comparing the findings to accepted theories and other metrics of the same idea. A valid measurement is typically dependable: correct findings from a test should be repeatable. In contrast, reliability gives context for how well the results can be replicated when the experiment is repeated under the same conditions. It's also evaluated by looking at the consistency of results across time, among various observers, and throughout different portions of the examination. A valid measurement is not always reliable: the results may be repeatable, but they are not always accurate.



At the end of this unit, you should be able to:

- define validity and reliability
- explain how they are both assessed
- state the difference between validity and reliability
- analyze how to apply them in political and social research

2.3 Understanding the Concept of Reliability in Research

The idea behind reliability is that any significant results must be more than a one-off finding and be inherently repeatable. In simple terms, research reliability is the degree to which research method produces stable and consistent results (Bernard, 2011:42 cited in Mbah, 2020:39).

The consistency with which a method assesses something is referred to as reliability. The measurement is deemed trustworthy if the same result can be regularly attained using the same procedures under the same conditions. For example, we take temperature readings of a liquid sample multiple times under the same conditions. Because the thermometer consistently displays the same temperature, the data may be trusted. When an alkaline is placed on a blue litmus paper, it gives the same results repeatedly. A symptom questionnaire is used by a clinician to diagnose a patient with a long-term medical problem. With the same patient, many doctors utilize the same questionnaire but come up with different diagnoses. As a measure of the condition, this suggests that the questionnaire is unreliable. Unaka (2002) contends that reliability is the consistency of measurement. He argued that the extent to which a measure for instance experiment and questionnaire produces the same outcome on repeated trials is known as reliability. Schutt (1999:87) emphasized that reliability is a necessary condition for measurement validity because a phenomenon cannot be measured if there is inconsistency in the instrument of measurement. He noted that once "validity is ascertained, reliability is implied.

2.3.1 Methods of Assessing Reliability

Reliability can be measured in four different ways, viz, alternate form, split half method, retest reliability and interobserver reliability (Unanka, 2002:187). In the alternate form, the investigator administers two sets of questionnaires on the same issue. Thus, comparing subjects' answers to slightly different versions of the same survey questions. In split half method, two measures of the same issue are administered at the same time and in retest reliability, there is a repeated application of the same measure at different point in time, i.e., within a reasonable period when no change has happened, thus, expecting the obtained score not to change. Finally, in interobserver reliability, a researcher uses more than one observer to rate the same persons, events, or places.

2.3.2 Reliability in Qualitative Research

In qualitative research, reliability refers to the consistency of replies to numerous coders of data sets. It can be improved by taking extensive field notes, recording devices, and transcribing digital data. Validity in qualitative research, on the other hand, may be defined differently than in quantitative research. The naturalists' equivalent of internal validation, external validation, dependability, and objectivity was "trustworthiness" of a research, according to Lincoln and Guba (1985). In qualitative research, credibility, authenticity, transferability, dependability, and confirmability all contribute to trustworthiness. Long involvement in the field and the triangulation of data sources, methodologies, and investigators to establish credibility are required to operationalize these notions. A detailed explanation is required to ensure that the results are transferrable between the researcher and those being investigated. Rather than striving for reliability, qualitative researchers look for dependability, recognizing that the outcomes will be prone to change and instability when it comes to qualitative research.

2.3.3 Reliability in Quantitative Research

The constancy of a measurement is referred to as reliability. When completing an instrument to evaluate motivation, a participant should have about the same replies each time the examination is taken. Although it is impossible to offer a precise measurement of dependability, multiple metrics can be used to assess reliability. In statistical terms, reliability refers to the degree to which the correctness of the findings of a measurement or computation may be relied on. It refers to the consistency of a research study or test measure in research.

Your study findings are dependable if they are consistently duplicated. The degree of dependability may be determined using a correlation coefficient. A valid test would reveal a strong positive connection.

Self-Assessment Exercises (SAEs) 1.

Attempt these exercises to measure what you have learnt so far. This should not take you more than 5 minutes.

1.is the extent to which a concept, conclusion or measurement is well-founded and likely corresponds accurately to the real world.

2.....is reliable if the same result can be consistently obtained by applying the same techniques under the same conditions.

3.	What	are	the	attributes	s of	reliability	in	political	science		
research											
4. What are the various ways of measuring reliability in political science											
research											
5.	V	What		is	relia	bility	in	qua	ntitative		
res	earch										

2.4 What is Validity

Validity encompasses the entire experimental concept and establishes whether the results obtained meet all of the requirements of the scientific research method. Validity simply means that a test or instrument is accurately measuring what it's supposed to (Mbah, 2020:41). In other words, the accuracy with which a technique measures what it is supposed to measure is referred to as validity (Unanka, 2002). When research has a high level of validity, it delivers results that correlate to real-world traits, characteristics, and variances. One evidence of a measurement's validity is its high dependability. If a technique isn't trustworthy, it isn't likely to be legitimate. If the thermometer displays different temperatures each time, despite carefully controlling circumstances to guarantee that the sample's temperature remains constant, the thermometer is most likely defective, and its results are invalid. When a symptom questionnaire yields a consistent diagnosis when completed at multiple periods and by different clinicians, it has good validity as a tool for assessing medical conditions. However, dependability isn't enough to establish validity on its own. Even if a test is trustworthy, it may not precisely represent reality. The thermometer you used to evaluate the sample produced accurate readings. However, because the thermometer was not correctly calibrated, the result is two degrees below the genuine temperature. As a result, the measurement is invalid.

A group of people takes a test to assess their working memory. The results are accurate, although the participants' ratings are highly correlated with their reading comprehension. This suggests that the procedure has limited validity: the test may be assessing participants' reading comprehension rather than working memory. Validity is more difficult to measure than dependability, but it is more crucial. To get usable findings, the data collection methods you utilize must be valid: the study must measure what it purports to measure. This guarantees that the data you discuss and the conclusions you reach are both correct (Middleton, 2022).

2.4.1 Types of Validity Measurement

Face Validity

This is merely a matter of the researcher's judgement by examining the face value of the questionnaire items intended to measure the variables indicators. Thus, the face validity may be asserted and not empirically demonstrated (Johnson and Joslyn, 1995).

Content Validity

Content validity is like face validity to the extent that it is equally judgmental. Unlike face validity, content validity ensures that the measure covers the full range of the concept's meaning as may be determined through the opinions of the experts and literature review (Schutt, 1999). For instance, for her students, a mathematics instructor creates an end-of-semester algebra test. The test should include all aspects of algebra that were covered in class. If particular forms of algebra are not included, the findings may not be a true reflection of the students' knowledge of the topic. Similarly, if she asks non-algebraic questions, the findings are no longer a reliable indicator of algebra competence.

Criterion Validity:

This is an empirical type of validity because it depends on establishing the scores obtained on a measure which can be accurately compared to those obtained with a more direct or already validated measures of the same phenomenon or criterion. For instance, a urine test or bloodalcohol concentration test could be used as a criterion to validate a self-report measure of drinking-alcoholism.

Construct Validity

This is another empirical validity. It involves developing two theorydriven measures, testing the two and using one to show construct validity in the other. Thus, when a measure of a concept is related to a measure of another concept with which the original concept is thought to be related, construct validity is demonstrated. Put differently, a construct validity is the collection of data to support the interpretation of what a measure represents. Construct validity is the overall focus of validity research, encompassing all other forms of validity evidence such as content validity and criterion validity, according to modern validity theory.

2.4.2 Validity in Qualitative Research

The validity of qualitative research findings is linked to the researcher's thorough documentation and continuous verification of data throughout the investigation process. The use and nature of the term validity in qualitative research are both contentious. It's a hotly discussed topic in both social and political science research. Traditional validity criteria have their origins in the positivist tradition, and positivism has been defined to some part by a systematic philosophy of validity. Universal rules, evidence, objectivity, truth, actuality, deduction, reason, fact, and mathematical data are only a few examples of empirical notions that support validity. In research, validity refers to the correctness and veracity of scientific results. Good research should show what exists and is correct, and a valid instrument or measure should measure what is meant to be measured (Unanka, 2002).

When it comes to understanding the concept of validity in qualitative research, students and researchers might quickly become adequacy. puzzled. Authenticity, goodness. trustworthiness. authenticity, credibility, and plausibility are only a few of the adjectives used in the literature that the writers associate to validity. Validity is a contingent construct rooted in the procedures and goals of certain research techniques, rather than a single, permanent, or universal idea.

Some qualitative researchers contend that the term validity is not appropriate for qualitative research and instead use terms like quality, rigor, and trustworthiness. Validation entails investigating, questioning, and theorizing, all of which contribute to the rigor of a qualitative investigation. In the qualitative sense, according to Leininger (1985), validity refers to learning and comprehending the nature (i.e., the meaning, qualities, and characteristics) of the thing under investigation. A qualitative technique looks for a characteristic property that distinguishes a phenomenon from others.

2.4.3 Validity in Quantitative Research

Validity in quantitative research refers to how well a study addresses the questions and hypotheses for which it was commissioned. It is critical to obtain high validity for research to be considered credible and for the data's integrity to be assured. In conclusion, research is useless if it does not provide answers to the questions you seek, if this is the case, it is a complete waste of time and money. Of course, there are methods to avoid this and guarantee that your quantitative study receives positive feedback from both the larger industry and the stakeholders who are commissioning or authorizing the project.

2.5 Improving Reliability and Validity

Though a reliable measure is not necessarily a valid measure, Schutt (199:89) cited in Unanka (2002) argued that "we must always assess the reliability of a measure if we hope to them be able to establish its validity. Because it usually is easier to assess reliability than validity, you will see more evaluations of measurement reliability than validity.

Self-Assessment Exercises (SAEs) 2.

Attempt these exercises to measure what you have learnt so far. This should not take you more than 5 minutes.

1. The exactness with which a technique measures what it is supposed to measure is known as

2. Validity in social science research can be classified into.....

3. A type of validity that ensures that the measure covers the full range of the concept's meaning as may be determined through the opinions of the experts and literature review is known as

4. A validity that depends on establishing the scores obtained on a measure which can be accurately compared to those obtained with a more direct or already validated measures of the same phenomenon or criterion is known as.....

5. According to we must always assess the reliability of a measure if we hope to them be able to establish its validity.



Summary

Validity and reliability describe the accuracy with which a method, approach, or test measure something. Validity is concerned with a measure's precision, whereas reliability is concerned with its consistency. Validity gives context for how well the results measure what they're designed to measure. It is evaluated by comparing the findings to accepted theories and other metrics of the same idea. reliability is the consistency of measurement (Petty et al., 2009). He argued that the extent to which a measure for instance experiment and questionnaire produces the same outcome on repeated trials is known as reliability. Validity is the accuracy with which a technique measures what it is supposed to measure (Petty et al., 2009). Validity and reliability are all applied in qualitative and quantitative study. Thus, validity can be categorized into face validity, content validity, criterion validity and construct validity. Also, validity can also be applied in qualitative research.

2.7 Glossary

Reliability: The consistency with which a method measures something is referred to as its reliability. The measurement is deemed trustworthy if the same result can be obtained consistently using the same procedures under the same conditions.

Validity: The validity of a research study refers to how closely the findings among study participants correspond to genuine findings among similarly situated persons outside the study. Validity is a term that applies to all sorts of clinical research, including those that look at prevalence, relationships, therapies, and diagnosis.

Face Validity: This is merely a matter of the researcher's judgement by examining the face value of the questionnaire items intended to measure the variables indicators. Thus, the face validity may be asserted and not empirically demonstrated

Content Validity: Content validity is like face validity to the extent that it is equally judgmental. Unlike face validity, content validity ensures that the measure covers the full range of the concept's meaning as may be determined through the opinions of the experts and literature review.



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Possible Answers to Self-Assessment Exercises (SAEs)

Answers to SAEs 1

- 1. Reliability.
- 2. Measurement.
- 3. Credibility, authenticity, transferability, dependability, and confirmability.
- 4. Alternate form, split half method, retest reliability and interobserver reliability.
- 5. Is the degree to which the correctness of the findings of a measurement or computation may be relied on.

Answers to SAEs 2

1. Validity

2. Face validity, content validity, construct validity and criterion validity.

- 3. Content Validity
- 4. Criterion Validity
- 5. Schutt (199:89) cited in Unanka (2002).

Unit 3 Nature of Causation and Causal Interpretations

Unit Structure

- 3.1 Introduction
- 3.2 Learning Outcome
- 3.3 Components of Causation
 3.3.1 Advantages of Casual Research
 3.3.2 Disadvantages of Casual Research
 3.3.3 Example of Casual Research
- 3.4 Causal Interpretation3.4.1 The Causal Conception of Scientific Explanation3.4.2 The Principle of Causal Explanation
- 3.5 Causal Analysis in Political Science
- 3.6 Summary
- 3.7 Glossary
- 3.8 Tutor Marked Assignment
- 3.9 References/ Further Readings

3.1

Introduction

Causal research is a type of study that aims to figure out the cause-andeffect relationship between two variables. This study is mostly used to determine the source of a certain behavior. Causal research is used to determine what changes occur in an independent variable because of a change in the dependent variable. Explanatory research is another name for causal research. The fluctuation in the dependent variable causes changes in the independent variable, which are measured (Bhasin, 2020).

Other extraneous factors that can impact the results are kept constant when producing the data or are controlled using statistical approaches to produce the accurate output. Because a researcher may never be certain that no other hidden variables are impacting the causal link between two variables, causal research is extremely difficult. When a corporation wishes to research the behavior of its employees towards the changing price of their goods, they use causal research.

Customers' behavior might be tested based on a variety of criteria. Even though, they can never be certain since there may be hidden elements that influence client decisions. For example, no matter how much precaution a researcher takes to obtain correct findings, there are always a few emotional variables that may be affecting the client's worries, even when he is unaware of it. Thus, only causal evidence supporting a causeand-effect link between two variables may be confirmed.



At the end of this unit, you should be able to;

- understand and explain causation and causal explanation in political and social research.
- analyze causal relationship between two or more variables.
- provide the students with the analytical skill to test and explain causality in the relationship between two or more variables.
- learn how to interpret or explain the cause-and-effect relationship between two or more variables.



Non-Spurious Association

Nonspurious association occurs if there is no other variable connected to both cause-and-effect correlated fluctuation between two variables. Put differently, non-spurious association is a relationship between X and Y that isn't spurious. The relationship between X and Y can't just happen by accident. Eliminate other causes. The association between X and Y is not caused by any other intervening or unaccounted-for variable.

Temporal Sequence

If the cause variable occurs before the appearance of the effect variable, the cause and effect can only be linked. For example, it would be incorrect to attribute a drop in sales on new entrants in the market when sales were already declining prior to their arrival.

Concomitant Variation

Concomitant variation is defined as a quantitative change in effect that occurs only because of a quantitative change in the cause variable. This implies that the fluctuation between two variables must be systematic. For example, if a corporation does not try to enhance sales by employing competent personnel or offering staff training, the credit for increased sales cannot be attributed to the acquisition of experienced employees. Other factors may have contributed to the increase in sales.

3.3.1 Advantages of Casual Research

- 1. Causal research aids in the identification of the causes of systemic processes. Having this knowledge allows the researcher to take the required steps to resolve issues or improve outcomes.
- 2. If replication is required, causal research delivers the benefits of replication.
- 3. Causal research aids in determining the effects of altering procedures and approaches.
- 4. In causal research, participants are chosen in a methodical manner. As a result, causal research is beneficial for achieving better levels of internal validity.

3.3.2 Disadvantages of Casual Research

- 1. Causal research is challenging to do since it is not always feasible to control all extraneous factors' effects.
- 2. Causal research is one of the costliest types of study. Conducting this type of research costs a lot of money and effort for the researcher(s).
- 3. One downside of causal research is that it informs your competition about your plans. They may, for example, utilize the results of your study to figure out what you're up to and join the market ahead of you.
- 4. Causal research conclusions are usually erroneous because there are always a few prior causes or hidden causes that influence the outcome of your study. For instance, suppose you want to investigate the effectiveness of a new advertising campaign in a well-established market. Then it will be tough for you to do so since you do not know if the advertising campaign has a direct impact on the performance of your business operations or whether it is influenced by past advertising efforts.
- 5. The study findings may be tainted since there will always be a few people outside the system who may have an impact on your findings.

3.3.3 Example of Casual Research

- 1. To gather data on a new product's sales potential to test the market for it.
- 2. To choose whether or not to continue a new advertising campaign based on its success or efficacy.
- 3. To assess the improvement in employee performance once they have received new skill training.

4. To investigate the effects of rebranding activities on consumer loyalty.

Self-Assessment Exercises (SAEs) 1

Attempt these exercises to measure what you have learnt so far. This should not take you more than 5 minutes.

1. What are the elements of causation in political science research

2. A numerical change in effect that occurs only because of a quantitative change in the cause variable is referred to as

3. State two merits of causation in political research.....

4. State two demerits of causation in political research

5. occurs if the cause variable occurs before the appearance of the effect variable.

3.4 Causal Interpretation

Causal interpretation is the type of research interpretation that determines whether there is a cause-and-effect link between two dissimilar occurrences. In casual interpretation, researchers try to show and construct investigations to obtain statistical proof of the relationship between the conditions since many different factors might contribute to cause-and-effect. They usually evaluate the data after that to figure out why the link formed, learn more about how it works, and see how it may apply in a bigger context. They can also change the first situation's circumstances to see whether there are any new consequences on the latter.

3.4.1 The Causal Conception of Scientific Explanation

The causal explanation refers to the explanation of the internal physical mechanism of phenomena rather than the logic of a theory because explaining the universe and what happens in it entails exposing its inner workings, its underlying causal mechanisms. It's important to distinguish between explaining the universe and explaining our scientific ideas and their relationships to the phenomena they represent. Science's goal, rather than the explanation of the world, is to achieve the latter.

The causal explanation is founded on the notion that we can explain a phenomenon by determining and describing its cause. Wesley C. Salmon in his celebrated essay "Why Ask, 'Why?'" discusses scientific explanation from his perspective. According to him, "scientific knowledge is descriptive; it informs us what we should do and how we should do it." If we want to know why anything happens, we must look outside of science, possibly to metaphysics or theology." "It's now

popular to claim that science's goal isn't only to describe the universe; it's also to bring insight, comprehension, and illumination."(Ratner, 2003).

3.4.2 The Principle of Causal Explanation

The idea of causal explanation dictates that the causal mediating processes that underpin a connection of interest be investigated. Causal explanation is useful because it explains how and why an effect happens and, as a result, tells us when and when the effect may be replicated. The ultimate aim of empirical scientific study is a clear understanding of a causal intervening process since it gives the information needed to determine the conditions under which a causal relationship will or will not occur. Although a comprehensive model of a causal relationship may be unattainable, even a rudimentary understanding of the causative process might help to enhance generalized definitive conclusions. for instance, if one-on-one time with the teacher is the causally effective component of lower-class size, a similar boost in success may be achieved by arranging more customized teaching time in classes with constant student-to-instructor ratios. Similarly, if one-on-one time increases accomplishment via boosting self-esteem (i.e., a mediator), then other self-esteem-boosting treatments may have an indirect effect on achievement. Unfortunately, one of the most significant drawbacks of utilizing meta-analysis to uncover causally important treatment components and mediating variables is that (1) primary studies frequently lack adequate data about the therapy, and (2) studies seldom look at the same mediating mechanism (Cook, 1993).

3.5 Causal Analysis in Political Science

The pursuit of reasonable causal explanations connects many political scientists. Political science as a field has always sought to provide explanations that, while describing how events occur, it also provides reasons for why those events occur. Techniques have provided political scientists additional resources to use in their pursuit of causal explanations (Brady & Collier, 2004; Hall, 2003). Even scholars who are fairly at ease with quantitative procedures frequently discover that small-N research methods, with their focus on context, are essential for creating convincing causal explanations, according to Steinberg (2007, p. 185). However, this assertion raises a new set of issues. What is it about a causal argument that lends it credibility, and why is it likely to be connected to a thorough analysis of context?

Consider context as an issue of uniformity to gain an understanding of the significance of context for causal reasoning. Based on units of analysis that are not similar in ways that are likely to be causally meaningful, we cannot expect statistical analysis to provide reliable causal inferences. We introduce control variables or stratify the analysis to achieve causal comparability because, for instance, we would not anticipate that voter turnout would respond to short-term economic growth in the same way in democracies where voting is fully optional and in those where voting is quasi-mandatory. However, we are interested in how context influences both correlational and mechanismic arguments, including statistical ones. As we shall see, in a mechanismic argument, causality does not exclusively lie in the variables or qualities of the study variables but also in processes. Additionally, causal effects rely on how certain mechanisms interact with elements of the environment in which they work (Falleti and Lynch, 2009).

Self-Assessment Exercises (SAEs) 2

Attempt these exercises to measure what you have learnt so far. This should not take you more than 5 minutes.

5. In argument causality does not exclusively lie in the variables or qualities of the study variables but also in processes.



Summary

When an abnormality is detected, researchers develop a research plan to figure out what's causing it. Participants include those individuals or teams who encounter a challenge, specialists (researchers) in the relevant subject. Following the development of a plan, researchers and professionals on the subject or topic of interest are in a position to identify the problem's fundamental cause. The problem's primary causes have been identified. The researchers examine the issue using any of the measures listed below. When we have quantitative data, we employ this approach (causality). This strategy is used to prioritize and address the numerous sources of an issue, in order to solve it. It is used to prioritize and address the numerous reasons that lead to an issue so that an effective solution may be implemented.

The goal of causal analysis is to discover the core cause of an issue rather than just the symptoms. This method aids in the discovery of facts that lead to a certain circumstance. As a result, causal effect denotes that something has happened or is happening as a result of something else that has happened or is happening. The following is a simple approach to recall the meaning of causal effect: B occurred because of A, and the strength or weakness of B depends on how much or how effectively A functioned.

3.7 Glossary

Causal Relationship: A causal relationship occurs when one variable in a data set has a direct impact on another variable, this is known as a causal link. As a result, one event causes the occurrence of another. Cause and effect is another term for a causal relationship.

Causal Effect: Causal effect suggests that something has occurred or is occurring as a result of something that has happened or is happening. The following is a simple approach to recall the meaning of causal effect: B occurred because of A, and the strength or weakness of B depends on how much or how effectively A functioned.

Causality: The value of an interdependent variable is assumed to be the cause of the value of a dependent variable in causality. In other words, a person's Y value is influenced by their X value, or X influences Y. Most of the social science research focuses on proving causal assertions.



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Answers to SAEs 1

1. Non-spurious association, temporal sequence and concomitant variations.

2. Concomitant variation

3. It helps in achieving a high level of internal validity and aids in determining the effects of altering procedures and approaches.

4. The difficulty in controlling all extraneous factor effect makes causal research difficult and causal research is very costly to conduct both in effort and money.

5. Temporal Sequence

Answers to SAEs 2

1.It is a type of research interpretation that determines whether there is a cause and there is a cause and effect relationship between dissimilar events.

2. Wesley C. Salmon

3. Clear understanding of a causal intervening process since it gives the information needed to

determine the conditions under which a causal relationship will or will not occur.

4. Mechanismic explanation technique

5. Mechanismic

Unit 4 Qualitative and Quantitative Measurements; Paradigms And Science in Political Enquiry; Types Of Data, Sources of Data; Qualitative and Quantitative Da ta.

Unit Structure

- 4.1 Introduction
- 4.2 Learners Outcome
- 4.3 Qualitative Measurement
 - 4.3.1 Qualitative Methods of Data Collection
 - 4.3.2 Qualitative Methods of Data Analysis
 - 4.3.3 Drawing Qualitative Conclusions
 - 4.4 Quantitative Measurement
 - 4.4.1 Quantitative Methods of Data Collection
 - 4.4.2 Quantitative Methods of Data Analysis
 - 4.4.3 Drawing Quantitative Conclusion
- 4.5 Paradigms and Science in Political Enquiry
- 4.6 Summary
- 4.7 Glossary
- 4.8 References/ Further Readings
- 4.9 Tutor Marked Assignment



4.1 Introduction

Information obtained using a qualitative measure is classified as data which defines features or attributes of qualitative and quantitative research. It is frequently obtained through surveys, interviews, or observation and presented as a narrative while those derived from quantitative measure is used to quantify a problem or answer the "what" or "how" aspect of research questions. It is a means of learning more about a subject. Quantitative measures help in deeper understanding of an issue or a phenomenon. For instance, qualitative measure can address the difference in height between A and B by stating that A is taller than B, quantitative measure comes in to inquire how taller is A to B by providing a deeper knowledge of the difference in height between A and B. Qualitative measurements are used by researchers who are trying to understand the meanings behind a particular phenomenon or who are looking into a new issue about which little is known, Qualitative measures usually deal with textual data or words. In studies that deal with human behavior, such as the social sciences, qualitative measures are frequently utilized while quantitative data deals with numeric and statistical data in order to quantify and reach generalization. Although quantitative measurements are also utilized in the social sciences, qualitative measures allow researchers to gain a better understanding of human experiences. Qualitative data is very useful for determining the background of occurrences and how they influence individuals and communities. They can also be used to learn more about issues about which little is known. Qualitative measures can be used to establish hypotheses or questions about a topic which may lead to quantitative research.



4.2 Learning Outcomes

At the end of this unit, you should be able to:

- State how to collect qualitative and quantitative data
- List the characterize and analyze qualitative and quantitative data
- Explain how to draw conclusions in qualitative and quantitative research
- State the meaning of the concept of paradigm and the science in political inquiry.

1.3

Qualitative Measurement

Qualitative measurement according to McNabb (2004) is used to describe a set of nonstatistical inquiry techniques and process used to reach conclusions about social phenomenon. It refers to the use of symbols, pictures, and other non-numerical records, materials, or artifacts to describe a political and social phenomenon to create an understanding for subjective interpretation and critical analysis of an issue. Qualitative measurement uses inductive reasoning, it is theory-driven, and it is subjective and uses non-positivist processes (p, 341).

Qualitative researchers' seldomly approach a topic with little or no preconceived assumptions; these are expected to appear out of the data as they are collected and studied. Qualitative measurement seeks understanding of social interactions and process in organizations. It is usually concerned with a situation or event that takes place within a single organizational context.

4.3.1 Qualitative Methods of Data Collection

In-depth interviews, in which a researcher asks questions of a person or group touched by a topic, are one way of qualitative assessment. Interviews can be recorded on audio or video equipment, or the interviewer might take notes. Direct observation is frequently used by qualitative researchers to acquire data. This strategy aids investigators in studying phenomena in precise contexts as they occur in real life.

Written resources, such as books, periodicals, newspapers, and transcripts, can also be used to do qualitative research. The records are simply collected and evaluated in this scenario.

4.3.2 Qualitative Methods of Data Analysis

Although there are several approaches for assessing qualitative data, the most of them follow a similar analytical procedure. Because qualitative data is commonly written, a huge amount of information is typically gathered. As a result, researchers must go through a data reduction or data cleaning procedure to put their data into a usable format. Charts and graphs may be useful for organizing data and making it accessible for quick reference. Some of the types of qualitative analysis includes; case study analysis, observational analysis, historical analysis, and content analysis.

4.3.3 Drawing Qualitative Conclusions

Researchers examine the data for trends and compare them to the research questions set at the start of the project. This is a rigorous procedure, and numerous researchers helps to improve the validity of qualitative analysis. In qualitative research, researchers must be willing to accept findings that contradict their initial hypotheses or expectations.

Self-Assessment Exercises (SAEs) 1

Attempt these exercises to measure what you have learnt so far. This should not take you more than 5 minutes.

1..... are the methods of collecting qualitative data

2. What are the methods or characterizing and analyzing qualitative data.....

3. is used to describe a set of nonstatistical inquiry techniques and process used to reach conclusions about social phenomenon.

4. Qualitative measurement is characterized by

4.4 Quantitative Measurement

Quantitative research is undertaken in a systematic and controlled manner and is based on measurement. Researchers may use these metrics to run statistical tests, study variations between groups, and assess the efficacy of therapies. It is impossible to test anything that is not quantifiable. Numbers and graphs are used in quantitative research. It's utilized to put hypotheses and assumptions to the test or validate them. This form of study may be utilized to come up with generalizable facts about a subject.

Experiments, observations recorded as numbers, and surveys with closed-ended questions are all common quantitative procedures.

4.4.1 Quantitative Methods of Data Collection

Quantitative data is any information that can be quantified or expressed numerically. It's typically used to investigate occurrences or degrees of agreement. And it's gathered using a systematic questionnaire that begins with the words "how much" or "how many." The numerical nature of quantitative data makes it both decisive and objective. Furthermore, quantitative data is frequently sorted for statistical and mathematical analysis, allowing it to be shown using charts and graphs. A list of closed or multiple-choice questions is delivered to a sample of people in a survey (online, in person, or over the phone). Variables are controlled and altered in experiments to determine cause-and-effect correlations. Observations, observing persons in a natural setting with no influence over factors.

4.4.2 Quantitative Methods of Data Analysis

Quantitative analysis is the use of descriptive, associational, and inferential statistics to analyze social or political data. At the lower levels, the statistical analysis could be univariate and descriptive. At higher levels, it could be multivariate and relational (correlational) or causal analysis. But, before conducting any of the levels of statistical analysis, the data must be prepared for that purpose. It is possible for a researcher to use what is commonly called secondary data for analysis, in which case, there is no need to worry about preparing the data for analysis, since such data may have been prepared before storing for other use. But, if the researcher is using primary data, if, for example, the researcher constructed a questionnaire and obtain a survey data, such must be prepared in a format suitable for statistical analysis, and especially for computer data entry (Unanka, 2002).

4.4.3 Drawing Quantitative Conclusion

After the researcher have evaluated the data, The researcher is expected to form some conclusions. Drawing c conclusions state whether the findings of the experiment or survey support or refute the initial premise. To assist explain the results, researchers should provide key information from their research background.

4.5 Paradigms and Science in Political Enquiry

A paradigm is a set of scientific ideas, beliefs, and procedures that are held by members of the scientific community in a discipline and this forms a disciplinary framework that excludes all alternate explanations. The term is of Greek origin, and it first appeared in 15th-century intellectual literature. Kuhn (1970) admitted that he had utilized paradigm in an abstract way after publishing "the structure of scientific revolutions." He contrasts the generic meaning of the term paradigm from its specific use in his book's inserted note (1970). He referred to the overall meaning as "the foundation of ideas," while the precise meaning was referred to as "the pattern" (Chalmers, 2010, p: 109). The word "paradigm" comes from the Greek word "paradeigma," and its original meaning is a philosophic phrase. Today, a paradigm refers to a worldview and a broad philosophy. Paradigm is a phrase used in the philosophy of science to describe the ideas that govern an individual's internal view of things and the world. The term paradigm, in its broadest sense, refers to a conceptual framework. It seeks to control a person's perception of the world's happenings. The meaning of the word paradigm relates to a certain sector of the world, shows the laws, and establishes the parameters and interpretations of the problems.

In a scientific context, Thomas Kuhn (1970) explains that a paradigm denotes a conceptual framework that a community of scientists share and which provides them with a model to examine problems and find solutions. According to Kuhn, the term paradigm refers to a research culture with a set of beliefs, values, and assumptions on the nature and conduct of research that a community of researchers has in common (Kuhn 1970). A paradigm thus implies a pattern, structure and framework or system of scientific and academic ideas, values and assumptions (Olsen, Lodwick and Dunlop 1992:16). The main paradigms that form the basis of research in both the natural and social sciences are the positivist (logical-empirical), interpretative, and critical approach (Guba and Lincoln 1994:110; Ponterotto 2005:128).

Following Thomas Kuhn's ideas on fundamental sciences has been extremely beneficial to scientists, and his ideas have given them a fresh perspective on how research progresses while ignoring some of the scientific frameworks. When Thomas Kohn studied the history of science, he realized that science may have a different meaning than the one he was familiar with (Azizi, 2014). Political science, like other sciences, goes through a scientific advancement process as it encounters diverse methodologies, hypotheses, and scientific laws. In the interim, as a scientific approach, paradigm plays a vital role in scientific progress. With the support of Kuhn's paradigm, social and political philosophers were able to save politics from the limitations of positivism. Because
Thomas Kuhn's paradigm is a novel approach to learning sciences, the process of embracing a paradigm in political science must be approached with caution. Indeed, political science has progressed from pre-science to ordinary science, and subsequently from ordinary science to evolutionary science.

Scientists in the political science have established a stronger scientific perspective for politics in the modern time. Political science aims to define what politics are. Political science is inextricably linked to other disciplines since it touches on all facets of life. As a result, political science occupies a prominent position among other fields, particularly social sciences, and it attracts and educates different stakeholders (Alem, 2001:17). Though political science is concerned with political activity and analyzes people's and governments' political conduct, it is a discipline that is not concerned with political action (Bashirieh, 2001:19). Main findings in political science have been made throughout the past 2500 years because of historical processes, and political science has also evolved significantly (Manouchehri, 2011:3). Political science is a product of the humanities, and therefore requires scientific methodologies to succeed. The technique is a topic that has come up in a variety of domains of human knowledge, including political science (Kazemi, 2007:3). The blossoming of political science is aided by a variety of scientific methodologies, political ideas, political results, and the activities of political scientists. It is vital to become acquainted with new scientific techniques. Thomas Kuhn's paradigm is a novel approach to understanding science.

Self-Assessment Exercises (SAEs) 2

should not take you more than 5 minutes.								
1.	What	are	the	methods	of	collecting	quantitative	
data				•••••				
2	2 are the methods of quantitative analysis.							
3			. is u	indertaken	in a	systematic a	ind controlled	
manner and is based on measurement.								
4. In variables are controlled and altered in								
experiments to determine cause-and-effect correlations.								
5 is a set of scientific ideas, beliefs, and procedures								
that are held by members of the scientific discipline and form a								
disciplinary framework that excludes all alternate explanations								

m1 ·



Quantitative measurement entails doing statistical analysis on numerical data. In qualitative measurement, non-numerical data is examined for patterns. Qualitative variables are characterized based on their observable characteristics. This implies they can't be measured using a scale, ruler, or numerical value. Color, gender, and ethnicity are common qualitative measurement examples. Qualitative measures are made by classifying features into descriptive phrases that may be identified. A characteristic may be measured by comparing it to a set of categories defined by this standard. Qualitative measures have the drawback of preventing a researcher from testing hypotheses experimentally using absolute values.

Quantitative measures are those that have a numerical value attached to them. Quantitative measures may be compared and rated, and they are more accurate than qualitative measurements. The hue of a flower, for example, may be slightly subjective and dependent on the viewer. Is the blossom pink in color? Magenta? Purple? To guarantee that qualitative variables are accurately classified, highly specific definitions are required. If the measuring technique is calibrated appropriately, quantitative variables are accurate. If all observers are using the same scale that is calibrated correctly, a mouse weighing 2.3 pounds will weigh 2.3 pounds. Finally, a paradigm is a collection of common ideas and perceptions among members of a research community. Members in research communities' use paradigms to shape how they see both the phenomena they study and the research procedures that should be used to explore those phenomena. Thomas Kuhn idea of paradigm influenced the science of politics in a very significant way, Kuhn contended that science does not progress towards truth in a linear fashion. When present theories fail to explain a phenomenon and someone suggests a new theory, science has a paradigm that remains constant before going through a paradigm shift. When I the new paradigm better explains the findings and gives a model that is closer to objective, external reality; and (ii) the new paradigm is incommensurate with the old, a scientific revolution occurs.

4.7 Glossary

Paradigm: A paradigm is a set of scientific ideas, beliefs, and procedures that are held by members of the scientific discipline and form a disciplinary framework that excludes all alternate explanations. **Qualitative Measure:** Qualitative measures are a means of learning more about a subject. Qualitative measurements are used by researchers

who are trying to understand the meanings behind phenomena or who are looking into a new issue about which little is known.

Quantitative Measure: Quantitative measure is a systematic and controlled form of measurement. Researchers use quantitative measures to run statistical tests, study variations between groups, and assess the efficacy of therapies. It is impossible to test anything that is not quantifiable.

4.8 References/ Further Readings

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1.9 Possible Answers to Self-Assessment Exercises

Answers to SAEs 1

Interview, observation, focus group discussion and written materials
Charts and graft, case study analysis, observational analysis, historical analysis, and content analysis.

3. Qualitative research

4. Theory and inductive reasoning

Answers to SAEs 2

- 1. Questionnaire administration, observation
- 2. Descriptive, inferential and associational statistics
- 3. Quantitative research
- 4. Quantitative measurement
- 5. Paradigm