NATIONAL OPEN UNIVERSITY OF NIGERIA

SCHOOL OF ARTS AND SOCIAL SCIENCES

COURESE CODE: POL 312

COURSE TITLE: LOGIC AND METHODS OF POL INQUIRY

COURSE GUIDE

POS 312
LOGIC AND METHODS OF POLITICAL INQUIRY

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INTRODUCTION

Welcome to POL 312: Logic and Methods of Political Inquiry

This course is a three-credit unit course for undergraduate students in Political Science. The materials have been developed to meet global standards. This course guide gives you an overview of the course. It also provides you with relevant information on the organization and requirements of the course.

COURSE AIMS

The aims are to assist you in the understanding of the issues and methods of political investigation. The broad aims will be achieved by:

(i) Introducing you to Logic, its nature, characteristics and branches.

(ii) Equipping you with the basic methods of investigation or inquiry in Political Science such as traditional approach, behavioural approach, post behavioural approach, as well as the views of various political scientists on the subject of political science and political inquiry.

(iii) Examining the meaning and nature of concepts, their formation and introduction of scientific methods of political inquiry. It will also expose you to the understanding of the functions of these concepts and methods.

(iv) Exposing you to the knowledge of generalization, the various forms of generalization and the distinguishing factors of universal and statistical generalization in political inquiry.

(v) Enabling you to appreciate the place of explanation and prediction in political inquiry.

(vi) Enabling you understand the usefulness of theories and models in political inquiry and the relevance of same to analysis in political science.

COURSE OBJECTIVES

To achieve the aims set out above, POL 302 has broad objectives. In addition, each unit of the course has specific objectives. The unit objectives are at the beginning of each unit. I advise that you read them before you start working through the unit. You may refer to them in the course of the unit to personally monitor your progress.

On successful completion of the course, you should be able to:

(a) Define logic, its characteristics and types, and how it is relevant to Social Sciences in general and Political Science in particular.

(b) Understand the meaning and nature of Political Inquiry and the methods involved in carrying out investigation in Political Science.

(c) Know the meanings of Concepts in Political Inquiry, the relevance of scientific concepts and the formations and introduction of scientific concepts as the point of departure in any scientific orientation; understand the classification of concepts and functions of concepts in political inquiry.

(d) Understand the meaning of generalization and the types of generalization in political inquiry; as well as distinguish between statistical and universal generalizations.

(e) Appreciate the place of explanation and prediction in political inquiry

(f) Understand the meaning and usefulness of theories and models in political inquiry.

(g) Understand the various techniques of data gathering in social or survey research.

Working through This Course

To complete the course you are required to read the study units and other related material. You will also need to undertake practical exercises for which you need a pen, a note-book, and other materials that will be listed in this guide. The exercises are to aid you, and to facilitate your understanding of the concepts and issues being presented. At the end of each unit, you will be required to submit written assignments for assessment purposes. At the end of the course, you will write a final examination.

Course Materials

The major materials you will need for this course are:

Course guide

Study units

Assignment file

Relevant textbooks including the ones listed under each unit.

You may also need to listen to programmes and news on the radio and television, local and foreign.

As a beginner, you need to read newspapers, magazines, journals and where necessary log on to the internet.

Study Units
There are 28 units (of six modules) in this course. They are listed below.

MODULE 1

Unit 1: Meaning and nature of Logic

Unit 2: Types/Branches of Logic

Unit 3: Logic and other Social Sciences

Unit 4: Logical thinking and Political Inquiry

MODULE 2

Unit 1: Meaning and Nature of Political Inquiry

Unit 2: Methods of Political Inquiry

Unit 3: Traditional Political Philosophy

Unit 4: Contemporary Political Inquiry

Unit 5: Scientific Political Inquiry

MODULE 3

Unit 1: Meaning, nature and scope of scientific Concepts in Political Inquiry

Unit 2: Scientific Concept Formation in Political Inquiry

Unit 3: Scientific Concept Introduction in Political Inquiry

Unit 4: Functions of Scientific Concepts in Political Inquiry

MODULE 4

Unit 1: Meaning and nature of Generalization in Political Inquiry

Unit 2: Types/forms of generalization in Political Inquiry

Unit 3: Universal and Statistical generalization

Unit 4: Hypotheses Testing in Political Inquiry

Unit 5: Generalization and Causality

MODULE 5

Unit 1: Explanation and Prediction in Political Inquiry

Unit 2: Patterns of Explanation in Political Inquiry

Unit 3: Theories and Models in Political Inquiry

Unit 4: Functions of Theories

Unit 5: Use and misuse of models in political inquiry

MODULE 6

Unit 1: Techniques of Data Gathering in Political Inquiry

Unit 2: The Questionnaire Method

Unit 3: The Interview Method

Unit 4: Participant Observation Method

Unit 5: Documentary/Content Analysis Method

Text books and References
Certain books have been recommended in the course. You will have to supplement this by reading from library, or purchasing them.

Assessment file
An assessment file and a marking scheme will be made available to you. In the assessment file, you will find details of the works you must submit to your tutor for marking. There are five aspects of the assessment of this course (the Tutor Marked Assignment) and the written examination. The marks you obtain in these two areas will make up your final course grade. The assignment must be submitted to your tutor for formal assessment in accordance with the deadline stated in the presentation Schedules and the Assignment file. The work you submit to your tutor for assessment will account for 30% of your total score.

Tutor Marked Assignments (TMAs)

You will have to submit a specified number of the (TMAs). Every unit in this course has a tutor marked assignment. You will be assessed on four of them but the best three performances from the (TMAs) will be used for computing your 30%. When you have completed each assignment, send it together with a Tutor Marked Assignment form, to your Tutor. Make sure each assignment reaches your tutor on or before the deadline for submission. If for any reason, you cannot complete your work on time, contact your tutor for a discussion on the possibility of an extension. Extensions will not be granted after the due date unless under exceptional circumstances.

Final Examination and Grading

The final examination will be a test of three hours. All areas of the course will be examined. Find time to read the unit all over before your examination. The final examination will attract 70% of the total course grade. The examination will consist of questions, which reflect the kind of self-assessment exercise, and Tutor Marked Assignment you have previously encountered. You should use the time between completing the last unit, and taking the examination to revise the entire course.

Course Marking Scheme

The following table lays out how the actual course mark allocation is broken down.

Assessment	Marks
Assignments (Best Three) Assignment out of Four Marked	= 30%
Final Examination	= 70%
Total	= 100%

Presentation Schedule

The dates for submission of all assignment will be communicated to you. You will also be told the date of completing the study units and dates for examinations.

Course Overview and Presentation Schedule

Unit	**Title of work**	**Weeks Activity**	
Course Guide	**MEANING AND NATURE OF LOGIC**		

Module 1			
Unit 1	Definition and nature of Logic	Week 1	Assignment 1
Unit 2	Types and branches of Logic	Week 1	Assignment 2
Unit 3	Logic and other Social Sciences	Week 2	Assignment 3
Unit 4	Logical thinking and Political Inquiry	Week 2	Assignment 4
Module 2	**MEANING AND SCOPE OF POLITICAL INQUIRY**		
Unit 1	Meaning and nature of Political Inquiry	Week 3	Assignment 1
Unit 2	Methods of Political Inquiry	Week 3	Assignment 2
Unit 3	Traditional Political Philosophy	Week 4	Assignment 3
Unit 4	Contemporary Political Inquiry	Week 4	Assignment 4
Unit 5	Scientific Political Inquiry	Week 4	Assignment 5
Module 3	**SCIENTIFIC CONCEPTS IN POLITICAL INQUIRY**		
Unit 1	Meaning, Nature and scope of Concepts in Political Inquiry	Week 5	Assignment 1
Unit 2	Scientific Concept formation in Political Inquiry	Week 6	Assignment 2
Unit 3	Scientific Concept introduction in Political Inquiry	Week 6	Assignment 3
Unit 4	Functions of scientific concepts in Political Inquiry	Week 6	Assignment 4
Module 4	**GENERALIZATION IN POLITICAL INQUIRY**		
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Unit 2	Types/forms of generalization in political inquiry	Week 7	Assignment 2
Unit 3	Universal and statistical generalization	Week 8	Assignment 3
Unit 4	Hypotheses testing in political inquiry	Week 8	Assignment 4
Unit 5	Generalization and Causality	Week 8	Assignment 5
Module 5	**EXPLANATION, PREDICTION THEORY AND MODELS IN POLITICAL INQUIRY**		
Unit 1	Meaning and nature of explanation and prediction in political inquiry	Week 9	Assignment 1
Unit 2	Patterns of explanation in political inquiry	Week 9	Assignment 2
Unit 3	Meaning of theories and models in political inquiry	Week 10	Assignment 3
Unit 4	Functions of Theories	Week 10	Assignment 4
Unit 5	Use and misuse of models in political inquiry	Week 11	Assignment 5
Module 6	**TECHNIQUES OF DATA GATHERING IN POLITICAL INQUIRY**		
Unit 1	Data Gathering in political inquiry	Week 12	Assignment 1
Unit 2	The Questionnaire Method	Week 13	Assignment 2
Unit 3	The Interview Method	Week 14	Assignment 3
Unit 4	Participant Observation Method	Week 15	Assignment 4
Unit 5	Documentary/Content Analysis Method	Week 15	Assignment 5
	REVISION	1	

	Examination	1	
	Total	17	

How to get the Most from This Course

In distance learning, the study units replace the university lecture. This is one of the great advantages of distance learning. You can read and work through specially designed study materials at your own pace, and at a time and place that suits you best. Think of it as reading the lecture instead of listening to the lecturer. In the same way a lecturer might give you some reading to do, the study units tell you where to read, and which are your text materials or set books. You are provided exercises to do at appropriate points, just as a lecturer might give you an in-class exercise. Each of the study units follows a common format. The first item is an introduction to the subject matter of the unit, and how a particular unit is integrated with the other units and the course as a whole. Next to this is a set of learning objectives. These objectives let you know what you should be able to do by the time you have completed the unit. These learning objectives are meant to guide your study. The moment a unit is finished, you will significantly improve your chances of passing the course. The main body of the unit guides you through the required reading from other sources. This will usually be either from your set books or from a reading section. The following is a practical strategy for working through the course. If you run into any trouble, telephone your tutor. Remember that your tutor's job is to help you. When you need assistance, do not hesitate to call and ask your tutor to provide it.

1. Read this Course Guide thoroughly, it is your first assignment.

2. Organize a Study Schedule. Design a 'Course Over' to guide you through the Course. Note the time you are expected to spend on each unit and how the Assignments relate to the units. Whatever method you choose, you should decide on and write in your own dates and schedule of work for each unit.

3. Once you have created your own study schedule, do everything to stay faithful to it. The major reason why students fail is that they get behind with their course work. If you get into difficulties with your schedule, please, let your tutor know before it is too late to help.

4. Turn to Unit I, and read the introduction and the objectives of the unit.

5. Assemble the study materials. You will need your set books and the unit you are studying at any point in time. As you work through the unit, you will know what sources to consult for further information.

6. Keep in touch with your study center. Up-to-date course information will be continuously available there.

7. Well before the relevant due dates (about 4 weeks before due dates), keep in mind that you will learn a lot by doing the assignment carefully. They have been designed to help you meet the objectives of the course and, therefore, will help you pass the examination. Submit all assignments not later than the due date.

8. Review the objectives for each study unit to confirm that you have achieved them, if you feel unsure about any of the objectives, review the study materials or consult your tutor.

9. When you are confident that you have achieved a unit's objectives, you can start on the next unit. Proceed unit by unit through the course and try to pace your study so that you keep yourself on schedule.

10. When you have submitted an assignment to your tutor, you should note the tutor's comments, both on the Tutor-Marked Assignment form and also the written comments on the ordinary assignments.

11. After completing the last unit, review the course and prepare yourself for the final examination. Check that you have achieved the unit objectives (listed at the beginning of each unit) and the course objectives (listed in the Course Guide.

Tutors and Tutorials

Information relating to the tutorials will be provided at the appropriate time. Your tutor will mark and comment on your assignments, keep a close watch on your progress and on any difficulties you might encounter and provide assistance to you during the course. You must take your Tutor-Marked Assignments to the study center well before the due date (at least two working days are required). They will be marked by your tutor and returned to you as soon as possible.

Do not hesitate to contact your tutor if you need help. Contact your tutor if you do not understand any part of the study units or the assigned readings, have difficulty with the exercises, or have a question or problem with an assignment or with your tutor's comments on an assignment or with the grading of an assignment.

You should try your best to attend the tutorials. This is the only chance to have face-to-face contact with your tutor and ask questions which are answered instantly. You can raise any problem encountered in the course of your study. To gain the maximum benefit from course tutorials, prepare a question list before attending them. You will learn a lot from participating in discussion actively.

Summary

The course guide gives you an overview of what to expect in the course of this study. The course teaches you the basic principles and concepts in Political Science. It also acquaints you with the central role of power as well as its limitations within the political process.

We wish you success with the course and hope that you will find it both interesting and useful in your quest for personal development, and building a life career.

MODULE 1: MEANING, NATURE AND SCOPE OF LOGIC

UNIT 1: Meaning and Nature of Logic

1.0: INTRODUCTION

This unit introduces you to the meaning and nature of logic. It explains the various meanings of the term logic and the complexity in the conceptualization of the term logic. It analyzes the parallelism between correct thinking and valid argumentation. The unit explains the characteristics of logical thinking and the comparison between logic and

argument. It goes further to explain the types of argument as found in inductive, deductive and symbolic arguments.

2.0: OBJECTIVES

After reading this unit, students should be able to do the following:

(a) Define the term logic.

(b) Differentiate between correct thinking and valid argumentation.

(c) Identify the characteristics of logical thinking.

(d) List and explain the types of argument available and their relationship to logic.

3.0: MAIN CONTENT

3.1: Meaning and nature of Logic

The term logic comes from the Greek word "logos". Among the partial translation of logos are sentence, discuss, reason, rule, ratio, account, (especially the account of the meaning of an expression), rational principle and definition. The subject-matter of logic has been said to be the laws of thought, the rules of right reasoning, the principles of valid argumentation, and truths based solely on the meanings of the terms they contain. It is relatively easy to discern some order in the above explanations. Some of the characterizations are in fact closely related to each other. What then is logic? Logic can be defined as the science, which has the study of the principles for appraising arguments as correct or incorrect as its primary aim (Nancy, Gene 1976: 1). In other words, it is the study of the norms of correct reasoning.

When logic is said, for instance, to be the study of the laws of thought, these laws cannot be the empirical or observable regularities of actual human thinking as studied in Psychology. They are laws of correct reasoning which are independent of the psychological idiosyncrasies of the thinker. Moreover, there is parallelism between

correct thinking and valid argumentation. That is, valid argumentation is said to be an expression of correct thinking and the latter as an internalization of the former. In the sense of this parallelism, loss of correct thought would march those of correct argumentation.

Logic may thus be characterized as the study of truth based completely on the meaning of the term they contain. The following proposition from ARISTOTLE for example, is a truth of logic: "if sight is perception, then objects of sight are objects of perception". Its truth can be grasped without holding any opinion as to what in fact is the relationship of sight to perception. What is needed is merely an understanding of what is meant by such terms as "If … Then … And", and an understanding that "object expressed some sort of relation". The logical truth of Aristotle's example of proposition is reflected by the fact that the object of sight are the objects of perception can validly be inferred that sight is perception.

Self-Assessment Exercise 3.1

1. Critically explain what you understand by the term Logic.
2. Differentiate between correct thinking and valid argumentation**.**

3.2: Characteristics of Logical Thinking

There is a debate among philosophers on whether Logic should be a branch of Philosophy or a tool of Philosophy. The reason for this has to do with the point that critical discussions, analyses, evaluations, appraisals etc, which characterize the philosophical enterprise presuppose logical reasoning. In other words, it demands logical reasoning and logical mental processing. The question of whether logic is a branch or tool of Philosophy therefore seems not to be necessary, since Philosophy makes use of logical processes to arrive at its conclusion. It is in this wise that we have identified the characteristics of logic as follows:

i. Logic or critical thinking gives due consideration to the evidence, the context of judgment and the relevant criteria for making the judgment well.

ii. Logic must employ the applicable methods or techniques for forming the judgment, and the applicable constructs for understanding the problem and the question at hand.

iii. Logic must employ broad intellectual criteria such as clarity, credibility, accuracy, precision, relevance, depth, breadth, significance and fairness.

iv. Logical or critical thinking must have an attitude of being disposed (state of mind regarding something) to consider in a thoughtful way the problems and subjects that come within the range of one's experiences.

v. All logical thinking should be sequential in nature. They should allow for thinking in a certain order to have an objective view of the issue in question.

Self-Assessment Exercise 3.2

Identify the characteristics of Logical thinking.

3.3: Logic and Argument

Logic is said to be a form of argument, which shows sequence in the order of expression of statements. Since we have established that logic deals with argument, it is pertinent to understand what arguments are.

In answering the question, what is argument, there is the need to make distinction between "argument" in the ordinary sense and "argument" in the technical sense. Ordinarily, the word argument refers to a quarrel or disagreement, but argument in the technical sense is "one or more propositions, called a premise or premises, which are offered as evidence for another proposition, called a conclusion". Meanwhile, a proposition is a statement which can be evaluated as true or false (Adedeji et al 2003).

Let us consider the following and see which of them form a proposition, a declarative sentence that can be evaluated as true or false:

1. Students are rioters.
2. What a Speech!
3. It is sunning.
4. Dolapo is a lawyer.
5. Christians are saints.
6. Are police friendly?
7. Go to the mountain.

The sentences above comprise commands, exclamations, and questions while some are statements. The primary interest, however, is in statements or propositions, which are capable of being true or false. For example, the group of statements below constitute an argument:

All men are mortal.

Plato is a man.

Therefore, Plato is a mortal.

The above is an argument. The first two statements, which provide support for the last one, are known as premises, while the last one, which is supported by the first two statements, is called the conclusion.

Arguments, particularly deductive arguments, are either valid or invalid. An argument is valid if it would be unreasonable to believe its premises and not believe its conclusion. On the other hand, it is invalid if it is possible to accept the premises and reject the

conclusion. Therefore, an argument is sound when it is valid and all of its premises are true (Adedeji et al 2003).

Let us consider the following arguments in order to ascertain when an argument is valid, invalid, sound, and unsound. Consider the following examples:

1. All men are mortal.

   Plato is a man.

   Therefore, Plato is mortal.

2. All Spiders are eight legged creatures.

   All eight legged creatures have wings.

   Therefore, all spiders have wings.

In the first example, the argument is valid and the premises are true. Therefore, it is a sound argument. In the second example, however, although the argument is valid, the premises are false. So, it is an unsound argument. It is important to note that the validity or invalidity of arguments is determined by their formal structure, that is, the relationship between premises and conclusion, not the truth or falsity of the premises and conclusion. It is because of the fact that the validity of an argument has to do with the argument's formal structure that logic is said to be a formal science.

Self- Assessment Exercise 3.3

Differentiate between logic and argument.

3.4: Deductive Arguments

Deductive arguments involve reasoning that attempts to establish conclusive inferences. To say that an inference is "conclusive" means that if the reasons given are true, then it will be impossible for the inference based upon these reasons to be false (Popkin, 1993).

Also, a deductive argument is an inference in which the conclusion flows from the premises. Furthermore, in a deductive argument, the premises provide sufficient or conclusive ground for the conclusion. A deductive argument can be valid or invalid, in the senses explained above.

Equally, it should be noted that, deductive arguments are concerned with the conditions under which particular or instantial propositions are inferable from universal premises (Cohen and Nagel, 1978). In other words, in deductive reasoning, inferences are, in many cases, made from general statements to particular statements. Examples of these are:

1) All unmarried men are bachelors.

   Okoro is unmarried.

   Therefore, Okoro is a bachelor.

2) All students are matriculated.

   Bongo is a student.

   Therefore, Bongo matriculated.

However, care must be taken on this point; it is the formal structure that confers validity on deductive arguments and not necessarily the inference from the general to the particular. Cohen noted that the essence of deduction is not the derivation of particular conclusions from universal propositions, but the derivation of conclusions, which are necessarily involved in the premises. For no conclusion of a deductive inference can be instantial unless at least one of the premises is instantial.

Self-Assessment Exercise (3.4)

Define deductive argument giving an example.

3.5: Inductive Arguments

An inductive argument is a non-deductive inference in which the conclusion expresses an empirical conjecture that goes beyond what the premises claim. The premises of an inductive argument provide good (but not conclusive) grounds for accepting the conclusion. Thus, it is possible for all the premises of a good inductive argument to be true and the conclusion false (Morse, 1971). The point being made here is that, in this type of reasoning, the conclusion includes information not necessarily implied by the premises. Thus, the premises only render the conclusion probable.

It must be noted that, inductive arguments are not appraised as valid or invalid, sound or unsound. The appraisal of an inductive argument is based on the degree of probability, which the premises provide for the conclusion. Another way of characterizing inductive argument is to say that it deals with those inferences, which enable us to derive a universal conclusion from particular premise or premises. Udoidem (1991) notes that "inductive reasoning is based on sense experience of particular instances and since one has not yet exhausted all the instances of such elements that exist, it becomes a problem for one to make a universal claim about the things he has not yet experienced". For this reason, the conclusion of an inductive argument is most of the time probable. Let us consider these examples:

1) Ngozi, a NOUN student, is brilliant.

   Abdullahi, a NOUN student, is brilliant.

   Oluwole, a NOUN student, is brilliant.

   Sylvester, a NOUN student, is brilliant.

   Akpan, a NOUN student, is brilliant.

   Therefore, it probably follows that all NOUN students are brilliant.

2) Aluminum, a metallic object, melts when exposed to heat.

   Silver, a metallic object, melts when exposed to heat.

   Copper, a metallic object, melts when exposed to heat.

   Therefore, probably all metallic objects melt when exposed to heat.

One important characteristic of inductive arguments is that our confidence in the truth of their conclusions can be increased or decreased by adding other premises. In other words, the more the number of instances, which provide the evidence, the higher the degree of probability of an inductive argument.

Self-Assessment Exercise 3.5

Discuss inductive argument.

3.6 Symbolic Logic

In symbolic logic, the subject logic becomes more of a science than art. The reason for this claim is that logic is concerned with developing our thinking system or faculty. In this sense, symbolic logic is concerned with the development of techniques that will enable us to determine the validity of deductive arguments without the ambiguities of natural language. Symbolic logic, is therefore, concerned with syntax rather than with semantics. It studies, not sentences but, sentential forms or proposition forms (Unah, 2001). Also, symbolic logic is seen as part of formal logic in which special symbols are introduced to represent propositions and their connectives, or predicates and their quantifiers. The use of symbols allows for precision, economy and transparency (Bello, 1999). Copi (1986) also noted that the natural language is often difficult to appraise because of "the vague and equivocal nature of the words used, the amphiboly of their construction, the misleading idioms they may contain, their potentially confusing metaphorical style, and the distraction due to whatever emotive significance they may have. The use of this artificial symbolic language is a means of eliminating possible

sources of confusion in the evaluation of arguments in natural language. It helps in facilitating exactness and precision in analyses and deductions.

Coming back to our discussion on the meaning and nature of logic, Formal logical systems are built from axioms. By definition, an axiom cannot be proven within the system in which it is accepted as axiomatic. If it could be, you would not need it as an axiom. One proves with axioms, one does not prove axioms; one must start somewhere. Note that this does not mean that there must be no way to validate one's axioms. Proof is only one method of validation. For example, if I tell you the sky is blue, you could verify my claim by looking at the sky. You would not need to construct a logical proof. Proof is a very complex and powerful way of validating a concept, but it is not the only way. Proof derives new knowledge from old knowledge -- there must be some starting knowledge to begin a proof.

Objectivism defines logic as the process of non-contradictory identification. Ayn Rand's three laws of logic were first enunciated by Aristotle, whom she admired immensely for this achievement. However, it was Ayn Rand herself who first appreciated their full force; they ground all knowledge. She was also the first person to make these laws the basis for a consistent philosophy. Ayn Rand phrased the first law of logic, as ``*A is A*." For this statement, she received much criticism. Her critics felt that nothing meaningful was being said and that nothing useful could be derived from it. They were wrong on both counts, as you will soon see in the analysis following all three laws.

This first law, often called the law of identity, means that to exist, even as an idea is to be something and that to be something is to be something specific. A thing is itself, it is what it is. If you prefer, it means that before you can talk about something, you must know what it is that you are talking about. When we state that ``*A* is *A*", we must first assert ``*A*". The fundamental unit of thought is clear identity, the content of ``*A*", whether as an existent entity in metaphysics or as a specific concept in epistemology. This law is

the most fundamental law of logic because it is the only one that deals directly with meaning. For a statement to be subject to any further logical manipulations, even by the second and third laws, it must first mean something. Failure to adhere to this requirement can lead to logical absurdities.

Let us examine the concept `axiom'. An *axiom* (or premise) is ordinarily taken to mean a self-evident truth basic to any further reasoning. It is a statement, not derivable from other statements, but prior to them. Yet, this is not necessarily its use in a specific formal axiom system used to prove a set of theorems. It is quite possible, in fact very common, that for example, axioms A, B, and C together imply theorems D and E. While, had we accepted D and E as axioms, we could have derived A, B, and C. This time A, B, and C are theorems and D and E are the axioms.

In other words, you may have a consistent reasoned structure in which A, B, C, D, and E all hold, yet the choice of axiomatic base is arbitrary. Where does this leave the naive concept of a “fundamental axiom?" Just because you have shown that X can lead to Y, you are not yet entitled to proclaim X more fundamental than, or prior to, Y. Such a pronouncement must await a meta-axiomatic analysis of the *meaning* of the concepts involved. Meaning and reality are the final arbiters; truly fundamental axioms must be grounded in reality.

The second law of logic is the law of non-contradiction. As Nathaniel Branden (1982) worded it, this law states that an entity cannot both have a specific attribute and not have that same attribute at the same time and in the same respect. As Rand phrased it, something cannot be both A and non-A. The most precise phrasing of this law is as follows: If we understand the meaning of a particular entity and a particular property and we know precisely both what it would mean for the entity to have the property and what it would mean for the entity not to have the property, *then* the entity cannot *both* have and *not have* the property.

The third law is the law of the excluded middle. It states that once a specific entity and a specific attribute are well defined and understood, either the entity possesses that attribute or it does not, at a specific time and in a specific respect. In other words, something is either A or non-A.

Though phrased in terms of single entities, the second and third laws each denote a relationship between *two* concepts. Even though one of the concepts is the negation of the other, each must be understood in its own right to be meaningful. Before these laws can be applied, each of the two concepts being related must be independently understood, that is, have meaning. As we shall see, though you may clearly understand what it means for a particular statement to be true, it does not automatically follow that you understand what it means for it to be false.

There is also a sense in which the second and third laws can be considered to be implied by the law of identity. For a concept to have clear meaning, for example, it cannot both possess and not possess the same well-defined characteristic. Each of these laws has been challenged on grounds that show clearly that the challenger does not understand them. Without an agreement on these laws, it would not even be possible to attack them. To attack the law of identity, it must be admitted that the law of identity is what it is, and that the arguments presented against it exist and are what they are.

To attack the law of non-contradiction it must be admitted that either the law is true or it is false. It must be agreed that it cannot be both true and false. The law's attackers must argue that their arguments cannot be both true and false. To attack the law of the excluded middle, it must be admitted that the law is either true or false. It must be agreed that all arguments presented are either true or false, valid or invalid.

Self-Assessment Exercise (3.6)

Define symbolic argument and enumerate the usefulness of symbolic argument to logical thinking

4.0: CONCLUSION

It is expected that after reading this unit, students should be able to explain the meaning and nature of logic, branches of logic, the relevance of logic to Political Science and other social sciences, the relationship between logical thinking and political inquiry.

5.0: SUMMARY

In this unit, we have explained the meaning of logic, the relationship between logic and argument and the types of argument and their relationship to logical thinking and political investigation.

6.0 TUTOR-MARKED ASSIGNMENT (TMAs)

1. Articulate what you understand by logic.
2. List the characteristics of logic you have studied.
3. Differentiate between deductive argument and inductive argument. Cite two examples of each type of argument.

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UNIT 2: BRANCHES OF LOGIC

1.0: INTRODUCTION

This unit introduces students to the various branches of logic available. These include deontic logic, doxastic logic, epistemological logic and inductive logic. However, the unit isolated only deontic and doxastic logic for discussion.

2.0: OBJECTIVES

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

(a) Identify the branches of logic available

(b) Explain each branch of logic with emphasis on the first two branches of logic.

(c) Relate these branches of logic to their understanding of logical thinking.

3.0: MAIN CONTENT

3.1: Branches of Logic

There are four branches of logic and these are, Deontic, Doxastic, Epistomology and Inductive. We shall emphasize the first two. Deontic logic is the branch of logic that studies the formal properties of normative concepts. It contributes to the general theory of law with a formal analysis of such concepts as obligation, permission, prohibition, commitment, rule, authority, power, rights, and responsibility. It analyses the formal properties of normative systems, helping to clarify notions such as legal gaps and legal contradictions.

3.2: Deontic Logic

The first viable system of deontic logic was presented by G.H. von Wright in his classic essay 'Deontic Logic' written in 1951. There was a previous attempt to build a formal theory by Ernest Mally in 1926, but it was unsuccessful. As a matter of historic curiosity, it can be added that it is possible to find suggestions of a logic treatment of normative concepts as far as Aristotle, the Stoics, a modern philosopher like Leibniz, and also in Bentham.

After von Wright's seminal paper, many systems of deontic logic were developed, even by von Wright himself. Many of them were designed to avoid certain paradoxical results that were seen to arise in his original system. Many problems remain open. From a philosophical point of view, the main one concerns the interpretation and validity of its basic principles. There is also a great deal of controversy about the proper way to present some basic deontic notions such as those of commitment and conditional obligation. Many contemporary studies in the field are oriented to the formal representation of legal knowledge, the analysis of legal argumentation and the links between deontic logic and computer science, artificial intelligence, and organization theory. In this line of research, important efforts are focused on applications, such as the formal specification of systems

for the management of bureaucratic processes in public or private administration, database integrity constraints, computer security protocols, electronic institutions, and norm-regulated multi-agent systems.

Most systems of deontic logic are built upon propositional logic, and lack the expressive resources of quantification. Consequently, their applicability to real-life normative discourse in moral or legal contexts is rather imperfect. In order to represent legal knowledge, it seems that deontic logic languages must be enriched not only with quantification but also with notions for agency and temporal devices. In recent years, many lines of research were headed in those directions.

There is a large number of problems and limitations attributed to standard deontic logic. They are usually called 'paradoxes', but that word is used here in a loose sense. Some of them are not real paradoxes but results that could be found counter-intuitive. At any rate, they show that the formal language does not reflect faithfully the way in which some normative statements are generally understood in ordinary language.

Ross's paradox: in Standard Deontic Logic (SDL), O(pvq) (it ought to be the case that p or q) can be derived from Op. So, if it ought to be the case that a letter is mailed, then it ought to be the case that the letter is mailed or burnt. It seems rather odd to say that an obligation to mail a letter entails an obligation that can be fulfilled by burning it. However, this is a misunderstanding. The implication does not mean that the original obligation can be fulfilled by burning the letter. By propositional logic, whenever 'p' is true, it is also true any disjunction of which 'p' forms part. So, if it is obligatory to see to it that p is the case, it is obligatory to see to it that the disjunction of 'p' with any proposition is the case.

The air of paradox derives from the fact that, in ordinary language, a disjunctive obligation is generally understood as one in which the agent is free to choose any of the alternatives; but this is not the meaning of O(pvq) in SDL.

The paradox of derived obligation: In the Classic System, as well as in SDL, the idea of conditional obligation (or commitment) is represented by 'O(p⊃q)', where 'p⊃q' is understood as a material conditional. It can be proved that, if some state of affairs, say p, is forbidden, then it is obligatory any conditional in which p is the antecedent. So, if it is forbidden that I steal a gun, then it ought to be that if i steal a gun I kill someone. Now, if we substitute '¬pvq' for 'p⊃q', which is logically equivalent, it is easy to see that this paradox is but a variation of Ross's.

Contrary-to-Duty Paradox: Consider the following: (1) It ought to be that John visits his mother. (2) It ought to be that if John visits his mother then he tells her he is coming. (3) If John doesn't visit his mother, then he ought not to tell her he is coming. (4) John doesn't visit his mother. Proposition (3) expresses what Chisholm named 'a contrary-to-duty imperative'. It says what a person ought to do if she has violated her duties. It is reasonable to expect that (1)–(4) constitute a mutually consistent and logically independent set of sentences. Yet, it can be shown that, if we represent the logical form of (2) as O(p⊃q), and represent (3) as ¬p⊃O¬q, a contradiction can be derived in SDL, as can be easily shown: From (1) and (2) we obtain, by deontic detachment (or deontic Modus Ponens), 'it ought to be the case that John tells his mother he is coming', and from (3) and (4) we get, by factual detachment (or factual Modus Ponens), 'John ought not to tell his mother he is coming'. So, if norms (1)-(3) hold, it is logically impossible that John doesn't visit his mother, which is absurd.

The cause of the paradox seems to be that SDL allows both factual and deontic detachments. This led to attempts to block or modify one or both of those detachment principles, to introduce temporal restrictions to the deontic operators, and to a reconsideration of the formalization of conditional obligations.

This last idea was explored, among others, by von Wright. In von Wright (1956), he presented a new system of deontic logic in which the deontic operators are intrinsically

associated with conditionality. The atomic expressions have the form ‘O(p/q)’ and ‘P(p/q)’, which can be read ‘it is obligatory that p given q’ and ‘it is permitted that p given q’ respectively. The systems that use this kind of deontic operators are named ‘dyadic deontic logics'. Nowadays it seems to be generally admitted that material implication does not express the notion of conditional obligation faithfully, and the dyadic approach tends to be the one most commonly followed.

Self-Assessment Exercise 3.2

Define Deontic Logic.

3.3: Doxastic Logic

Doxastic logic is a modal logic concerned with reasoning about beliefs. The term *doxastic* derives from the ancient Greek, *doxa*, which means "belief." Typically, a doxastic logic uses 'Bx' to mean, "It is believed that x is the case," and the set $\mathbb{B}$ denotes a set of beliefs. In doxastic logic, belief is treated as a modal operator.

$\mathbb{B}$: $\{b_1,b_2,...,b_n\}$

There is complete parallelism between a person who believes propositions and a formal system that derives propositions. Using doxastic logic, one can express the epistemic counterpart of Gödel’s incompleteness theorem of metalogic, as well as Lob’s theorem, and other metalogical results in terms of belief (www.en.wikipedia.org/wiki/Doxastic_logic).

Usually in philosophy, beliefs are thought of as psychological states of doxastic and epistemic subjects. Every belief has content, and the content of a belief is a proposition. Acquiring the belief that A can be understood as entering a certain psychological state whose content is the proposition expressed by A, whereas abandoning the belief that A may be regarded as leaving a psychological state with a content expressed by A. Doxastic

Subjects take the contents of their beliefs to be true. While thinking of beliefs as psychological states is maybe the predominant view, there is also a tradition according to which beliefs are dispositions. After distinguishing different versions of the voluntaristic claim, in the present section two prominent anti-voluntaristic arguments will be reconsidered. The first has been suggested by Williams (1973), the second by Bennett (1991). In the first argument, beliefs are assumed to be psychological states; in the second beliefs are taken to be dispositions.

Certain philosophers hold that it is conceptually impossible to acquire a belief at will. Moreover, these philosophers often claim that perceptions directly induce beliefs without any mediation by an act of will and that in general, belief acquisition is something passive that just happens to a doxastic subject. Pojman (1985, p. 40), for example, claims that acquiring a belief is a happening in which the world forces itself upon a subject." But what exactly do the voluntarists claim? There are at least the following six different readings of the voluntaristic thesis:

1. It is possible that one voluntarily acquires arbitrary beliefs in full consciousness. (Universal possibilistic voluntarism)
2. It is possible that one voluntarily acquires some beliefs in full consciousness. (Existential possibilistic voluntarism)
3. For all beliefs one acquires it holds true that one voluntarily acquires these beliefs. (Universal weak factual voluntarism)
4. For all beliefs one acquires it holds true that one voluntarily acquires these beliefs in full consciousness. (Universal strong factual voluntarism)
5. For some beliefs one acquires it holds true that one voluntarily acquires these beliefs. (Existential weak factual voluntarism)
6. For some beliefs one acquires it holds true that one voluntarily acquires these beliefs in full consciousness. (Existential strong factual voluntarism)

Self-Assessment Exercise 3.3

(i) Critically examine the meaning of doxastic logic.

(ii) Differentiate between Deontic and Doxastic Logic.

4.0: CONCLUSION

After reading this unit, students should be able to identify and explain the branches of logic and their relationship to one another. They should be able to explain the characteristics of deontic and doxastic logic.

5.0: SUMMARY

In this unit, explanations were made on the types/branches of logic and their relationship with one another. The unit also explained in detail the nature of deontic and doxastic logic as branches of logic.

Self-Assessment Exercise

Define the notion of deontic logic and explain the relationships between deontic and doxastic logic.

6.0: TUTOR-MARKED ASSIGNMENT

1. Discuss your understanding of deontic logic
2. Describe the relevance of doxastic logic to political inquiry.
3. Difference between deontic and doxastic logic.

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UNIT 3: LOGIC AND SOCIAL SCIENCES

1.0: INTRODUCTION

This unit introduces you to the relationship between logic and Social Sciences. It explains the attributes of Social Sciences and the necessity of applying logical thinking to social and political inquiry. It analyzes the philosophy of Social Sciences and its relationship with Natural Sciences. It also explains the connectivity between philosophy, natural and social sciences.

2.0: OBJECTIVES

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

(a) Identify the relationship between philosophy and natural sciences
(b) Identify the relationship between social and natural sciences
(c) Establish relationship between philosophy, natural and social sciences.
(d) Identify the various positions and methods advocated by scholars on socio-political investigation.

3.0: MAIN CONTENT

3.1: Logic and Social Sciences

The philosophy of Social Science, like the philosophy of natural science, has both descriptive and prescriptive side. On the one hand, the field is *about* the social sciences, the explanations, methods, empirical arguments, theories, hypotheses, and so forth, that actually occur in the social science literature, past and present. This means that the philosopher needs to have extensive knowledge of several areas of social science research, in order to be able to formulate an analysis of the social sciences that corresponds appropriately to scientists' practice. On the other hand, the field is *epistemic*: it is concerned with the idea that scientific theories and hypotheses are put forward as *true* or probable, and are justified on *rational* grounds (empirical and theoretical). The philosopher therefore wants to be able to provide a critical evaluation of existing social science methods insofar as these methods are found to be less truth enhancing than they might be. These two aspects of the philosophical enterprise suggest that philosophy of social science should be construed as a rational reconstruction of existing social science practice—a reconstruction that is guided by existing practice but that goes beyond that practice by identifying faulty assumptions, forms of reasoning, or explanatory frameworks.

Philosophers have disagreed over the relation between the social and natural sciences. One position is NATURALISM, according to which the methods of the social sciences should correspond closely to those of the natural sciences. This position is closely related to PHYSICALISM, the doctrine that all higher-level phenomena and regularities--including social phenomena--must be ultimately reducible to physical entities and the laws, which govern them. On the other side is the view that the social sciences are inherently distinct from the natural sciences.

This perspective holds that social phenomena are metaphysically distinguishable from natural phenomena because they are *intentional*-they depend on the meaningful actions of individuals. On this view, natural phenomena admit of causal explanation, whereas social phenomena require intentional explanation. The anti-naturalist position also maintains that there is a corresponding difference between the methods appropriate to natural and social science. Advocates of the VERSTEHEN method hold that there is a method of intuitive interpretation of human action, which is radically distinct from methods of inquiry in the natural sciences. One important school within the philosophy of social science takes its origin in this fact of the meaningfulness of human action.

3.2: Interpretive Sociology

INTERPRETIVE SOCIOLOGY maintains that the goal of social inquiry is to provide interpretations of human conduct within the context of culturally specific meaningful arrangements. This approach draws an analogy between literary texts and social phenomena: both are complex systems of meaningful elements, and the goal of the interpreter is to provide an interpretation of the elements that makes sense of them. In this respect, Social Science involves a HERMENEUTIC inquiry: it requires that the interpreter should tease out the meanings underlying a particular complex of social behaviour, much as a literary critic pieces together an interpretation of the meaning of a complex literary text. An example of this approach is Max Weber's treatment of the relation between capitalism and the Protestant ethic. Weber attempts to identify the elements of western European culture that shaped human action in this environment in

such a way as to produce capitalism. On this account, both Calvinism and capitalism are historically specific complexes of values and meanings, and we can better understand the emergence of the latter by seeing how it corresponds to the meaningful structures of the former.

Interpretive sociologists often take the meaningfulness of social phenomena to imply that social phenomena do not admit of CAUSAL EXPLANATION. However, it is possible to accept the idea that social phenomena derive from the purposive actions of individuals, without relinquishing the goal of providing causal explanations of social phenomena. For it is necessary to distinguish between the general idea of a causal relation between two circumstances and the more specific idea of "causal determination through strict laws of nature." It is certainly true that social phenomena rarely derive from strict laws of nature; wars do not result from antecedent political tensions in the way that earthquakes result from antecedent conditions in plate tectonics.

However, when we admit the possibility of nondeterministic causal relations deriving from the choices of individual persons, it is evident that social phenomena admit of causal explanation and in fact, much social explanation depends on asserting causal relations between social events and processes. For example, the claim that the administrative competence of the state is a crucial causal factor in determining the success or failure of a revolutionary movement. Central to causal arguments in the social sciences is the idea of a causal mechanism - a series of events or actions leading from cause to effect. Suppose it is held that the extension of a trolley line from the central city to the periphery caused the deterioration of public schools in the central city. In order to make out such a claim it is necessary to provide some account of the social and political mechanisms that join the antecedent condition to the consequent.

3.3: Marxism and Social Sciences

An important variety of causal explanation in social science is MATERIALIST explanation. This type of explanation attempts to explain a social feature in terms of features of the material environment in the context of which the social phenomenon

occurs. Features of the environment that often appear in materialist explanations include topography and climate; thus, it is sometimes maintained that banditry thrives in remote regions because the rugged terrain makes it more difficult for the state to repress bandits. But materialist explanations may also refer to the material needs of society--for example, the need to produce food and other consumption goods to support the population.

Thus Karl Marx holds that it is the development of the "productive forces" (technology) that drives the development of property relations and political systems. In each case the materialist explanation must refer to the fact of human agency - the fact that human beings are capable of making deliberative choices on the basis of their wants and beliefs - in order to carry out the explanation; in the banditry example, the explanation depends on the fact that bandits are intelligent enough to realize that their prospects for survival are better in the periphery than in the core. So materialist explanations too accept the point that social phenomena depend on the purposive actions of individuals. A central issue in the philosophy of social science involves the relation between social regularities and facts about individuals.

3.4: Methodological Individualism

This is the position that asserts the primacy of facts about individuals over facts about social entities. This doctrine takes three forms: a claim about social entities, a claim about social concepts, and a claim about social regularities. The first version maintains that social entities must be reducible to ensembles of individuals-- as an insurance company might be reduced to the ensemble of employees, supervisors, managers, and owners whose actions constitute the company. Likewise, it is sometimes held that social concepts must be reducible to concepts involving only individuals--for example, the concept of a social class might be defined in terms of concepts pertaining only to individuals and their behaviour. Finally, it is sometimes held that social regularities must be derivable from regularities of individual behaviour.

There are several positions opposed to methodological individualism. At the extreme, there is METHODOLOGICAL HOLISM--the doctrine that holds that social entities and

facts are autonomous and irreducible. And there is a position intermediate between these two that holds that every social explanation require micro-foundations--an account of the circumstances at the individual level that lead individuals to behave in such ways as to bring about the observed social regularities. If we observe that an industrial strike is successful over an extended period, it is not sufficient to explain this circumstance by referring to the common interest that members of the union have in winning their demands. Rather, we need to have information about the circumstances of the individual union member that induces him or her to contribute to this public good.

This position does not require, however, that social explanations be couched in non-social concepts; instead, the circumstances of individual agents may be characterized in social terms. Central to most theories of explanation is the idea that explanation depends on general laws governing the phenomena in question. Thus, the discovery of the laws of electrodynamics permitted the explanation of a variety of electromagnetic phenomena. But social phenomena derive from the actions of purposive men and women; so what kinds of regularities are available on the basis of which to provide social explanations?

A fruitful research framework in the social sciences is the idea that men and women are *rational*, so it is possible to explain their behaviour as the outcome of a deliberation about means of achieving their individual ends. This fact in turn gives rise to a set of regularities about individual behaviour that may be used as a ground for social explanation. We may explain some complex social phenomenon as the aggregate result of the actions of a large number of individual agents with a hypothesized set of goals within a structured environment of choice.

3.5: Functionalism and Social Sciences

Social scientists have often been inclined to offer FUNCTIONAL explanations of social phenomena. A function explanation of a social feature is one that explains the presence and persistence of the feature in terms of the beneficial consequences the feature has for the ongoing working of the social system as a whole. It might be held, for example, that sports clubs in working-class Britain exist because they give working class men and

women a way of expending energy that would otherwise go into struggles against an exploitative system, thus undermining social stability. Sports clubs are explained, then, in terms of their contribution to social stability. This type of explanation is based on an analogy between biology and sociology. Biologists explain traits in terms of their contribution to reproductive fitness, and sociologists sometimes explain social traits in terms of their contribution to "social" fitness.

However, the analogy is a misleading one, because there is a general mechanism that establishes functionality in the biological realm that is not present in the social realm. This is the mechanism of natural selection, through which a species arrives at a set of traits that are locally optimal. There is no analogous process at work in the social realm, however; so it is groundless to suppose that social traits exist *because* of their beneficial consequences for the good of society as a whole (or important sub-systems within society). So functional explanations of social phenomena must be buttressed by specific accounts of the causal processes that underlie the postulated functional relationships.

Self-Assessment Exercise

(i) Critically examine the relationship between logic and social sciences.

(ii) Identify the various schools of thought in the explanation of the relationship between Social Sciences and Logic.

4.0: CONCLUSION

After reading this unit, students should be able to identify the various schools of thought in the explanation of the relationship between logic and social sciences and between social sciences and natural sciences.

5.0: SUMMARY

In this unit, we have explained the various schools of thought that explained the relationship between logic and social sciences on the one hand, social sciences and natural sciences on the other hand. We have also highlighted the various explanations used by social scientists to analyze human behaviours and attitudes.

6.0: TUTOR-MARKED ASSIGNMENT (TMAs)

1. Define the notion of Naturalism
2. Explain Physicalism
3. Discuss your understanding of Interpretive Sociology
4. Differentiate between Materialist explanation and Methodological individualism.

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UNIT 4: LOGICAL THINKING AND POLITICAL INQUIRY

1.0: INTRODUCTION

This unit explains the usefulness of logical thinking to political inquiry. It exposes the usefulness of assumptions in the understanding of social phenomena by identifying the hidden values of facts, and evaluating evidences and assessing conclusions. It explains the ability to understand and find workable solutions to a complex personal problem.

2.0: OBJECTIVES

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

(a) Explain the term critical thinking
(b) Identify the usefulness of critical thinking to political inquiry
(c) Understand the idiosyncrasies of analyzing personal and group phenomena and finding solutions to social problems.

3.0: MAIN CONTENT

3.1: Logical Thinking and Political Inquiry

Logical or critical thinking clarifies goals, examines assumptions, discerns hidden values, evaluates evidence, accomplishes actions, and assesses conclusions. "Critical" as used in the expression "critical thinking" connotes the importance or centrality of thinking to an issue, question or problem of concern. "Critical" in this context does not mean "disapproval" or "negative." There are many positive and useful uses of critical thinking, for example formulating a workable solution to a complex personal problem, deliberating as a group about what course of action to take, or analyzing the assumptions and the quality of the methods used in scientifically arriving at a reasonable level of confidence about a given hypothesis. Using strong critical thinking we might evaluate an argument, for example, as worthy of acceptance because it is valid and based on true premises. Upon reflection, a speaker may be evaluated as a credible source of knowledge on a given topic.

Critical thinking can occur whenever one judges, decides, or solves a problem; in general, whenever one must figure out what to believe or what to do, and do so in a reasonable and reflective way. Reading, writing, speaking, and listening can all be done critically or uncritically. Critical thinking is crucial to becoming a close reader and a substantive writer. Expressed most generally, critical thinking is "a way of taking up the problems of life."

"Fluid Intelligence" directly correlates with critical thinking skills. You are able to determine patterns, make connections and solve new problems. When you improve your critical thinking skills, you also improve your fluid intelligence, which also helps increase your problem solving skills and deep thinking elements. All of these skills relate to one part of the brain, and the more you use them the easier it will be to put your skills to the test.

The list of core critical thinking skills includes observation, interpretation, analysis, inference, evaluation, explanation and meta-cognition. There is a reasonable level of consensus among experts that an individual or group engaged in strong critical thinking gives due consideration to:

- Evidence through observation
- Context of judgment
- Relevant criteria for making the judgment well
- Applicable methods or techniques for forming the judgment
- Applicable theoretical constructs for understanding the problem and the question at hand

In addition to possessing strong critical thinking skills, one must be disposed to engage problems and decisions using those skills. Critical thinking employs not only logic but broad intellectual criteria such as clarity, credibility, accuracy, precision, relevance, depth, breadth, significance and fairness. Critical thinking calls for the ability to:

- Recognize problems, to find workable means for meeting those problems
- Understand the importance of prioritization and order of precedence in problem solving
- Gather and marshal pertinent (relevant) information
- Recognize unstated assumptions and values
- Comprehend and use language with accuracy, clarity, and discrimination
- Interpret data, to appraise evidence and evaluate arguments
- Recognize the existence (or non-existence) of logical relationships between propositions
- Draw warranted conclusions and generalizations
- Put to test the conclusions and generalizations at which one arrives
- Reconstruct one's patterns of beliefs on the basis of wider experience

- Render accurate judgments about specific things and qualities in everyday life

Irrespective of the sphere of thought, "a well cultivated critical thinker":

- raises important questions and problems, formulating them clearly and precisely;
- gathers and assesses relevant information, using abstract ideas to interpret it effectively;
- comes to well-reasoned conclusions and solutions, testing them against relevant criteria and standards;
- thinks open-mindedly within alternative systems of thought, recognizing and assessing, as need be, their assumptions, implications, and practical consequences; and
- communicates effectively with others in figuring out solutions to complex problems; without being unduly influenced by others' thinking on the topic.

Critical thinking is about being both willing and able to evaluate one's thinking. Thinking might be criticized because one does not have all the relevant information – indeed, important information may remain undiscovered, or the information may not even be knowable – or because one makes unjustified inferences, uses inappropriate concepts, or fails to notice important implications. One's thinking may be unclear, inaccurate, imprecise, irrelevant, narrow, shallow, illogical, or trivial, due to ignorance or misapplication of the appropriate skills of thinking. On the other hand, one's thinking might be criticized as being the result of a sub-optimal disposition. The dispositional dimension of critical thinking is characterological. Its focus is in developing the habitual intention to be truth-seeking, open-minded, systematic, analytical, inquisitive, confident in reasoning, and prudent in making judgments. Those who are ambivalent on one or more of these aspects of the disposition toward critical thinking, or who have an opposite disposition (intellectually arrogant, biased, intolerant, disorganized, lazy, heedless of consequences, indifferent toward new information, mistrustful of reasoning, or

imprudent) are more likely to encounter problems in using their critical thinking skills. Failure to recognize the importance of correct dispositions can lead to various forms of self-deception and closed-mindedness, both individually and collectively.

In reflective problem solving and thoughtful decision making using critical thinking one considers evidence (like investigating evidence), the context of judgment, the relevant criteria for making the judgment well, the applicable methods or techniques for forming the judgment, and the applicable theoretical constructs for understanding the problem and the question at hand. The deliberation characteristic of strong critical thinking associates critical thinking with the reflective aspect of human reasoning. Those who would seek to improve our individual and collective capacity to engage problems using strong critical thinking skills are recommending that we bring greater reflection and deliberation to decision making.

Critical thinking is based on self-corrective concepts and principles, not on hard and fast, or systematic, procedures. Critical thinking employs not only logic (either formal or, much more often, informal) but broad intellectual criteria such as clarity, credibility, accuracy, precision, relevance, depth, breadth, significance and fairness. The positive habits of mind which characterize a person strongly disposed toward critical thinking include a courageous desire to follow reason and evidence wherever they may lead, open-mindedness, foresight attention to the possible consequences of choices, a systematic approach to problem solving, inquisitiveness, fair-mindedness and maturity of judgment, and confidence in reasoning.

When individuals possess intellectual skills alone, without the intellectual traits of mind, *weak sense critical thinking* results. Fair-minded or *strong sense critical thinking* requires intellectual humility, empathy, integrity, perseverance, courage, autonomy, confidence in reason, and other intellectual traits. Thus, critical thinking without essential intellectual traits often results in clever, but manipulative and often unethical or subjective thought.

Critical thinking is an important element of all professional fields and academic disciplines (by referencing their respective sets of permissible questions, evidence sources, criteria, etc.). Within the framework of scientific skepticism, the process of critical thinking involves the careful acquisition and interpretation of information and use of it to reach a well-justified conclusion.

The concepts and principles of critical thinking can be applied to any context or case but only by reflecting upon the nature of that application. Critical thinking forms, therefore, a system of related, and overlapping, modes of thought such as anthropological thinking, sociological thinking, historical thinking, political thinking, psychological thinking, philosophical thinking, mathematical thinking, chemical thinking, biological thinking, ecological thinking, legal thinking, ethical thinking, musical thinking, thinking like a painter, sculptor, engineer, businessperson, etc. In other words, though critical thinking principles are universal, their application to disciplines requires a process of reflective contextualization.

Critical thinking is considered important in the academic fields because it enables one to analyze, evaluate, explain, and restructure their thinking, thereby decreasing the risk of adopting, acting on, or thinking with, a false belief. However, even with knowledge of the methods of logical inquiry and reasoning, mistakes can happen due to a thinker's inability to apply the methods or because of character traits such as egocentricism. Critical thinking includes identification of prejudice, bias, propaganda, self-deception, distortion, misinformation, etc. Given research in cognitive psychology, some educators believe that schools should focus on teaching their students critical thinking skills and cultivation of intellectual traits.

Self-Assessment Exercise

(i) Explain what you understand by logical or critical thinking

(ii) Assess the relevance of critical thinking to political inquiry

4.0: CONCLUSION

After reading through this unit, students should be able to understand the meaning of logical or critical thinking, its relationship with political inquiry and the features or characteristics of a critical thinker.

5.0: SUMMARY

In this unit, we have explained the meaning of logical or critical thinking and its relationship with political inquiry. Also, we have explained the features of a critical thinker and the expected role of a critical thinker in solving socio-political problems in his or her society.

6.0: TUTOR-MARKED ASSIGNMENT

2. Explain what you understand by logical or critical thinking
3. Identify the characteristics of a critical thinker.
4. Analyze the instruments used in critical thinking.
5. Discuss the relationship between critical thinking and political inquiry.

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MODULE 2: THE CONCEPT OF POLITICAL INQUIRY

Unit 1: Meaning and Nature of Political Inquiry

1.0: INTRODUCTION

This unit explains the meaning of political inquiry and the techniques involved in carrying out political investigation. It further explains the views of scholars on the revolutionary shift in the approaches to the study of political inquiry. It analyzes the movement from the traditional approach to the behavioural or scientific approach.

2.0: OBJECTIVES

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

(a) Define political inquiry

(b) Explain the traditional approach to the study of politics

(c) Analyze the movement from the traditional approach to the behavioural approach

(d) Identify and explain the opinions of political scientists on the paradigmatic shift.

3.0: MAIN CONTENT

3.1: Meaning and Nature of Political Inquiry

Since the beginning of recorded history, people have observed, thought about, evaluated, and analyzed politics. Those who have analyzed politics on a fairly regular and systematic basis are called political philosophers; they include such well known figures as Plato, Aristotle, Locke, and Rousseau. The product of their analyses can be regarded as traditional political philosophy or traditional political theory. But there is a more precise and fruitful way of characterizing traditional political philosophy, which involves sorting out its main activities and indicating which of these activities political philosophers have spent most of their time on. Each activity is really a type of analysis. In the same manner, it is possible to discern political inquiry in this manner. Traditional political inquiry also suggests that certain orientations in political investigation are carried out in this traditional manner.

Analysis is a word that has a variety of meanings. Since it is so central to an understanding of political philosophy, political science and political inquiry, we must pause and consider some of them. To chemists, "analysis", means breaking things down into their constituent parts; to biologists, it means sorting things into categories; to mathematicians, it means deriving conclusions from premises; to social scientists, it means identifying the causes of various kinds of human behavior; to moral philosophers, showing which actions are good and which ones are bad.

What all of these activities have in common is the attempt to answer one kind of question or another: what is the nature of this substance? What species of animal do we have here? What is the solution to this problem? Why did she do what she did? Is what she did

wrong? Thus, "to analyze," something means to ask a question, give an answer after thorough investigation, and then give reasons for the answer. In conducting political inquiry, the answers to these questions can only be provided after certain investigations must have been carried out. This may take different methods, which constitute the subject matter of this course. Nevertheless, in looking at political philosophy, we discover that there are four activities or methods of conducting political inquiry, each a type of analysis that political philosophers have engaged in. These have been labeled scientific, normative, instrumental and analytical (also called logical).

Describing a political system, an aspect of it, or a general political phenomenon, and explaining or accounting for such facts are scientific inquiry. This will be explained in detail in due course. The primary activities of political philosophers have probably been normative. These are activities, which involve moral, ethical, or value judgments. While scientific activities deal with *what is*, value judgments express what a political philosopher believes *ought* to be. There are several varieties of normative activity. First, many political philosophers spend much time prescribing the best state or political system.

Perhaps, the first and most famous attempt is Plato's discussion of the ideally just state in which the absolute knowledge of the philosopher-kings is proposed as the standard for political and social decision-making. Political philosophers also engage in the normative activity of recommending the proper or true goals of politics. Thus, Rousseau emphasizes the restoration of a sense of community and the fulfilling of man's moral and emotional needs as the legitimate ends of the political system, and Jeremy Bentham argues that happiness should be the basis of all political actions.

However, this is not to say that traditional political philosophers have not engaged in scientific activity. Traditional political philosophers have always been engaged in such scientific activities. For instance, Aristotle spent much time describing and comparing various kinds of constitutions, and in another section of the book, *Politics*, he attempts an

explanation of political change and revolution. Machiavelli is famous for his down-to-earth description of politics as it really is – namely, the struggle for power. However, it must be added that the political philosopher has rarely been a very good scientist, especially when it comes to explaining political phenomena.

This is probably attributable to several factors. First, and largely beyond his control, was the lack of sophisticated scientific and methodological technology and hardware. The statistical and mathematical tools so essential to modern social scientists were not available to Plato and Aristotle, Locke and Marx. Secondly, and perhaps more crucial in the long run is the fact that scientific activities have never been the main concern of the political philosopher. The third nature of political inquiry can be found in the instrumental or applied value judgment, which is often confused with normative statements. There is a fundamental difference in that instrumental judgments recommend the best way of achieving a given end, but they do not attempt to justify the end itself. This is the significance of an alternate label, *means-ends analysis*.

An instrumental judgment is therefore a scientific-empirical activity, for it is really an explanation of why certain conditions or actions lead to the desired end. But the confusion just referred to is understandable when it is realized that political philosophers often combine normative and instrumental judgments. That is, an ultimate end or value is recommended and then the best means for achieving that end is described. Hobbes not only suggests that peace (the absence of civil discord) ought to be the end of the political system, but he then discusses the means to this end, namely, the absolute political sovereign, the Leviathan.

The last kind of activity in political inquiry is the analytic or logical activity. This category includes both the analysis of political words and concepts and the examination of certain aspects of political arguments, for instance, their logical consistency. Plato, using the dialectical method, analyzes and criticizes a number of definitions of justice in his attempt to arrive at its 'real' meaning. Other political thinkers since Plato have

engaged in such analytic activities – because the doing of any kind of philosophy is impossible without analysis of this sort. However, not until recently has it become a distinctive kind of political philosophy.

Self-Assessment Exercise

Describe the activities in Political Inquiry

4.0: CONCLUSION

After reading through this unit, students should be able to understand the meaning of political inquiry, identify the various activities in political inquiry and be able to analyze these activities.

5.0: SUMMARY

In this unit, we have explained the meaning of political inquiry, the activities of political inquiry and the movement from traditional inquiry to behavioural or scientific inquiry in political science.

6.0: TUTOR-MARKED ASSIGNMENT (TMAs)

(a) Define political inquiry

(b) Critically examine the activities of political inquiry.

(c) Analyze the paradigmatic shift in the understanding of the methods of political inquiry.

7.0: REFERENCES/FURTHER READING

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UNIT 2: METHODS OF POLITICAL INQUIRY

1.0: INTRODUCTION

This unit explains the various methods applicable to political investigation and social research. It explains the approaches in political science, which include positivism, interpretivism, rational choice theory, behavioural, structuralism, and post-structuralism. The unit also explains the usefulness of normative and empirical methods in political inquiry.

2.0: OBJECTIVES

After reading this unit, students should be able to:

(a) Identify the various methods applicable to political inquiry

(b) Explain the various methods of political inquiry

(c) Explain the meaning and content of normative method

(d) Explain the meaning and usefulness of empirical method of political inquiry.

3.0: MAIN CONTENT

3.1: Methods of Political Inquiry

Political inquiry is methodologically diverse and appropriates many methods originating in political and social research. In Political Science, approaches include positivism, interpretivism, rational choice theory, behavioural, structuralism, post-structuralism, realism, institutionalism, and pluralism. Political Science, as one of the Social Sciences disciplines, uses methods and techniques that relate to the kinds of inquiries sought: primary sources such as historical documents, and official records; secondary sources such as scholarly journal articles, statistical analysis, case studies, and model building.

Political scientists are interested in acquiring knowledge about and understanding of a variety of important political phenomena. Some of us are interested, for example, in the conditions that lead to stable and secure political regimes without civil unrest, rebellion, or government repression. Some are interested in the relationships and interactions between nations and how some nations exercise power over other nations. Other political scientists are more interested in the relationship between the populace and public officials in democratic countries and in particular, in the question of whether or not public opinion influences the policy decisions of public officials.

Political inquiry makes use of different methods, which can be categorized as normative and empirical research methods. These two shall be discussed in full towards the end of this unit. While we may want to explain further our understanding of empirical research methods, it is pertinent to point out that the use of normative method is as important as the empirical method. In most cases, the two methods are combined to allow for comprehensive and eclectic analysis of political phenomena.

There are two major reasons why students should learn about how political scientists conduct empirical research. First, citizens in contemporary society are often called upon to evaluate empirical research about political phenomena. Debates about the wisdom of the death penalty, for example, frequently hinge on whether or not it is an effective deterrent to crime, and debates about term limits for elected officials involve whether or not such limits increase the competitiveness of elections. Similarly, evaluating current developments in Africa, Asia, Europe, America and Latin America requires an understanding of the role of competitive elections, rights of expression, religious tolerance, and the ownership of private property in the development of democratic institutions and beliefs. In these and many other cases, thoughtful and concerned citizens find that they must evaluate the accuracy and adequacy of the theories and research of political (and other social) scientists.

A second reason for learning about Political Science research methods is that students often need to acquire scientific knowledge of their own, whether for a term paper for an introductory course on Nigerian government and politics, a research project for an undergraduate seminar, or a series of assignments in a course devoted to learning empirical research methods. Familiarity with empirical research methods is generally a prerequisite to making this a profitable endeavour.

The prospect of learning empirical research methods is often intimidating to students. Sometimes students dislike this type of inquiry because it involves numbers and statistics. Although to understand research well one must have a basic knowledge of statistics and how to use statistics in analyzing and reporting research findings, the empirical research process that we describe here is first and foremost a way of thinking and a prescription for disciplined reasoning. Statistics will be introduced only after an understanding of the thought process involved in scientific inquiry is established, and then in a nontechnical way that should be understandable to any student familiar with basic algebra.

3.2: Normative Method

The normative method of political inquiry denotes an explanation of political phenomenon emphasizing what ought to be. It is characterized by statements which purport to explain what should or should be valued. This method is closely related to ethical and philosophical methods in orientation. It sets to examine the forces operating upon or within an entity or group of entities, and focuses on certain definable guidelines for the conduct of state affairs. There are four dominant aspects of the normative method, namely: historical, legalistic and philosophical and these are rooted in the classical political philosophy represented by Plato and Aristotle, the church fathers, St. Thomas Aquinas and St. Augustine, and also modern philosophers like Thomas Hobbes, John Locke, Jean Jacques Rosseau, Immaneul Kant, Hume, Burke and Mill. The fundamental question asked by these philosophers concerning the affairs of the state borders on the issues of rights, justice, duties and obligations.

Niccolo Machiavelli, in *The Prince,* enunciated how rulers should deal with other rulers if they are to advance the interests of the state and maintain stability in the state. In other words, sovereign heads should employ whatever means necessary to attain the goals of the state. Immanuel Kant, in his *Perpetual Peace*, proposed an organised state in order to get out of the state of nature, which breeds conditions of war. From the historical perspective, normative method presupposes that the study of Political Sciences was initially part of history and that it gives credence to the understanding of historical background of political system as the basis for understanding or comparing political systems. This explains the analysis of political phenomena from the perspective of the historiography. However, this method has been criticized of falling short of necessary instrument for comprehensive understanding of political phenomena.

Also, the legalistic aspect of normative method indicates that the study of Political Science was also part of the study of Law as a discipline. It presupposes the

understanding of political phenomena from the legal point of view or through the understanding of constitutional framework of political systems. It emphasizes the legal norms of a state. While the philosophical orientation emphasizes the ideas of the various philosophers on the ideal state. It portends the ideal situation of what the structure of the state should be. It is otherwise referred to as the apriori or armchair method of reasoning. For instance, in trying to understand the dentistry of a horse we may begin to ascertain base on our experience with a horse rather than moving close to where we can find a horse and confirm the dentistry. However, the normative method generally is faced with a problem. It does not rely on facts or scientific orientation.

3.3: Empirical Method

Self-Assessment Exercise

Differentiate between normative and empirical methods of political inquiry.

4.0: CONCLUSION

After reading through this unit, students should be able to understand the meaning of normative and empirical methods of political inquiry. Also, they should be able to explain the usefulness of the two methods and the indispensability of each of these methods to political inquiry.

5.0: SUMMARY

In this unit, we have explained the meaning and usefulness of normative and empirical methods of political inquiry and their relationship to each other.

6.0: TUTOR-MARKED ASSIGNMENT (TMAs)

(a) Critically examine the meaning of normative research.

(b) Describe the techniques used in adopting empirical method of political inquiry.

(c) Analyze the characteristics of empirical research method.

(d) Differentiate between normative and empirical research methods.

7.0: REFERENCES/FURTHER READING

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UNIT 3: THE TRADITIONAL METHOD OF POLITICAL INQUIRY

1.0: INTRODUCTION

This unit explains the traditional method of political inquiry. It explains the importance of historical, legalistic and philosophical analysis in political investigation. It establishes the need for consideration of traditional method of political inquiry for holistic and comprehensive political investigation rather than solely relying on behavioural method. The unit further explains the activities of the traditional method of political inquiry and its heuristic value as the foundation of political investigation.

2.0: OBJECTIVES

After reading this unit, students should be able to:

(a) Explain what is meant by traditional method of political inquiry.

(b) Identify and explain the activities of traditional method of political inquiry.

(c) Explain the usefulness of traditional method of political inquiry.

(d) Understand the meaning and usefulness of institutional approach to the study of political inquiry.

3.0: MAIN CONTENT

3.1: The Traditional Method of Political Inquiry

The traditional method of political inquiry includes several methods of analyzing politics which became popular among many American Political Scientists in the 19th and early 20th centuries, and that continue to be widely followed. It cannot be emphasized too strongly that traditionalism is a collection of methods lumped together today mainly because of common enemy, behaviouralism. Perhaps, the three most important approaches are the historical, legalistic, and the institutional.

From its 19th century beginnings, US Political Science was looked upon by many of its practitioners as primarily an historical discipline. Little difference was recognized between History and Political Science. The latter was considered a branch or division of the former. According to Richard Jensen (1969), the motto of this generation of political scientists was "History is past politics and politics present history". Thus, Political Science was really Political History, and included such fields as the history of political parties, foreign relations, and great political ideas.

While the historical approach had its heyday in the last century, it is still evident today. This is why it is possible to say, for instance, that Historians and Political Scientists use the same methods. In 1938, US political scientist, Edward M. Sait (1938) wrote that, "The historical approach is indispensable. It affords the only means of appreciating the true nature of institutions and the peculiar way in which they have been fashioned". A variation on the historical approach is used by those Political Scientists who might be labeled historians of the present. They give detailed descriptions of contemporary political events, in the narrative style of the historian. The results are often called "case studies". The well done case study's realistic portrayal of politics is no doubt useful.

However, some scholars have noted its shortcomings. “As more and more case studies are written, readers are overwhelmed by details. Case writers … often resist the codification of their findings in any but the most primitive ways, however”. Thus, while he gives us much information about a particular political event, the historian of the present usually refuses to generalize, to compare, and to find the common elements in his and other narratives.

Again, it seems and has probably always seemed natural to link the study of politics to law or the legal system. This provides the basis for the legalistic approach, an approach that views political science as primarily the study of constitutions and legal codes. This explains the importance of legality in many definitions of politics. At this point, the relationship between the definition and approach becomes clear. If politics, the subject matter of Political Science, is distinctive because of its legalistic nature, then it is only reasonable that the Political Scientist should concentrate on the specifically legal aspects of the political system. Some Political Scientists view the legalistic approach as an improvement over the historical approach because it makes a distinction between the realms of history and political science – the Political Scientist is now able to tell the historian what the two do not have in common. It should also be pointed out that in adopting a legalistic approach, the Political Scientist is not limited to the study of the legal system per se. Rather, the legal and constitutional aspects of any political institution can be examined.

Reaction to the historical and legalistic approaches probably stimulated the third traditional school of thought, the institutional approach. As Political Scientist realized that there was more to politics than legal codes and constitutions, a shift in emphasis took place. There was talk about studying political realities, that is, what politics actually is, not just its history or legal manifestations. The most obvious reality of politics is the political institutions; legislatures, executives, and courts receive the primary attention of the institutionalist. What we have is normative empiricism, which manifests itself, for the

work done is mainly descriptive – detailed descriptions of political institutions, not explanations of the political system, are the goal of the institutionalist.

Self-Assessment Exercise (Unit 3)

1. Explain the traditional method of political inquiry.
2. Discuss various activities of traditional method of political inquiry

4.0: CONCLUSION

At the end of this unit, students should realized that the heuristic value of the traditional method of political inquiry and its multi-disciplinary nature are what made it to be indispensable in any political investigation. Therefore, it is important to note that the traditional method of political inquiry combines other methods in its activity, which includes historical, legal and philosophical methods.

5.0: SUMMARY

This unit has explained the traditional method of political inquiry and its usefulness in political investigation. It has also explained the heuristic value of the traditional method in terms of its adaptability of other methods.

6.0: TUTOR-MARKED ASSIGNMENT (TMAs)

(a) Critically examine the traditional method of political inquiry.

(b) Explain the usefulness of the traditional method of political inquiry in contemporary political investigations

(c) Relate political investigation to other disciplines in the Arts

7.0: REFERENCES/FURTHER READING

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UNIT 4: THE SCIENTIFIC/BEHAVIOURAL METHOD OF POLITICAL INQUIRY

1.0: INTRODUCTION

This unit explains the meaning and nature of scientific or behavioural method of political inquiry. It explains the development and paradigmatic shift in the methods employed by Political Scientists to carry out political investigation. It analyzes the contributions of different scholars to the revolutionary movement in the study of Political Science and the contributions of different renowned institutions like the Chicago School and the Ford Foundation to the development of scientific orientation in Political Science.

2.0: OBJECTIVES

After reading this unit, students should be able to:

(a) Understand the meaning of behavioural method of political inquiry.

(b) Distinguish the behavioural orientation from the psychological analysis.

(c) Explain the views of different scholars in the development of scientific orientation in Political Science.

(d) Analyze the contribution of the Chicago school and the Ford Foundation to the development of scientific analysis in political inquiry.

3.0: MAIN CONTENT

3.1: The Scientific or Behavioural Method of Political Inquiry

The traditional approach gains most of its meaning as a single orientation when it is contrasted with the behavioural approach. The latter seems to have begun after World War II as a sort of protest movement by some Political Scientists against traditional Political Science. The general claims of the new behaviouralists were first, that earlier Political Science did not measure up as a producer of reliable political knowledge, and many Political Scientists working in important wartime decision-making positions made this discovery when they had to draw upon existing knowledge of domestic and international politics. But, second, and on a positive note, more reliable knowledge of politics could be achieved through different approaches and methods. This turn in direction was not spontaneous, however. Beginning in the 1930s, there had been an influx of European social scientists into the United States, and they were often skilled in the use of new research methods.

Before proceeding any further, it is important to consider the activity labeled behaviouralism. Most importantly, its relationship to psychological behaviourism should be made clear, for the two are often mistakenly identified. Behaviourism refers to a type of psychology that uses as data only overt stimuli and responses, mainly actions and behavior. Thus, only observable behavior like the running of rats can be included in the behaviourists' scientific language. Concepts such as attitudes, opinions, and personality traits, which are mental in nature and not observable actions (leg-kicks or eye blinks), are rejected as meaningless. To the behaviouralist, this approach seems much too restrictive.

The scientific aspiration known as political behaviour is definitely one of the latest development in the study of political science. In fact, it touches the root of the designation of Political Science as a discipline and initiates the change from government to politics.

While it is difficult to pinpoint the beginning of an intellectual, movement because it is always evolutionary and imperceptible but there is a good reason to trace the behavioural movement in political science back to the year 1908. That year was picked because GRAHAM WALLAS book, ***Human Nature in Politics*** **and** ARTHUR F. BENTLEY's book, ***The Process of Government*** were published in that year. Graham Wallas stated "that the study of politics is nothing without the study of man, for man's personality and behavioural pattern dominate the development of political actions". This has come to be accepted by later behaviouralists as obvious. WALTER LIPMAN concurred with Wallas and emphasized that "we must put man at the center of politics even though we are densely ignorant both of man and politics". HEINZ EULAU also confirmed that "the political behavior of the individual person is the central and critical datum of the behavioural approaches to politics".

Graham Wallas goes down therefore in the history of Political Science as a pioneer behaviouralist because in 1908, he set ablaze the trail of **methodological individualism.** The year 1908 is seen as a disciplinary watershed because Arthur F. Bentley published his book that same year too when he argued that the group is the single most powerful explanatory factor in political process. According to him, "when a group is adequately stated, everything is stated, when I say everything, I mean everything". Another major contribution to science of politics by Bentley is his concept of process. His concept of process views politics as a dynamic activity, in contra distinction to the erstwhile static conception of politics. This was a very important contribution because; the traditional approach was characterized by configurative description, parochialism, formal legalism,

conservative methodological insensitivity, non-scientific pre-occupation according to BILL and HARDGRAVE JUNIOR.

The Chicago school under EDWARD MERIAN gave a further push to the development of scientific persuasion to the study of politics. Merian insisted that the study of politics must be based on the study of human behavior, although he was aware that a scientific development of the subject was not possible until data collection, precise standard of measurement and a degree of objectivity were attained. JOHN STUART RICE in 1928 published his book titled ***Quantitative methods in political science*** and agreed that 'measurement' and 'precision' are pre-requisite of the behavioural persuasion. Rice also believed that the Political Scientist must distill out his value system when examining a political situation, Thus, he raised the issue of objectivity.

The Ford Foundation also established behavioural sciences about the same time thus further popularizing the new title. This was not a mere oscillation in nomenclature because it had to be accompanied by certain methodological orientation. In this connection, it is important to note that Political Science is part of the behavioural sciences.

David Easton also a product of the great debate between behavioural and traditional approach, has laid down certain assumptions and objectives of behaviouralism which he would regard as the intellectual foundation stones on which the scientific movement has been constructed. They consist of: (i) regularities (ii) verification (iii) techniques (iv) quantification (v) values (vi) systematization (vii) pure science (viii) integration. Behaviouralism employs the use of observation as an instrument of scientific inquiry for the purpose of analysis and explanation. For instance, observing a political rally provides a Polster an opportunity to make explanation and provides analysis of the programme of a political party or an individual.

Self-Assessment Exercise (Unit 4)

Analyze the behavioural method of political inquiry

4.0: CONCLUSION

After reading this unit, students are expected to understand the meaning of political inquiry, the methods of political investigation as found in traditional and behavioural methods. They should be able to identify and explain the opinion of different Political Scientists on the revolutionary change in the methods of political inquiry. The students should also be able to distinguish normative and empirical methods or approaches to the study of political science.

5.0: SUMMARY

In this module, we have explained the meaning of political inquiry and the various methods of political investigations in political science. We have also explained the meaning of normative and empirical method of inquiry; the traditional method of inquiry and the scientific or behavioural method of inquiry.

6.0: TUTOR-MARKED ASSIGNMENT (TMAs)

1. What is political inquiry and what are the various approaches to the study of Political Science?
2. Explain in detail the usefulness of the traditional method of political inquiry.
3. Analyze the behavioural method of political inquiry.
4. Explain, using the views of scholars, the paradigmatic shift in the study of political inquiry.

7.0: REFERENCES/FURTHER READING

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MODULE 3: CONCEPTS IN POLITICAL INQUIRY

Unit 1: Meaning, Nature and Scope of Scientific Concepts in Political Inquiry

1.0: INTRODUCTION

This unit explains the meaning and nature of scientific concepts in political inquiry. It examines the definition of concepts generally and its usefulness in scientific orientation. It further examines the central role of scientific concepts in political investigation and its various interpretations. The unit further explores the idea of philosophers on the meaning and the usefulness of the term concept to political inquiry. It examines the views of scholars like John Locke, John Stuart Mills and Immanuel Kant.

2.0: OBJECTIVES

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

(a) Define the term concept.

(b) Understand the usefulness of concept in political inquiry.

(c) Identify and explain the opinion of philosophers on the meaning and usage of the term concept.

(d) Identify the abstractive notion of concept and the ways and manners to identify concepts.

3.0: MAIN CONTENT

3.1: Meaning of Concepts in Political Inquiry

In discussing the meaning of concept, it is important that we bear in mind that not every object of discussion can be observed. What actually is observed in Political Science is physical activity or the lack thereof. Language gives meaning to such activity and defines this activity in terms of patterns of behavior and interaction by actors in their political roles. Role is a concept referring to the environmental frame of reference that determines an actor's behaviour. A concept, therefore, is a construct of the mind, an idea. Thus, when a teacher is interacting with his wife, he is playing the role of husband and lover and is expected to behave differently toward her than he would toward his female students when he assumes the teaching role. The concept of role involves a pattern of expectations with regard to the behavioural (observable) response to a given set of stimuli (a pretty female). Hence the movement to make political theory empirically oriented has been loosely labeled the behavioural movement.

The propositions that we form in the discipline, however, are generally not about such directly observed action but about concepts, which use such action as their empirical

referents or indicators, thus assigning meaning to these formerly isolated actions. An empirical referent is an observable phenomenon (or phenomena) that constitute the definition of a concept. The majoritarian notion of rule in a multiparty society constitutes possibly empirical referent to the concept of democracy. An empirical referent or indicator thus becomes an unambiguous cue as to whether the concept is assumed to be present. When a concept is defined in terms of such observable indicators (or test or "operations" to obtain such indicators) we say the concept is operationalized. This shall be discussed in details later.

Simply, a concept is an abstract notion or idea, something that is not concrete. As noted by Theodorson and Theodorson (1969), concepts can be regarded as "a word or set of words that expresses a general idea concerning the nature of something or the relations between things, often providing a category for the classification of phenomena."

In other words a concept is an abstract summary of characteristics that we see as having something in common. Concepts are created by people for the purpose of communication and efficiency. A concept has no set meaning and it is up to us to define what we mean by the concept. But if concepts have no set meaning then anyone can define a concept in any way that they wish. But if everyone can define the concept in any way they like the concept becomes worthless; unless there is agreement on the meaning communication is impossible. A concept therefore has to be defined, but in such a way that it has a degree of acceptance. Experts in the field usually propose such definitions. Asking a psychologist, philosopher, or a linguist what a concept is is much like asking a physicist what mass is. An answer cannot be given in isolation. Rather, the term plays a certain role in a larger world-view that includes the nature **of** language, of meaning, and of mind. Hence the notion of a concept cannot be explicated without at the same time sketching the background against which it is set, and the 'correctness' of a particular notion of concept cannot be evaluated without at the same time evaluating the world-view in which it plays a role.

In turn, the evaluation of a world-view is at least in part dependent on one's purposes. A world-view incorporating a geocentric universe evidently was well-suited for the purposes of the Church of the 16th century; a world-view incorporating the Newtonian notions of mass and energy is perfectly adequate for building bridges. On the other hand, a world-view incorporating a heliocentric planetary system is more suitable for unifying the theories of terrestrial and celestial motion; a world-view incorporating relativistic notions of mass and energy is more suitable if our purpose is building nuclear weapons.

There is a fundamental tension in the ordinary language term *concept.* On one hand, it is something out there in the world: 'the Newtonian concept of mass' is something that is spoken of as though it exists independently of whom actually knows or grasps it. Likewise, 'grasping a concept' evokes comparison to grasping a physical object, except that one somehow does it with one's mind instead of one's hand. On the other hand, a concept is spoken of as an entity within one's head, a private entity, a product of the imagination that can be conveyed to others only by means of language, gesture, drawing, or some other imperfect means of communication.

A concept (abstract term: conception) is a cognitive unit of meaning – an abstract idea or a mental symbol sometimes defined as a "unit of knowledge", built from other units which act as a concept's characteristics. A concept is typically associated with a corresponding representation in a language or symbology such as a single meaning of a term.

3.2: Theories of the Nature of Concept in Political Inquiry

There are prevailing theories in contemporary philosophy, which attempts to explain the nature of concepts. The **representational theory of mind** proposes that concepts are mental representations, while the **semantic theory** of concepts (originating with Frege's distinction between concept and object) holds that they are abstract objects. Ideas are taken to be concepts, although abstract concepts do not necessarily appear to the mind as images as some ideas do. Many philosophers consider concepts to be a fundamental ontological category of being.

The meaning of “concept” is explored in mainstream cognitive science, metaphysics and philosophy of mind. The term “concept” is traced back to 1554-60 (latin *conceptum* – something conceived) but what is today termed “the classical theory of concepts” is the theory of Aristotle on the definition of terms.

John Locke's description of a *general idea* corresponds to a description of a concept. According to Locke, a general idea is created by abstracting, drawing away, or removing the common characteristic or characteristics from several particular ideas. This common characteristic is that which is similar to all of the different individuals. For example, the abstract general idea or concept that is designated by the word "red" is that characteristic which is common to apples, cherries, and blood. The abstract general idea or concept that is signified by the word "dog" is the collection of those characteristics, which are common to Airedales, Collies, and Chihuahuas.

In the same tradition as Locke, John Stuart Mill stated that general conceptions are formed through abstraction. A general conception is the common element among the many images of members of a class. “... [W]hen we form a set of phenomena into a class that is, when we compare them with one another to ascertain in what they agree, some general conception is implied in this mental operation". Mill did not believe that concepts exist in the mind before the act of abstraction. "It is not a law of our intellect, that, in comparing things with each other and taking note of their agreement, we merely recognize as realized in the outward world something that we already had in our minds. The conception originally found its way to us as the *result* of such a comparison. It was obtained (in metaphysical phrase) by *abstraction* from individual things".

For Schopenhauer, empirical concepts "...are mere abstractions from what is known through intuitive perception, and they have arisen from our arbitrarily thinking away or dropping of some qualities and our retention of others. In his *On the Will in Nature*, "Physiology and Pathology," Schopenhauer said that a concept is "drawn off from

previous images ... by putting off their differences. This concept is then no longer intuitively perceptible, but is denoted and fixed merely by words." Nietzsche, who was heavily influenced by Schopenhauer, wrote: "Every concept originates through our equating what is unequal. No leaf ever wholly equals another, and the concept 'leaf' is formed through an arbitrary abstraction from these individual differences, through forgetting the distinctions..."

By contrast to the above philosophers, Immanuel Kant held that the account of the concept as an abstraction of experience is only partly correct. He called those concepts that result of abstraction "aposteriori concepts" (meaning concepts that arise out of experience). An empirical or an *aposteriori* concept is a general representation (*Vorstellung*) or non-specific thought of that which is common to several specific perceived objects. A concept is a common feature or characteristic. Kant investigated the way that empirical *aposteriori* concepts are created.

3.3: Usefulness of Concepts

The logical acts of the understanding by which concepts are generated as to their form are: (1.) *comparison,* i.e., the likening of mental images to one another in relation to the unity of consciousness; (2.) *reflection,* i.e., going back over different mental images, how they can be comprehended in one consciousness; and finally (3.) *abstraction* or the segregation of everything else by which the mental images differ ... In order to make our mental images into concepts, one must thus be able to compare, reflect, and abstract, for these three logical operations of the understanding are essential and general conditions of generating any concept whatever. For example, I see a fir, a willow, and a linden. In firstly comparing these objects, I notice that they are different from one another in respect of trunk, branches, leaves, and the like; further, however, I reflect only on what they have in common, the trunk, the branches, the leaves themselves, and abstract from their size, shape, and so forth; thus I gain a concept of a tree. To use a common example, I see a

pineapple, a watermelon and a melon. In comparing these items, I notice that they are different from one another in respect of taste and their outputs and reflecting on what they have in common, they are round in shape and constitute items from the same family, thus I gain a concept of fruit.

Kant's description of the making of a concept has been paraphrased as "...to conceive is essentially to think in abstraction what is common to a plurality of possible instances..." (H.J. Paton, *Kant's Metaphysics of Experience*, I, 250). In his discussion of Kant, Christopher Janaway wrote: "...generic concepts are formed by abstraction from more than one species."

Kant declared that human minds possess pure or *apriori* concepts. Instead of being abstracted from individual perceptions, like empirical concepts, they originate in the mind itself. He called these concepts categories, in the sense of the word that means predicate, attribute, characteristic, or quality. But these pure categories are predicates of things *in general*, not of a particular thing. According to Kant, there are 12 categories that constitute the understanding of phenomenal objects. In order to explain how an *apriori* concept can relate to individual phenomena, in a manner analogous to an *aposteriori* concept, Kant employed the technical concept of the "schema".

However, it can be argued that there are no essentially correct meanings to concepts in any scientific enterprise. The meaning of a concept is whatever we define it to be. For instance, the meaning of the concept, "liberal", has certainly changed from the mid-19th century to the present day due to a greatly changed economic and social milieu (Mayer, 1972). The term previously referred to opposition to governmental restraints on individual choice and action. Now, "liberal", commonly refers to those who advocate positive governmental action to remove social and economic impediments to the realization of human potential. The attempt to finalize the meaning of a concept and consequently not to allow for new circumstances or new observations which may make it

useful to change or expand the meaning of a concept was what Abraham Kaplan meant when he warned against the "premature closure" of meaning (Mayer, 1972).

Self-Assessment Exercise (Unit 1)

How would you define the term concept? What is the importance of Concepts in scientific investigation?

4.0: CONCLUSION

At the end of this unit, students are expected to understand the meaning of concepts, their usages and importance in political inquiry. They should also be able to analyze the theories of the nature of concept as a representation of mind and as semantics. Their ability to differentiate between these two should be displayed without any difficulty.

5.0: SUMMARY

While it is difficult to define the term concept, we have tried in this unit to explain the various definitions of the term as offered by philosophers and the usages of the term. Also, this unit has analyzed the usefulness or importance of the term concept and its nature and theories as espoused by scholars like John Locke, John Stuart Mill, Immanuel Kant and others.

6.0: TUTOR-MARKED ASSIGNMENT (TMA)

(a) Critically examine the meaning of concept.

(b) Identify and explain the two theories of the nature of concept.

(c) What is the usefulness of concept in political inquiry?

(d) Analyze the views of Immanuel Kant and John Stuart Mill on the notion of concept.

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UNIT 2: SCIENTIFIC CONCEPT FORMATION IN POLITICAL INQUIRY

1.0: INTRODUCTION

This unit explains the importance of concept formation in political inquiry. It explains the process involved in forming a concept for scientific investigation and the role of concept formation in any political inquiry. The unit also explains the heuristic value of concept formation in political inquiry and the importance of concept formation in any scientific investigation.

2.0: OBJECTIVES

After reading this unit, students should be able to:

(a) Explain the meaning of concept formation in political inquiry

(b) Identify the process involved in concept formation

(c) Understand the importance of concept formation in political inquiry.

3.0: MAIN CONTENT

3.1: Scientific Concept Formation in Political Inquiry

Science begins by forming concepts to describe the world. While we shall still take time to explain the importance of explanation in political inquiry, it should be realized that whatever is explained must first be described – *what* questions are logically prior to *why*

questions, and the former are answered within a framework of concepts that characterize, classify, order, compare, and quantify worldly phenomena. It is the concept that serves as science's empirical base. Although, it is usually the elaborate and awe-inspiring scientific theory that attracts attention and stimulates the interest of the layman, it is the unsung concept that supports the whole scientific enterprise. A science will never progress if it does not go beyond the concept-formation stage, yet no science can begin without such activity.

A concept emerges and takes shape in the course of a complex operation aimed at the solution of some problem. A concept is not an isolated, ossified, and changeless formation, but an active part of the intellectual process, constantly engaged in service communication, understanding and problem solving.

Concept formation takes place through the interaction of language and other signs with the immediacy of perceptual intellectual processes. The use of language becomes the mechanism through which an individual focuses attention, and is able to select distinctive features within the environment and analyze and synthesize them. The perceptual processes are the in-the-moment activities that constitute association, attention, imagery and judgment, and their determining of tendencies. Together the intertwining of these capacities drives the process of conceptual development from an embryonic stage to matured stage, and exemplify the ongoing back and forth movement between abstract and concrete reality. Through a series of experiments where children, adolescents and adults sorted objects according to some criterion, Vygotsky identified three broad phases in the process of concept formation:

1) the formation of syncretic heaps
2) thinking in complexes and
3) concept formation.

The first phase of concept development is characterized by "incoherent coherence" (Wellings, 2003). In this phase, the child relies on their own perception to make sense of objects that appear to them to be unrelated. Relying on trial and error activities, the

organisation of their own visual field and perception of time and space, and a synthesis of these two techniques the child creates his or her own subjective relationships between objects and then mistakes his or her egocentric perspective for reality.

The second phase of concept formation or development is the thinking in complexes. Here Vygotsky characterises thinking in complexes as follows:

> The principle function of complexes is to establish bonds and relationships. This begins with the unification of scattered impressions; by organising discrete elements of experience into groups. This creates the basis for later generalizations.

In contrast to the first phase, a child thinking in complexes is less egocentric in his or her organisational scheme. As well as incorporating his or her own subjective and perceptual criteria to the organisation of the objects, the child in this stage has access to additional experimentally based complex structure, which enables him or her to utilize both perceptual and actual conceptual bonds between the objects. Vigotsky identifies five types of complexes that demonstrate the different approaches the child takes to developing systems of meaning for the objects. These are:

(a) Associative: systems based on similarities or other perceptual compelling ties between things.

(b) Collections: systems based on relations between objects observed in practical experience.

(c) Chain: the structural centre of the system may be absent altogether, the end of chain may have nothing in common with the beginning, (i.e. young children story-telling).

(d) Diffuse: system based on indeterminate bonds based on generalization in the non-practical and non-perceptual areas.

(e) Pseudo-concept: a system that may confound differentiation between complexes and concepts as the system appears phenotypically similar to that of a concept. An

example of a pseudo-concept in action is the use of words by a child when communicating with an adult.

It is valuable to consider the nature of these complexes as they represent the strategies children utilize when attempting to assimilate culturally embedded concepts embedded within both school and everyday activities. Vigotsky states that in real life, complexes corresponding to word meaning are not spontaneously developed by the child. The lines along which a complex develops are predetermined by the meaning a given word already has in the language of adults (Wellings, 2003).

Self-Assessment Exercise (Unit 2)

Define concept formation in political inquiry.

4.0: CONCLUSION

After reading this unit, students should be able to understand the meaning of concept formation in political inquiry. They should be able to explain and digest the processes involved in forming a concept and also identify the importance of concept formation in political inquiry or scientific investigation.

5.0: SUMMARY

This unit has been able to explain the meaning of concept formation and the processes involved in concept formation for the understanding of students. This explanation offered in this regard will help in assisting students to build their critical minds and understand the complex nature of concept formation as against the import of mere sentences.

6.0: TUTOR-MARKED ASSIGNMENT (TMAs)

(a) Critically examine the meaning of concept formation in political inquiry.

(b) Identify and explain the processes involved in concept formation.

(c) Explain the importance of concept formation in political inquiry

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Unit 3: SCIENTIFIC CONCEPT INTRODUCTION IN POLITICAL INQUIRY

1.0: INTRODUCTION

This unit explains the meaning of concept introduction in political inquiry. It corroborates the earlier explanation of concept formation in political inquiry and the need to introduce any concept formed. It explains the necessity of concept introduction as a complementary aspect of concept formation. Also, it explains the various ways of introducing concept in political inquiry.

2.0: OBJECTIVES

After reading this unit, students should be able to:

(a) Explain the meaning of concept introduction in political inquiry.

(b) Identify the various ways of introducing concept in political inquiry

(c) Explain the ways of introducing concept in political inquiry

(d) Distinguish between theoretical and operational introduction of concept

3.0: MAIN CONTENT

3.1: Scientific Concept Introduction in Political Inquiry

It is one thing to demonstrate the importance of concepts. It is another to describe how they are introduced into a scientific language. How they are introduced determines to a large extent their usefulness. There is a rather obvious answer to the question: concepts are defined, they are given meanings, and in this way they enter our scientific language. This is generally true. However, for several reasons, it is not enough to say that concepts are defined. First, there are two interpretations of definition and only one is acceptable within the framework of scientific method. Second, given this scientifically acceptable notion of definition, there are still several ways to define concepts. Let us examine each of these points in greater detail.

The question, "But what does it *really* mean?" is a common one in everyday conversation. It assumes that every descriptive word has an essential meaning that will become evident if we only dig deeply enough. Everyday conversation, however, is not the only context in which we find evidence of this interpretation. There is a strong and articulate philosophical tradition that argues in favour of *real* definitions. As early as Plato's *Republic* we find attempts to discover the essential characteristics of a particular concept, in Plato's case, "justice". A concept's meaning is not assigned; rather its essential nature is discovered. When applied to science, this interpretation of definition creates a problem. Time is spent searching for the true essence of concepts rather than empirical relationships between concepts.

The scientist does not have to face this problem when he adopts the other interpretation of definition, usually called the *nominal*. According to it, in defining power we say that from now on, when phenomena X, Y, and Z occur, power exists – we are naming that particular set of phenomena power. The same analysis holds true in regard to the definition of the concept *Chair*. "Chair" is simply the word or linguistic expression we assign to a physical object with certain specified characteristics. There is a difference

between the concept *chair* and the label or name "chair" we assign to it. A nominal definition is neither true nor false. You may have your own definition of "power", and I cannot reject it on the grounds that "it is not what 'power' really means," because "power" has no real meaning. The set of characteristics, which have been so labeled, can be clearly described and, it would be hoped, related to other concepts, but political science will never discover its true essence.

The point being made here is that in science we deal only with nominal definitions. Science has no place for *real* meanings and *essential* characteristics. Concepts are used to describe the world as we observe it, and so the very notion of essentiality is foreign to science. A nominal definition then takes the form: "power" (the name of the concept) = characteristics X, Y, and Z. In effect, real and nominal definitions start from different directions. The former begins with a word and tries to reveal its essential nature. In the case of a nominal definition, on the other hand, a configuration of empirical characteristics is observed and described, or postulated and assigned a label.

Essentially therefore, having overcome the problem of definition and its true nature in scientific inquiry, it is pertinent to describe how concepts can be introduced. There are two basic methods of introducing concepts in scientific inquiry. These are **operational** and **theoretical** definitions.

3.2: Operational Introduction of Concept

An **operational definition** defines something (e.g. a variable, term, or object) in terms of the specific process or set of validation test used to determine its presence and quantity. That is, one defines something in terms of *the operations that count as measuring it*. The term was coined by Percy Williams Bridgman and is a part of the process of operationalization. One might use definitions that rely on operations in order to avoid the troubles associated with attempting to define things in terms of some intrinsic essence.

An example of an operational definition might be defining the "weight" of an object in terms of the numbers that appear when that object is placed on a weighing scale. The "weight", then, is whatever results from following *the (weight) measurement procedure*, which should be repeatable by anyone. This is in contrast to Operationalization that uses theoretical definitions.

Properties described in this manner must be sufficiently accessible, so that persons other than the definer may independently measure or test for them at will. An operational definition is generally designed to model a theoretical definition. The most operational definition is a process for the identification of an object by distinguishing it from its background of empirical experience.

“To operationalize”, means, “to put into operation”. Operational definitions are also used to define system states in terms of a specific, publicly accessible process of preparation or validation testing, which is repeatable at will. For example, 100 degrees Celsius may be crudely defined by describing the process of heating water at sea level until it is observed to boil. An item like a brick, or even a photograph of a brick, may be defined in terms of how it can be made. Likewise, iron may be defined in terms of the results of testing or measuring it in particular ways.

Operational definitions are a standard way of adding precision to concepts and laws. You cannot test a statement in the form of “all democracies are X” unless you specify beforehand which countries are considered to be democracies. Otherwise, deviant cases can conveniently be excluded from the concept. For example, if someone were to say, “Here is a democracy that is not X”, it would be possible to reply that that country is not a democracy.

It must however be stated that not all concepts in either the Social or Natural sciences are operationally defined. Some concepts derive their meaning solely from the analytic structure of which they are an integral part and are themselves not even indirectly

observable. The term analytic structure is here taken to include theory in the scientific sense of the word at various stages of development as well as analytic models which, although often referred to as theory by the poorly initiated, lack some of the essential characteristics of scientific theory. Simplistically, we are talking here about systems of ideas and the logical relationships between them rather than sets of observable phenomena. This takes us to theoretical definitions of concepts in the next sub-section. There is the need for an illustrated example of operationalised concept, for example, A researcher working on the impact of conflict on defence expenditures can measure various types of conflict: war, riot, terrorism, violence, demonstration.

Self Assessment Exercise

(i) Explain operational introduction of concept.

(ii) Attempt an operationalisation of concepts of your choice.

3.3: Theoretical Introduction of Concept

A **theoretical (or conceptual) definition**, on the other hand, gives the meaning of a word in terms of the theories of a specific discipline. This type of definition assumes both knowledge and acceptance of the theories that it depends on. To theoretically define is to create a hypothetical construct. This method of defining is more intuitive compared to other methods of Operationalization like operationally defining.

It is important to note that a theoretical definition relies on the acceptance of *theories* and so it does not simply reduce to a set of observations; the definition will also require accepted inductions made about those observations. Like the theories that build them, theoretical definitions also improve as scientific understanding grows.

Theoretical definitions are common in scientific contexts, where theories tend to be more precisely defined, and results are more widely accepted as correct. The definitions of

substances as various configurations of atoms are theoretical definitions, as are definitions of colours as specific wavelengths of reflected light. In such cases one definition of a term is unlikely to contradict another definition based on a different theory. However, in areas such as Philosophy and the Social Sciences, theoretical definitions of the same term often contradict each other depending on whose theory is being used as the basis. For example, the concepts of power and authority can contradict each other except where it is indicated.

Self-Assessment Exercise

(i) Analyze the theoretical introduction of concept in political inquiry.

(ii) Attempt to introduce one concept of your choice theoretically in a political inquiry.

4.0: CONCLUSION

After reading this unit, students should be able to understand the meaning of introduction of concept and the means and methods of introducing of concept. Also, students should be able to distinguish between theoretical and operational introduction of concepts; and be able to introduce concepts in political inquiry theoretically and operationally.

5.0: SUMMARY

In this unit, we have explained the meaning of concept introduction and the methods of introducing concepts in political inquiry. We have also identified two ways of introducing concepts in political inquiry and the activities involved in each of these ways.

6.0: TUTOR-MARKED ASSIGNMENT

(a) Explain concept introduction in political inquiry.

(b) Critically examine the meaning of theoretical introduction of concept in political inquiry

(c) Critically assess the meaning of operational definition of concept in political inquiry.

(d) Distinguish between theoretical and operational introduction of concept in political inquiry.

(e) Attempt to introduce three concepts in a political inquiry theoretically and operationally.

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UNIT 4: FUNCTIONS OF SCIENTIFIC CONCEPTS IN POLITICAL INQUIRY

1.0: INTRODUCTION

This unit explains the basic functions that concepts perform in political inquiry or any scientific investigation. It explores the three interwoven functions of concepts in scientific investigation and analyses them and their usefulness. This is done with basic examples of each of these functions. This is not to say that there cannot be other functions being performed by concepts but these three are what concern us in this course.

2.0: OBJECTIVES

After reading this unit, students should be able to do the following:

(a) Understand the functions performed by concepts in political inquiry
(b) Identify these functions
(c) Analyze these functions by giving examples of their usefulness in political inquiry.
(d) Identify other functions of concepts and give examples of these.

3.0: MAIN CONTENT

3.1: Functions of Scientific Concepts in Political Inquiry

As earlier on pointed out, concepts are used to describe political phenomena – at least this much is clear from the forgoing analysis. When you identify a set of observable characteristics as "power", we have defined a concept and designated a class of observable phenomena. More can be said about the descriptive qualities of concepts than that they are used to identify political phenomena. In other words, there is more to description than identification. For any serious orientation and development of scientific activities in Political Science, scientific concepts perform more function than definition and identification. Concepts can also be used to classify, compare and measure. More specifically, concepts perform classificatory, comparative and quantitative functions. These shall be explained in details in the following pages.

3.2: Classificatory Function of Concept

Some concepts provide the basis for classification – the placing of political actions, systems, or institutions into classes or categories. As is true of science generally, classificatory concepts have commonsensical basis. A substantial portion of our everyday thinking is spent classifying, arranging, and sorting out phenomena that confront us. This

is a primary method for making sense out of the word. Similarly, it is the way the scientist begins his scientific analysis.

The scientist sharpens the classificatory apparatus of common usage. Instead of characterizing all nations as Communist or Pro-American, as the average person is inclined to do, the Political Scientist might formulate a concept of democracy and then classify all political systems as either democratic or non-democratic. This is an example of *dichotomous* classification, the simplest variety. It involves defining a concept, *democratic*, according to the scientific procedures already outlined, linking it to observables, such as "number of political parties and their rate of turnover" or "ratio between total adult population and eligible voters" and then treating it as a characteristic of political systems, placing all systems that have the characteristic in one slot or category, and all those that do not in another. A dichotomy is thus created because there are only two categories according to this classificatory concept. If the concept has been soundly defined and is applicable to the population being considered, then the classification will be exhaustive (all members of the population will be classified) and exclusive (no member will be placed in both categories).

Some variables seem to be naturally dichotomous. We assume that people either right-handed or left-handed and, therefore, it should be easy to formulate a dichotomous concept that describes this characteristic. Likewise, it makes sense to assume that in any democratic political system, everyone is either a democrat or non-democrat. While this line of thinking is commonsensical true, it overlooks the possibility that what appear to be either-or concepts are actually situations that allow for gradations and additional categories; we know that there are ambidextrous people (i.e. people who can use their left hand as skillfully as they can use their right hand). This is why, for instance, in most studies of political-party identification, and voting behaviour, the population is broken down into the categories of Weak Democrat, Strong Democrat, Independent, and so forth.

There is nothing wrong with a dichotomous classification – it is often the most efficient when the categories begin to multiply.

In as much as classification is important – every science begins by sorting out the phenomena that seem relevant to it – this is the first method of making the word coherent and comprehensible. However, how far can a science go with concepts that only classify? The answer, it would appear, is not far. We would probably like to know more than which political systems are democratic and which are not; perhaps, for instance, which in the first category are the most democratic. A logical step of progression from classificatory concepts is to move to comparative concepts.

Self-Assessment Exercise

Critically examine the classificatory function of concepts in political inquiry.

3.3: Comparative Function of Concept

A comparative concept is a more complex and useful type of classificatory concept. The members of a population are sorted out and placed in categories; but in addition, because the categories represent a particular property, the members are ranked according to how much of the property they each have. For instance, we might want to compare those nations that are very democratic, those nations that are moderately democratic, and those nations that are much less democratic. This would be done by categorizing the empirical referents of democracy. Those political systems that fall in the upper one third of a list of ratios of total eligible voters to total population would be classified as very democratic, for instance. So, we could say that a nation placed in the first category is *more* democratic than one placed in the second or third categories.

Usually, however, a comparative concept will allow a more refined analysis than this, for the categories will probably be more than three in number. In fact, a sophisticated

comparative concept (such as "hardness" in geology, or "power" in Political Science) will allow us to compare every member of our population (whether a collection or rocks or a group of politicians) with every other member; thus, practically speaking, the number of categories is theoretically infinite, practically limited only by the number of members of the population. The result of this analysis is a rank order of items, of every item – of more or less democratic nations, or more or less powerful senators, or of harder or softer rocks.

In every case, the advantage of the comparative over the classificatory concept is based upon the additional knowledge produced by the fine distinctions of the concept and the fact that the question is not either-or, but more or less.

Self-Assessment Exercise

Analyze the comparative function of concepts in political inquiry

3.4: Quantification Function of Concepts

Again, concept can be used to quantify. Take a population that has been ordered by a comparative concept; then give the concept certain mathematical characteristics so as to allow one to say not just "Senator John is more powerful than Senator Lane", but "John is twice as powerful as Lane". A quantitative concept has been formulated. Our rank order of senatorial power tells us nothing about how much more powerful one senator is than another. This gets to the very nature of the comparative concept and is its basic limitation. More significant to the Political Scientist interested in more reliable knowledge of politics is the development of concepts that allow us not only to rank items on a particular characteristic, but also allow us to say something about how much of the characteristic each item has. And if "how much" is the question, we have to perform certain mathematical operations that are impossible when classificatory or comparative concepts are being used; thus, the use of the label "quantitative".

There are really two levels of quantitative concepts. The first, and less rigorous, is usually introduced into our scientific language in the form of an *interval* scale. For this discussion, we can think of a scale as a device for ordering items. An interval scale has the additional feature of equal intervals between its categories. A good example of an interval scale we are all familiar with is the thermometer. Thus temperature is a quantitative concept measurable on an interval scale. The distance between, say, 30^o and 40^o Fahrenheit is equal to the distance between 40^o and 50^o and so on. But notice that it is not the case that 60^o is twice as warm as 30^o. The significant fact about an interval scale is that we can quantitatively compare (carry out certain kinds of mathematical operations on) the intervals between items on the scale, but not the items themselves. This is attributable to the interval scale's lack of an absolute zero, or point of origin.

The other level of quantitative concept is the ratio scale. Ratio scales have true zero points as their natural origins. Such variables or concepts like weights, length, area that have natural zero points are amenable to measurement on the ration scale. We can carry out normal mathematical operations on variables measured at the ratio scale.

Self-Assessment Exercise

(i) Analyze the quantification function of concepts in political inquiry.

(ii) Discuss two quantitative concepts.

4.0: CONCLUSION

After reading this module, students should be able to understand the meaning of concepts and its usefulness in political inquiry. They should also be able to understand how to form concepts for political investigation and the introduction of such concepts for purpose of clarity and understanding to a layman. In addition, students should also be able to understand the functions of concepts in political inquiry.

5.0: SUMMARY

This unit explained the meaning, nature and scope of concepts in political inquiry. It analyzed the usefulness of concepts to scientific inquiry and the ways by which concepts can be formed and introduced in political inquiry. It also explained the functions of scientific concepts in political inquiry.

6.0: TUTOR-MARKED ASSIGNMENT

1. Describe the classificatory function of concept in political inquiry?
2. Critically examine the comparative function of concepts in political inquiry?
3. Mention the usefulness of quantification function of concept in political inquiry?.

7.0: REFERENCES/FURTHER READING

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MODULE 4: GENERALIZATION IN POLITICAL INQUIRY

UNIT 1: Meaning of Generalization in Political Inquiry

1.0: INTRODUCTION

This unit introduces you to the meaning of generalization in political inquiry. It explains the need for generalization and the broad understanding of the term generalization. It also explains the activities of generalization as well as the usefulness of generalization in political inquiry. This unit also explains the importance of generalization in political inquiry.

2.0: OBJECTIVES

After reading this unit, students should be able to:

(a) Define generalization in political inquiry

(b) Understand the need for generalization in political inquiry

(c) Identify the importance of generalization in political inquiry

(d) Understand and explain the activities involved in generalization in political inquiry

3.0: MAIN CONTENT

3.1: Meaning of Generalization in Political Inquiry

A scientific generalization expresses a relationship between concepts. To identify those nations that have democratic political system (according to a dichotomous classificatory concept) is significant. To discover that democratic nations tend to have a higher level of education, human rights respect and economic prosperity is probably more significant, for our knowledge is broadened; the world of politics makes more sense because we begin to see their pattern, that is, the relationship between apparently individual facts. It is at the point when concepts are connected and the connections tested and either confirmed or rejected that science begins to take off.

We might say that generalizations are important to political science first of all because they give us a more sophisticated and wide-ranging description of political phenomena. Knowing that a particular senator has more power than another senator is an interesting and often useful bit of information. But being able to say that in any competitive situation, the competitors who are the most highly motivated will dominate (have power over) their less highly motivated opponents, is clearly more impressive and in the long run probably more useful. This suggests a difference between the journalist or historian of the present, interested in the facts and detailed case studies, and the Political Scientist, whose goal is the development of a systematic knowledge of politics. Here, systematic means generalized.

The second reason for the importance of generalizations flows from the nature of scientific explanation and prediction. In the next module, the argument will be made that the primary functions of science are the explanation and prediction of empirical phenomena-the demonstration of why they are or will be. Furthermore, very sound explanation and prediction contains at least one generalization; without generalizations,

there could be no explanations or predictions. This scientific fact of life will be clarified in this Unit and fully analyzed in the next Module. At this point, let us remember that the development of generalization is essential if Political Science is not only to describe political phenomena, but also to explain and predict them.

It has been asserted that the purpose of scientific generalizations is the explanation and prediction of political behavior. The explanatory power of a generalization may be distinguished from its explanatory appeal. The concept of explanatory power relies on the distinction between the ability to predict an event before its subsumption in a generalization and the ability to predict the event after its subsumption. If the subsumption of an event in a generalization substantially increases the ability to predict the event, the generalization has great explanatory power. Explanatory power is thus an objective concept insofar as the distinction between the probability of an accurate prediction of an event before its subsumption in a law or theory and the probability of an accurate prediction after such a subsumption can be measured.

The concept of explanatory appeal, on the other hand, is strictly a subjective phenomenon. A generalization with explanatory appeal engenders satisfaction that an event has been understood. Actually, Rapoport refers to the explanatory appeal of a theory in terms of its "integrative potential", the extent to which a wide variety of apparently disparate events is "seen in the light of the theory to be related". But a generalization can provide a satisfying explanation even though its integrative potential is low, a satisfaction that may be the result of an unjustifiably inferred causation.

Obviously, in the social and behavioural sciences, the explanatory power of generalizations is much lower than those of the natural sciences in that the predictive power generated by propositions in the social sciences affords a rather low probability of accuracy. The probability of accurate prediction is a direct function of the other-things-being-equal (ceteris paribus) qualifier.

Self-Assessment Exercise (Unit 1)

Explain generalization in Political Inquiry.

4.0: CONCLUSION

In this unit, we have established the relationship between concepts and generalization and explained how they interact to provide lucid explanation of political phenomena. The unit has also analyzed the importance of generalization in political inquiry and the activities involved in generalization to show relationship between concepts in political investigation.

5.0: SUMMARY

This unit has explained the meaning of generalization and its relationship with concepts in political inquiry. The unit has also explained the various importance of generalization as they relate to the activities involved in generalization.

6.0: TUTOR-MARKED ASSIGNMENT (TMAs)

(a) Describe the meaning of generalization in political inquiry?

(b) Analyze the relationship between concepts and generalization in political inquiry.

(c) Identify and explain the importance of generalization in political inquiry.

7.0: REFERENCES/FURTHER READING

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UNIT 2: NATURE OF GENERALIZATIONS IN POLITICAL INQUIRY

1.0: INTRODUCTION

This unit explains the nature of generalization by examining the varieties or forms of generalization available in political inquiry. It underscores the importance of law and hypothesis as forms of generalization in political inquiry. It also examines the meaning of law and hypothesis and their importance in political investigation. It explicates the genuineness of scientific orientation in Political Science generally and political evaluation in particular.

2.0: OBJECTIVES

After reading this unit, students should be able to:

(a) Explain the nature of generalization in political inquiry

(b) Identify the forms of generalization in political inquiry

(c) Explain the meaning of law in political inquiry

(d) Explain the meaning of hypothesis in political inquiry.

3.0: MAIN CONTENT

3.1: Nature of generalizations in Political Inquiry

Let us first distinguish between two forms of generalization, hypotheses and laws. Both are generalizations because they share certain characteristics: they have the same form and most meet the same structural requirements. We cannot tell whether the sentence "Democratic political systems tend to be stable" is a law or a hypothesis if we are unaware of its context. The major difference can be traced to the claim that is made about each. A hypothesis is a guess about relationship between concepts. After being tested against available evidence according to the principle of scientific method, it is accepted or rejected. If accepted, it is labeled a law. We might say that a law is a true hypothesis; or for those who prefer a weaker notion than truth, a well-confirmed hypothesis. The later formulation might be more desirable, for it implies that unnecessary or contingent nature of all scientific knowledge. The use of "truth," on the other hand, seems to many to imply that scientific laws express eternal and immutable relationships. For the scientist, however, the difference between "true" and "well-confirmed" is largely semantical, for he realizes the conditional nature of scientific knowledge, whichever label is used.

Since hypotheses and laws have the same form and differ only in regard to whether or not they have been empirically confirmed, we can, in a methodological analysis talk about "generalizations" without concerning ourselves with the distinction between its two main varieties. Later, when the basic principles of hypothesis confirmation are being analyzed, this distinction will move closer toward the center of our attention.

Self-Assessment Exercise

Explain the nature of generalization in political inquiry

3.2: Law as a Form of Generalization

The term law is often reserved for statements about invariable relationships in the form of *all x are y* or *all* two party systems are stable. If this interpretation is adopted, there are very few laws in Political Science; the relationships thus far discerned by Political Scientists are usually contingent rather than invariable and probabilistic rather than deterministic. Whether one wishes to reserve the term law for deterministic relationships or to use the terms law and generalization interchangeably is simply a matter of semantics preference. Of course, even statements about invariable relationships in the natural sciences as well as in political science are tentative. Such statements are invariable as far as we know, but the possibility that a deviant case may be found could never be logically excluded. This is what Karl Popper meant by "the problem of induction". According to Popper, no matter how many white swans you have seen without encountering a swan of a different colour, you still cannot say with certainty that all swans are white. At some undiscovered place or at some future time a black swan may still turn up.

This does not mean that once phenomena are observed that are logically incompatible with a generalization (or theory), that generalization loses its scientific utility. The wide range of phenomena that are subsumed under Newton's laws of motion are still in large part explained by those laws despite the fact that some observed events in the physical universe cannot be subsumed under those laws. To put the point in a political context, it is still useful to know that every ninety percent of the American Jews are liberal despite the existence of a few Milton Friedmans.

Self-Assessment Exercise

Describe the usefulness of law in political inquiry.

3.3: Hypothesis as a Form of Generalization

As different from Law, a hypothesis on the other hand, is a specific statement of prediction. It describes in concrete (rather than theoretical) terms what you expect will happen in your study. Not all studies have hypotheses. Sometimes a study is designed to be exploratory. There is no formal hypothesis, and perhaps the purpose of the study is to explore some area more thoroughly in order to develop some specific hypothesis or prediction that can be tested in future research. A single study may have one or many hypotheses.

Actually, whenever I talk about a hypothesis, I am really thinking simultaneously about *two* hypotheses. Let us say that you predict that there will be a relationship between two variables in your study. The way we would formally set up the hypothesis test is to formulate two hypothesis statements, one that describes your prediction and one that describes all the other possible outcomes with respect to the hypothesized relationship. Your prediction is that variable A and variable B will be related (you do not care whether it is a positive or negative relationship). Then the only other possible outcome would be that variable A and variable B are *not* related. Usually, we call the hypothesis that you support (your prediction) the ***alternative*** hypothesis, and we call the hypothesis that describes the remaining possible outcomes the ***null*** hypothesis. Sometimes we use a notation like H_A or H_1 to represent the alternative hypothesis or your prediction, and H_O or H_0 to represent the null case. You have to be careful here, though. In some studies, your prediction might very well be that there will be no difference or change. In this case, you are essentially trying to find support for the null hypothesis and you are opposed to the alternative.

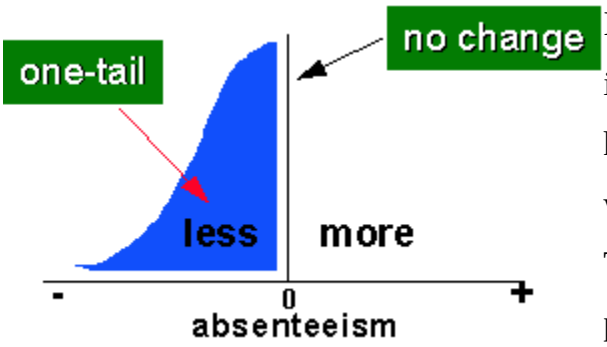
If your prediction specifies a direction, and the null therefore is the no difference prediction and the prediction of the opposite direction, we call this a ***one-tailed hypothesis***. For instance, let us imagine that you are investigating the effects of a new

employee-training program and that you believe one of the outcomes will be that there will be *less* employee absenteeism. Your two hypotheses might be stated something like this:

The null hypothesis for this study is:

H_O: As a result of the XYZ company employee training program, there will either be no significant difference in employee absenteeism or there will be a significant *increase*, which is tested against the alternative hypothesis:

H_A: As a result of the XYZ company employee training program, there will be a significant *decrease* in employee absenteeism.



In the figure on the left, we see this situation illustrated graphically. The alternative hypothesis -- your prediction that the program will decrease absenteeism -- is shown there. The null must account for the other two possible conditions: no difference, or an increase in absenteeism. The figure shows a hypothetical distribution of absenteeism differences. We can see that the term "one-tailed" refers to the tail of the distribution on the outcome variable.

Self-Assessment Exercise (Unit 2)

Define a hypothesis in political inquiry.

4.0: CONCLUSION

This unit explained the nature of generalization in political inquiry and the varieties of generalization in political inquiry. It examined the two forms of generalization and their usefulness in political investigation. It also analyzed the meaning of hypothesis and law in political inquiry and the graduation from the realm of hypothesis to law and the process this should take.

5.0: SUMMARY

After reading this unit, student should have understood the nature of generalization and the forms of generalization in political inquiry. They should also be able to analyze these forms of generalization and the process involved in the graduation of hypothesis to law.

6.0: TUTOR-MARKED ASSIGNMENT (TMAs)

(a) Analyse hypothesis as a concept

(b) Critically examine the process of graduation of hypothesis to law.

(c) Discuss a law in political inquiry

(d) Explain in detail the relationship between hypothesis and law in political inquiry.

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UNIT 3: UNIVERSAL AND STATISTICAL GENERALIZATION

1.0: INTRODUCTION

This unit explains the types of generalization available in political inquiry. It explains the meaning of the two types of generalization, that is, universal and statistical generalization. The unit also explains the relationship between these two types of generalization and gives examples of each of these types of generalization.

2.0: OBJECTIVES

After reading this unit, students should be able to:

(a) Identify the various types of generalization in political inquiry
(b) Explain the meaning of universal generalization
(c) Explain the meaning of statistical generalization
(d) Distinguish between universal and statistical generalization.

3.0: MAIN CONTENT

3.1: Universal and Statistical Generalization

A universal generalization takes the form, "All A are B," or "If X is an A , then X is B" The key word here is "all" for it tells us that something is being said about every member of a particular calls – every man who is a politician is also an extrovert. One need not be a specialist in scientific method to realize that the universal generalization is the most powerful kind in the scientist's arsenal. But what if the scientist is not confident that every politician is an extrovert; that is, suppose his evidence is not sufficient to make a claim of universality. Must he give up the hope of developing meaningful generalization of politics? The answer is no, and the reason is the statistical generalization.

Statistical generalizations take several forms. Weaker versions are, "*some A are B," "Most A are B", or "A tends* to be *B".* A stronger, and more useful version might say, "75 percent of *A* are *B",* or, "The probability that *A* is *B* is 0.75." The superiority of the latter is obvious. "Seventy-five percent" tell us a great deal more about a population than "most". Yet, the two are not logically dissimilar; both are statistical, because only a portion (it is hoped a substantial one) of a population is being referred to.

Philosopher of Social Science, Quentin Gibson, makes another distinction between two kinds of statistical generalizations. The first, labeled by Gibson the "statement of chance," is equivalent to all the varieties we have been talking about, from 75 percent of *A* are *B*" to Most *A* are *B*." The second is the "tendency statement." According to Gibson, such statement attempt to get around the probabilistic (non-universal) nature of statistical laws by using phrases like "other things be in equal." So when used in the generalization "other things being equal, all politician are extroverts," the phrase is supposed to indicate to us that all politicians are not extroverts because of unknown factors; other things being equal" phrase is a kind of disclaimer added to what appears to be a universal law in order to indicate that there are exceptions. One gives a statistical generalization the form

of universal generalization by saying "if no other factors were operating, then all '*A* would be *B'"*, fully realizing that other factors are exerting an influence.

This tells us something else about the nature of statistical generalizations. Most social scientists assume that statistical knowledge is imperfect universal knowledge. This implies that all imperfect statistical knowledge can eventually be made more perfect, for the basis of its inferior status is incomplete knowledge of influencing factors, not the inherent statistical nature of the universe. That is, the statistical notion "chance" is not a throwback to such ideas as Machiavelli's "Fortune": "I hold it to be true that Fortune is the arbiter of one half of our actions, but she still leaves us direct the other half or perhaps a little less." The difference is that while "Fortune" and similar concepts from pages of traditional Philosophy and Political Science stand for or symbolize the segment of social life which is presumed to be fundamentally unpredictable and so unknowable, "chance", as used by most contemporary social scientists, stand for all the factors influencing a particular phenomenon that are unknown.

This interpretation is reinforced by observing the development of knowledge in particular areas of political behaviour. Take for instance, the study of voting behaviour – why people vote and why they vote for one candidate rather than another. An examination of four leading voting studies published during the last 40 years indicates that the amount of unexplained behaviour and therefore the significance of chance has been steadily eroded as new variables and relationships are worked into the explanations. The most obvious tendency has been a movement from gross sociological explanations towards more refined psychological account of voting behaviour. The important point to remember is that progress has been made in the explanations of voting behaviour, and in consequence, less variance is attributable to chance.

In fact the authors of The American Voter developed an attitudinal measure with which they were able to predict the vote of many individuals more accurately that the

individuals could themselves. Even the "chance" of a gambler is of this empirical kind. If we were able to scientifically analyze a roulette wheel and its ball in terms of weight, balance and so forth, it would be possible to predict its behaviour. The influence of chance would be decreased because of the identification of more influencing factors. Thus, it is *logically* possible that some day every existing statistical generalization in Political Science will take a universal form because of the discovery and incorporation of these new factors.

Statistical and universal generalizations are cut from the same cloth and differ only in regard to the claims that they make. Certainly it is more impressive and significant to say "All A are B", than "The Probability that A is B is 0.75; but notice that in both cases a percentage of probability is being referred to, 100 percent abs 75 percent respectively. It is necessary to emphasize this point to make clear that a sound statistical generalization does not suffer from lack of scope. As in the case of the universal generalization, an entire class is being referred to. It is simply that in the one case, only 75 percent of its members have been found to have another characteristic, while in the other case, all its members can be so characterized.

One general conclusion that seems justified at this point is that Political Science rest upon a solid empirical foundation even though it employs statistical generalization almost exclusively. While it would be desirable to have a body of scientific knowledge in the form of universal generalization, and the development of such knowledge is surely the objective of any science, the statistical nature of existing Political Science generalizations should not act as a damper upon further attempts at discovery; disillusionment is not a constructive reaction to a statistically oriented discipline.

Self-Assessment Exercise

Distinguish between Universal and Statistical generalization.

4.0: CONCLUSION

This unit primarily explained the two types of generalization in political inquiry. It showed the exclusive importance of these two types of generalization in political inquiry and the characteristics of each of the types of generalization in political inquiry.

5.0: SUMMARY

At the end of this unit, it is important to stress that the unit had described the types of generalization available in political inquiry and explained the types of generalization. The unit has lucidly analyzed the types of generalization in political inquiry and gave examples of each.

6.0: TUTOR-MARKED ASSIGNMENT (TMAs)

(a) Identify the types of generalization in political inquiry.

(b) Describe the usefulness of universal generalization in political inquiry?

(c) Analyze the characteristics of statistical generalization in political inquiry.

(d) Distinguish between universal and statistical generalization in political inquiry.

7.0: REFERENCES/FURTHER READING

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UNIT 4: HYPOTHESES TESTING IN POLITICAL INQUIRY

1.0: INTRODUCTION

This unit explains the importance of hypotheses testing in political inquiry. It explains the various methods applicable to hypotheses testing in political inquiry. The unit identified three different methods of hypotheses testing in political inquiry, which is non-scientific, reactive and non-reactive methods. The unit also explains the characteristics of each of these methods and analyzed their usefulness in political inquiry.

2.0: OBJECTIVES

After reading this unit, students should be able to:

(a) Understand the need for hypotheses testing in political inquiry

(b) Identify the methods of hypotheses testing available in political inquiry

(c) Explain each of these methods and provide their characteristics.

(d) Explain the importance of each of these methods.

3.0: MAIN CONTENT

3.1: Hypotheses Testing in Political Inquiry

Induction deals with the philosophical basis of hypothesis testing. Let us consider the more practical side of the matter, how hypotheses are actually tested by Political Scientists. That is, what kinds of data are used to support or refute proposed relationships and what methods are used to generate or gather the information. Strictly speaking, this is a topic usually reserved for books on the techniques of empirical research, where it can be explored in detail. However, our purpose is not to provide a detailed understanding of such techniques, but to indicate how they function in the process of empirical political analysis.

Once the hypothesis has been formulated, the political researcher must decide which of many testing methods is most appropriate. Each is designed to gather evidence the hypothesis can be compared against. The choice of methods will depend upon the nature of the hypothesis, the amount of existing knowledge, and the skills and resources of the researcher.

Self-Assessment Exercise

Identify the various methods of hypotheses testing.

3.2: Nonscientific methods

When we test assumptions about our everyday lives, we often rely upon common sense, intuition, and empathy. The complexity of the world and the need to make immediate

decisions require such sources of evidence. But in science, they must be considered inadequate. Common sense, as we have pointed out earlier, varies from person to person and is often unreliable. Intuition, which by definition is an unknowable mental process, provides no objective grounds for distinguishing between sound and unsound evidence. Empathy, putting oneself in someone else's place, while a potentially useful source of hypotheses, is inadequate as a source of evidence because, like intuition, it provides no outside criteria for evaluating its conclusions. We must turn to methods that are more reliable.

Self-Assessment Exercise

Articulate non-scientific method of hypothesis testing.

3.3: Reactive methods

Some hypotheses are best tested through the use of methods that require the reaction of political actors. That is, the political researcher systematically observes the reaction of people to certain stimuli. Perhaps the best- known reactive measure is the attitude survey, popularized by the Harris and Gallup polls. Its objective is to describe the attitudes of a population by eliciting responses to questions. For instance, if a respondent answers a set of questions in a certain way, he is considered a liberal.

The purpose of a survey is to describe and analyze a population, all citizens of Nigeria, all citizens of Ghana, all citizens of the North, all citizens of the South-West in Nigeria and so forth. In most cases, the population is too large to observe in its entirety. Thus, it is necessary to select a proportion of the population, a sample, to represent the population. The trick is to select a manageable sample, which despite its relatively small size, allows one to describe the population accurately. To do this, the researcher must, to the best of his ability, randomize his sample that is, ensuring that every member of the population has an equal chance of being selected. If this is accomplished, and if the sample is large

enough (several thousand people can adequately represent the Nigerian voting public), then the characteristics of the sample can be generalized to the population. In other words, if the proper sampling techniques have been employed, the researcher can, with great confidence, assume that what is true of the sample (80 percent of a random sample of Nigerian citizens agrees that Nigeria should drop the presidential system of government and adopts the parliamentary system of government) is also true of the entire population (all Nigerian citizens).

A random sample is not easy to come by. If the population is small (all Nigeria senators), a simple device can be used; put all the names in a hat and select an adequate number. But if a larger population is being studied, such simplicity is impossible. The student of national voting behaviour could not find a large enough hat. Thus, the temptation arises to use haphazard sampling. If one is trying to describe the attitudes of Lagos State citizens toward their governor, why not simply stand on a street corner in a Local Government in Lagos State and ask the first 500 people who come by? This method is less than adequate because it is likely that certain types of people will be overrepresented or underrepresented as a result of where and when-you conduct the survey; if it is noon in the banking district, the sample will no doubt include a higher proportion of bank employees than exists in the general population.

If the population is too large for a simple random sample, yet haphazard sampling is scientifically unacceptable, what is the researcher to do? He would probably use a modified system of random sampling, using the techniques of stratification and clustering. A stratified sample is one that first breaks the population down into basic categories such as sex, race, and occupation. Then, a random selection is conducted within each strata. If 55 percent of the population is female and 75 percent is Yoruba, then the sample, because it is designed to have the same proportions, is more likely to be truly representative. The cluster or area sample is also designed to overcome some of the physical limitations of the simple random sample. If a national sample of 2,000 is the

goal, then the nation is divided into levels or clusters-regions, states, urban and rural areas, large cities, small cities, and so forth. Random sampling is used at each level. For example, after dividing the nation into regions such as Northeast and Northwest, several large cities are randomly selected to represent all large cities in that region. After Niger State is selected as one of three large North-central states, the random selection of smaller units continues - precinct to neighbourhood to block to home. Thus, if you are the person who is finally interviewed in such a study, you can be sure that your selection has been the result of a rigorous, random procedure. When used together, as they usually are in larger and more sophisticated attitude and voting studies, stratification and clustering can achieve the basic objective, randomness that would be physically impossible with the simple random sample.

Besides obtaining a representative sample, the Political Scientist who is using the survey technique to test a hypothesis must also be concerned with the questions to be asked. The primary objective is to make them as neutral as possible; that is, write the questions so that they do not reflect the biases of the researcher. Another consideration follows from the basic nature of reactive research. The fact that people are asked to answer questions means that an additional factor is thrown into the situation-the researcher. The subject is responding to the questions and to the questioner. It is now well known that some people tend to answer yes no matter what the question and some tend to answer no. The Political Scientist must keep this in mind when formulating his questions. In practical terms, it means getting at a particular opinion or attitude by asking the same question several times using different language.

Another type of reactive research is experimentation. Experiments are so common in the natural sciences that many students of science equate scientific method with the experimental method. While this equation makes sense in physics and chemistry, it is misleading when applied to Political Science. Experimentation can be given a broad meaning or a narrow meaning. If the former is used, experimentation refers to any

research where the researcher prods or stimulates the real world and most reactive research, including survey research, must be considered experimental. Most scientists use the narrow definition and define the experiment in terms of three basic requirements:

1). The ability to manipulate the factor (usually labeled the independent variable) that is assumed to be influencing another factor (usually labeled the dependent variable) that is being explained.

2). The ability to control, to hold constant other factors that might have some impact on the dependent variable.

3). The ability to measure the impact of the independent variable on the dependent variable.

For instance, experimentally testing a hypothesis about the impact of certain kinds of campaign propaganda on voting behavior would require that we be able to remove the effect of all factors except the hypothesized independent variable. This is not easily done. Thus, if a narrow concept of experimentation is used, that is, if experimentation implies that the scientist is in control of and can manipulate all of the relevant conditions affecting the dependent variable, then it would seem that political scientists will use the experiment relatively infrequently; few political situations lend themselves to such control. The student of politics must usually attempt to test his hypotheses about political behaviour not by manipulating the political actors he is studying, but instead by analyzing the information that flows from his systematic observations. In this sense, the survey is the social scientist's alternative to the natural scientist's laboratory experiment.

As Political Scientists become more interested in the formulation and evaluation of government policies, some of the methods of experimentation have been incorporated into what is known as policy analysis. The basic rationale is fairly obvious. Governments formulate and implement policies to achieve social and economic goals. To decide if the

goals have been met, there must be ways to measure the results. A good example is the attempt by the Federal Government to determine if more Federal Road Safety Corps offices in different Local Governments in the country lead to fewer traffic accidents. The use of experimental techniques by governments leads to the notion of social experiment- attempts by policymakers to bring about changes in the social, political, or economic systems in certain predictable ways, and then to evaluate the success or failure of their policies.

Some Political Scientists have taken a different approach to the experiment in Political Science. They recognize the limited use of the pure experiment in political research, but argue that there is an alternate strategy, which while not as pure, nevertheless can be useful. This is the technique of simulation. The real world is simulated in a classroom or laboratory and the behaviour of the participants is observed. Returning to a previous example, a simulated election might be held in a Political Science class; the class could be divided into two groups. The composition and environment of each group would be made as similar as possible with one crucial exception; only one would be exposed to the propaganda.

After a simulated election, any difference in voting between the two groups could be attributed to the independent variable. More often simulation is used to test hypotheses about decision making, such as the development of military strategy. While this method seems to meet the basic requirements of the classic experiment, the claim that it is truly an experiment, in the sense that the chemist's experiments are, is subject to a serious objection. The simulation is an attempt at recreating the real world of politics; it is not the real world. Students in a classroom acting as if they are voters in a presidential election or military strategists mapping out a nuclear war are neither voters nor strategists. Thus, the hypotheses are not really being tested.

Self-Assessment Exercise
Describe the reactive method of hypothesis testing in political inquiry

3.4: Non-reactive research

Not all hypotheses testing in Political Science is based on reaction. Some hypotheses are better tested by using non-reactive methods, that is, observations not requiring the reaction of political actors. Several types of non-reactive research can be identified. First is the systematic examination of governmental documents, historical records, newspaper files, voting statistics, and all other stored data. The most important characteristic of this material is that it already exists. The problem for the researcher is how to systematically examine it. One method in widespread use is content analysis. This technique assumes that anybody of written information can be used as an indicator of political attitudes, values, and intentions, if the information is examined systematically; that is, according to explicit criteria that indicate how words and messages are to be interpreted.

Let us suppose that a political scientist interested in international conflict hypothesizes that anxiety about the military status of other nations will cause all nations to increase their military strength and that the resulting arms race will often lead to war. The testing of this hypothesis might involve the systematic examination of newspapers and official government communications for key words and phrases, "missile gap" for instance, assumed to indicate national anxiety. The words and messages could be counted, and conclusions could be reached about typical verbal behaviour during prewar periods. By itself, the content analysis might not be conclusive, but along with other sources of data, it could be useful.

Besides the analysis of secondary data, the Political Scientist often makes first-hand observations that do not require the reaction of political actors. The political scientist might place himself in the midst of a political situation, make observations and take notes, all without the knowledge of those being observed. Taking it one step further, the Political Scientist might join a group, a labour union for instance, with the intent of

observing its members in action. Despite its usefulness in many situations, this kind of undercover research has serious moral implications.

Self-Assessment Exercise (Unit 4)

Explain the non-reactive method of hypothesis testing in political inquiry.

4.0: CONCLUSION

This unit has identified the various methods available in political inquiry for hypotheses testing. It has analyzed each of these methods and provided the usefulness of each of these methods.

5.0: SUMMARY

At the end of this unit, students would have studied the various methods available in political inquiry for hypotheses testing and their importance. Students would have studied the methods from non-scientific to reactive method and non-reactive method.

6.0: TUTOR-MARKED ASSIGNMENT (TMAs)

(a) Critically examine the need for hypotheses testing in political inquiry.
(b) Identify the various methods of hypotheses testing in political inquiry.
(c) Describe the usefulness of non-scientific method of hypotheses testing in political inquiry.
(d) Distinguish between the reactive and non-reactive methods of hypotheses testing in political inquiry.

7.0: REFERENCES/FURTHER READING

Reichenbach, H. (1951) *The Rise of Scientific Philosophy*, Berkeley: University of California Press.

UNIT 5: GENERALIZATIONS AND CAUSALITY

1.0: INTRODUCTION

This unit establishes the relationship between generalization and causality. It analyzes the relationship in a way to highlight the importance of explanation and prediction in political inquiry. The unit explains the relational importance of variables and the need to offer explanation in terms of attitude and behaviour of political phenomena.

2.0: OBJECTIVES

After reading this unit, students should be able to:

(a) Understand the relationship between generalization and causality.
(b) Understand the importance of interaction as the basis for causality in political inquiry.
(c) Identify the principle of cause and effect in political inquiry.

3.0: MAIN CONTENT

3.1: Generalizations and Causality

One interpretation of "If A, then B" is "A causes B"- being a business-man causes one to become conservative. That there is a relationship between the notions of generalization and cause is obvious. However, the assumption underlying the above-mentioned interpretation, namely, that generalizations are reducible to causal relationships, is not the only one that can be made. We will argue that it is the other way round: a causal relationship is a type of lawful relationship. This fact has led some students of scientific method to view the notion of cause as expendable, that is, unnecessary in any description of the fundamental elements of science. This section's objective is the clarification of these views about causality.

Modern conceptions of causality have their origins in David Hume's analysis, which replaces the necessary connection of events with a mere constant conjunction. As we have seen, empirical relationships are contingent and not necessarily true. Hume's position was that all we can conclude from our observations is that one event or situation always or usually follows another. In his commonsensical style, he wrote: "Having found, in many instances, that any two kinds of objects-flame and heat, snow and cold-have always been conjoined together; if flame or snow be presented anew to the senses, the mind is carried by custom to expect heat or cold. There is no way to demonstrate that the relationship is necessary, that the events or variables must be invariably linked. Thus, we are justified in noting the constant (or nearly constant) conjunction of events (this is what we do in every generalization); but it is going beyond the limits of our knowledge to view this conjunction as a necessary connection. The latter interpretation makes the relationship analytic - it is a logical contradiction to say B occurred but A didn't; assuming that the relationship is intended to be empirical, and recalling that analytical

propositions are non-empirical, it follows that causal statements do not express necessary connections.

The relationship between cause and generalization can now be briefly explicated. If saying that "A causes B" is tantamount to "B always follows A," then they are both reducible to the generalization, "If A, then B." In other words, we can express what is traditionally known as a causal relationship without using the term cause. Suppose a Political Scientist who wants to explain the outbreak of war hits upon "If economic rivalry, then war," which is simply the generalized form of the observation that economic rivalry between nations tends to be followed by military conflict." The notion "cause" adds nothing to the analysis just given, or so it would seem. Most natural scientists would take this argument one-step further by claiming that the notion of cause can be reduced to that of "quantitative relationship." If factor A (the amount of money spent in an electoral campaign) and factor B (the number of votes received in an election) always change together for every $1 million another 50,000 votes - what more has to be said? A quantitative relationship has been discovered that allows one to predict the results of elections.

However, even while accepting this analysis, which demonstrates the logical expendability of cause, it is not inconsistent to admit that there is a practical reason for distinguishing between causal and non-causal generalizations and for continuing to use the concept cause. What of a generalization that describes a relationship between two variables at a given moment? This kind of cross-sectional generalization is clearly not causal in that one variable or event is not known to occur before another. In Gustav Bergmann's words: "Such laws state functional connections obtaining among the values which several variables have at the same time". If we discover, for instance, that two political attitudes are usually associated-a person who has one tends to have the other-we will probably not be able to say that one causes the other, because we don't know which one comes first. Thus, Herbert McClosky has examined the relationship between

conservatism and personality. He discovers that high scores on a conservatism scale and high scores on a number of clinical-personality variables (hostility, rigidity) hang together so that an individual with the former tends also to have the latter. While the relationship is clear, McClosky refrains from drawing the commonsensical conclusion that personality causes conservatism. "The association between conservatism and the traits outlined exists in the form of correlations, which only tell us that the two go together. How they go together, and which is antecedent to which is a more difficult and more elusive problem." In other words, because no temporal sequence has been identified, the relationship must be considered cross-sectional and not causal.

There is another kind of observed relationship that appears to be causal but is not. This is that constant foe of statisticians, the spurious association. We might observe that two phenomena always occur together-they are statistically correlated. For instance, let us assume that it is discovered that whenever traffic congestion increases, it soon follows that the literacy rate begins to rise. This relationship crops up in study after study in a variety of countries. Our common sense tells us that it is probably a mistake to claim that traffic congestion causes an increase in literacy; yet the statistical correlation is always there. A solution is found when it is discovered that both phenomena are the result of a third factor, industrialization. Thus, when a country becomes more industrialized, its streets become filled with cars, and people are more likely to learn how to read and write. The relationship between congestion and literacy is spurious, because while statistical tests indicate the relationship exists, there is no causal relationship.

The question that emerges from this analysis of types of observed relationships is how do we distinguish between causal and non-causal relationships? What criteria can we use to sort them out? The major difference between cross-sectional and causal generalizations is one of sequence or time. Carl Hempel's terminology makes this point very well. He calls the former laws of coexistence (A and B occur together), and the latter, laws of succession (A is followed by B). In more down to earth terms, it seems reasonable that an

event that happened today cannot be a cause of one that happened last Friday. Likewise, if one's personality is formed before the age of six, and one's political values are formed no earlier than adolescence, then if a statistical relationship is discovered, it cannot be that values are causing personality; if there is a causal relationship, it must be the other way around. This analysis, by itself, does not establish a causal pattern. But it does allow us to eliminate some possibilities. Until we examine the temporal sequence, a statistical relationship must be considered cross-sectional, or in Hempel's terms, a law of coexistence.

What about spurious correlations? Is there any way to identify and sort them out? There are no fool-proof methods. The important question to ask is, "What else do we know about the apparent relationship?" In some cases, our reason and empirical knowledge suggest that the two phenomena or events are in no way connected. What could be the connection between traffic congestion and literacy? There seems to be no evident contact between them; if there is, it is extremely obscure. Thus, we search on. In some cases, we may conclude that the relationship is coincidental, and predict that it will not occur again. If it does, then perhaps there is a third variable that comes into contact with each of the other factors. It violates neither our sense of logic nor our empirical observations to speculate that industrialization is causing both congestion and increased literacy. The process of weeding out the spurious relationship has begun.

Thus, a causal generalization is distinctive because it refers to a temporal sequence. Our conclusion is that while cause is logically expendable, there are still times when a Political Scientist might want to refer to causal laws to distinguish them from the cross-sectional variety; but this is primarily a pragmatic distinction, for in either case, the generalization is an expression of a constant conjunction.

The search for causal relationships in Political Science is most profitably viewed as the search for and refinement of lawful relationships. This last point should be emphasized,

for a conclusion that might be drawn at this point is that if we reduce cause to lawfulness, one observed relationship is as good as another. However, even without a concept of necessary connection to direct us toward final or ultimate causes, we can distinguish between sound empirical and spurious relationships. A discussion of the methods available for such analysis would take us far afield into the realm of research techniques. The Political Scientist can work with empirical relationships in the form of statistical correlations; he can compare, sort through, and accept, reject, or refine them, and in so doing, roll back the frontiers of political knowledge-all within the framework of Hume's constant conjunction.

Let us conclude our discussion of generalizations and causality with a brief consideration of several types of causal situations, emphasizing those that are especially relevant to Political Scientists. Causal situations are usually analyzed in terms of sufficient and/or necessary conditions. *A* is a sufficient condition for *B* when (1) if *A* occurs, *B* does, and (2) *B* might have other sufficient conditions. For example, based on historical observation we might conclude that economic rivalry between nations is usually followed by military conflict, but that, in addition, an arms race often precedes such conflict, even in the absence of economic rivalry. We have two independent sufficient conditions for military conflict.

If we observe that military conflict never occurs without economic rivalry preceding it, no matter what other factors are present, we would conclude that economic rivalry is a necessary condition for military conflict. Thus, *A* is a necessary condition for *B* when (1) if *B* occurs we know that *A* is present; but (2) *A* is not alone a sufficient condition for *B.* This notion of "necessary" can be handled within our constant conjunction framework, for it does not imply a necessary connection between *A* and *B.* It would be logically possible for *B* to occur without *A* proceeding it. Observation has led us to conclude that, in fact, this never happens.

From what we have already said about Political Science, it would be reasonable to assume that the discovery of necessary conditions is as rare an occurrence as the discovery of sufficient conditions. It is even rarer to identify a condition (*A*) that is both necessary and sufficient; for if we do, we have found the one and only cause of *B*. Remember that a necessary condition need not be sufficient - we know it always occurs before a particular event but other conditions may also be necessary. But when a condition, economic rivalry, always precedes an event, military conflict, and military conflict never occurs without economic rivalry, we have an example of a necessary and sufficient condition.

Perhaps the kind of causal situation that has the most relevance for the Political Scientist is one where a combination of factors is sufficient for an event. In this case, we can call any one of them a *partially sufficient* condition to indicate that any single factor is not sufficient. Returning to the causes of military conflict, suppose we discover that economic rivalry and an arms race are *in conjunction* sufficient conditions. We can't say that economic rivalry alone is sufficient; but it is significant when other factors are added. There is evidence to suggest that this is the situation that confronts Political Scientists more often than not. With the recognition of the complexity of social phenomena and the acceptance of research framework that assumes multiple causes, the single sufficient condition becomes an exotic idea, so exotic that most Political Scientists push it to the back of their research minds. The Political Scientist does his scientific work by sorting through a number of possible partially sufficient conditions, rejecting some, accepting others - in other words, by testing hypotheses.

Self Assessment Exercise

What is the relationship between generality and causality in political inquiry?

4.0: CONCLUSION

After reading this module, students should be able to explain the meaning of generalization and identify the differences between the forms and types of generalization. Students should be able to give examples of universal generalization and statistical generalization.

5.0: SUMMARY

In this module, we have explained the meaning of generalization in political inquiry, the forms of generalization and the types of generalization. In this sense, we have explained the forms of generalization indicated as hypothesis and law. We have also explained the types of generalization indicated as universal and statistical generalization. Also, this module explained the relationship between generalization and causality.

6.0: TUTOR-MARKED ASSIGNMENT

1. Critically examine the relationship between generalization and causality.
2. Identify and explain any causal situation you know in political inquiry.
3. Distinguish between universal and statistical generalizations. Give examples of each of these types of generalizations.

7.0: REFERENCES/FURTHER READING

Reichenbach, H. (1951) *The Rise of Scientific Philosophy,* Berkeley: University of California Press.

Hempel, C.G. (1952) *The Fundamentals of Concept Formation in Empirical Science,* Chicago: University of Chicago Press.

MODULE 5: EXPLANATION AND PREDICTION IN POLITICAL INQUIRY

UNIT 1: Explanation and Prediction in Political Inquiry

1.0: INTRODUCTION

This unit explains the meaning of explanation and prediction in political inquiry. It analyzes the importance of explanation to political phenomena and how observable activities can be explained to offer prediction of the political activities. The unit explores the conditions necessary for explanation and the importance of prediction in political inquiry. Also, the unit examines the relationship between explanation and prediction in political inquiry. In this regard, the unit explores the possibility of making explanation without prediction and vice-versa.

2.0: OBJECTIVES

After reading this unit, students should be able to:

(a) Understand the meaning of explanation and prediction in political inquiry.

(b) Understand the relationship between explanation and prediction in political inquiry.

(c) Identify and explain the conditions necessary for explanation in political inquiry.

3.0: MAIN CONTENT

3.1: Explanation and Prediction in Political Inquiry

One of the reasons for a Political Scientist taking an interest in explanation is the fact that all Political Scientists have to predict. This justification is valid because of the logical identity between explanation and prediction. The identity is based upon the fact that both explanation and prediction require laws and initial conditions. Thus, if one has a valid explanation, he should be able to employ it to predict, and vice versa. If, given the proper initial conditions, one could not have predicted the event that was explained, the explanation was not adequate in the first place. If it is possible to explain adequately without having a potential prediction, then the door is left open for any pseudo-explanation of a given phenomenon.

An explanation may be incomplete and yet be accepted by Political Scientists. This has led some to argue that while one can explain, using such partial explanations, prediction is impossible. Abraham Kaplan then raises the question, "What shall we say, because they do not allow for prediction, that they are not really explanations at all?" In the strictest sense, they are not explanations, and so naturally, they do not predict. In this period of a developing science of politics, we must often content ourselves with partial explanations, or even less. But this practical concession does not allow us to weaken the model of explanation to the point that it no longer explains.

Kaplan also implies that statistical laws can often explain better than they predict. However, once again, the explanation only appears sounder because the event has already

happened. If the laws of voting behaviour assert that it is 80 percent probable that county X will vote for candidate A, we can predict and explain the county's behaviour with 80 percent certainty. The fact that it behaves in the predicted manner does not make the explanation sounder than a prediction.

There is another argument often used by those who claim explanation is possible without prediction. A well-worked example has to do with the explanation of earthquakes. We can explain them after they have occurred (using the proper laws and citing relevant conditions), but it is usually impossible to predict an earthquake. Rather, the last clause should read "technically difficult," because we are often unable to know about the initial conditions. Shifting the example to politics, we might have rather sophisticated laws accounting for revolutions and civil wars, but the initial social, political, and economic conditions existing right now in a small Latin American Republic that would allow us to apply the laws may never come to our attention until after the revolution has occurred. This is a technical, not a logical, difficulty, and it in no way refutes the logical identity between explanation and prediction. Ernest Nagel has put it this way: "In many cases of physical inquiry we are ignorant of the pertinent initial conditions for employing established theories to make precise forecasts, even though the available theories are otherwise entirely adequate for this purpose."

There is still another argument made by those who reject the logical identity of explanation and prediction. It is that we are often able to predict without being able to explain. This is a reversal of the argument just considered. Abraham Kaplan has presented the following as a case in point. "Analysis of voting behaviour, for example, may have identified certain countries or states as barometers but making predictions from them is very different from having an explanation of the vote." The prediction proceeds in the following manner:

If X counties vote Democratic, the Democrats tend to win the national election.

X counties have voted Democratic.

Therefore, the Democrats will win.

This is a rough prediction. If we apply it to a past Democratic victory, we have a rough explanation relative to the findings of survey research. Thus, the explanation and prediction are equally gross and neither is causal. Only mass election results can be predicted (and explained), and then without much confidence. The generalizations from the voting studies allow for better explanations (accounting for more variance and explaining at more levels that are refined) and more accurate and inclusive predictions. The X-country findings either represent accidental correlations or indicate that there are deeper causal factors at work. If the former is the case, we will have learned something; if the latter holds, an attempt would be made to discover these factors, thus leading to the development of more refined explanations and predictions. For instance, if there are social characteristics, attitudes, or personality traits at work, it would be more fruitful to have laws relating them to voting behaviour than laws showing a correlation between counties and national elections. But this goes for both explanation and prediction. What if the Democratic-type people make a mass exodus from the X-counties? The laws will no longer be useful for explanation or prediction since they were such low-level arguments in the first place.

Self-Assessment Exercise

Explain your understanding of political inquiry

3.2: The Completeness of Explanations

In examining the nature of scientific explanation, we have ‘not meant to give the impression that Political Scientists ought to sit on their hands until they have before them full-blown deductive or statistical explanations. At this stage, such a requirement seems unrealistic and overly restrictive. Thus, the arguments against the possibility of a science

of politics (and therefore the scientific explanation of political phenomena), which we attempted to refute on methodological grounds in Module 2, are often of practical significance. For instance, while the complexity of political phenomena presents no logical barrier to nomological explanation, it can create difficulties for the political scientist conducting research. No claim is being made that Political Science is simple and that complete nomological explanation is immediately achievable. On the other hand, we have argued that explanation in any science must meet certain requirements, and it will only prove disillusioning to attempt to achieve explanation by drastically weakening these requirements. Taking a moderate position, one ought to realize that there are various degrees of completeness possible in explanation; one can make a series of distinctions between degrees of completeness and yet draw the line at inadequate explanations. In other words, if we are explicit, the class of incomplete but pragmatically acceptable explanation types can be distinguished from pseudo-explanations, arguments that have no explanatory value. The addition of one or several elements (usually laws) to an incomplete explanation makes it complete. But no addition could make a pseudo-explanation acceptable short of complete revision.

Carl Hempel has explicated this criterion of completeness for explanations rather thoroughly. Using his analysis as a guide, we can spell out a typology of completeness for Political Scientists. First are *complete* explanations, those that explicitly state all laws and initial conditions. Hempel points out that such perfectly complete nomological explanations are rarely achieved by scientists. In the natural sciences, this is usually because the explainer assumes that certain laws will be presupposed, and so only the necessary facts are formally stated. "If judged by ideal standards, the given formulation of the proof is elliptic or incomplete: but the departure from the ideal is harmless; the gaps can readily be filled in." In other words, if asked, the scientist could easily provide the missing laws (or initial conditions) that would completely account for the phenomenon in question. The number of elliptical explanations in Political Science is not great. The discipline is not well enough developed to allow a Political Scientist the luxury

of assuming that others are aware of the laws he is implying. This is one reason for asking that Political Scientists explicitly formulate their generalizations.

Hempel's scheme has a category that is more relevant to Political Science. This he calls the partial explanation. Like the elliptical type, it fails to explicitly formulate all the generalizations it is based upon. But even when the generalizations are made evident, the explanandum is not completely accounted for. By explanandum, it means the elements that are used to explain a phenomenon. All that is demonstrated is that something in a particular general class is to be expected. Thus, suppose we want to explain why a certain presidential decision (S) was to send troops to nation Alpha (W). A partial explanation would only show (for example) that (1) S was an aggressive act (class F), (2) in these circumstances an F is to be expected, and (3) W is in the class F. Thus, the aggressive act would be explained completely, the partial sending of troops. As we have said, partial explanations are important for Political Science. An explanation is partial because its laws cannot completely account for its explanandum; this is the nature of most, if not all, laws about political phenomena. Therefore, all variables used to explain the decision of the president to send troops to nation alpha can be referred to as explanandum. Explanan, on the other hand, is the phenomenon that is explained.

One might have an explanation of sorts, but still not think it meets even the requirements of the partial explanation. In this case, we might classify the argument as an explanation sketch. Such an argument is characterized by a lack of explicitness and logical rigour; yet it points to an explanation. Thus, it serves as a sort of outline or sketch to direct one's attention toward possible relationships and ultimately a more complete explanation. The Social Sciences, including Political Science, abound with such explanation sketches. They are valuable if it is remembered that a complete explanation is still far in the future. Take, for instance, Nathan Leites's explanations of Soviet politics, which begins with the maxim, "Character determines behaviour." They boil down to attempts at characterizing the Bolshevik-type personality and then relating it to political behaviour such as decision-

making. Leites's explanations are speculative and, like most psychoanalytic analyses, a bit short on scientific rigour. But as explanation sketches, they are interesting and potentially useful, for they point out some possible explanatory factors - in short, a start is made. Once again, we must admit that in its present stage of development, Political Science must often be satisfied with the explanation sketch. But that is an empirical, not a logical, shortcoming. The formulation of explanation sketches is closely related to the development of hypotheses. Both involve speculation and educated guesses. An explanation sketch will have hypotheses as a major component which if shown to be scientific laws, will allow the sketch to become a full-fledged explanation.

All of these incomplete explanation types can be distinguished from the pseudo or non-explanation according to one main criterion: No matter how incomplete, it will be possible to test even an explanation sketch (admittedly, this may take some doing). That is, even in its rough state, the incomplete explanation makes some reference to empirical entities to the world of experience. Such is not the case with non-explanations. "In the case of non-empirical explanations or explanation sketches the use of empirically meaningless terms makes it impossible even roughly to indicate the type of investigation that would have a bearing upon these formulations". This distinction between incomplete and pseudo-explanations is important to our analysis. Many of the explanations that one finds in Political Science are incomplete rather than pseudo. Thus, while they should be evaluated and criticized according to the standards of sound scientific explanation, they should not be dismissed as useless. To the contrary, their explication should lead to more explanations that are complete when more sophisticated laws are available. A framework for such explication will be discussed in the next unit.

Self-Assessment Exercise (Unit 1)

What do you understand by explanation in political inquiry? Differentiate between exaplanan and explanandum.

4.0: CONCLUSION

This unit has explained the criterion for complete explanation. It has identified the conditions for complete and incomplete explanation and the implications of these for prediction. Apart from this, the unit has explained the meaning of explanation and prediction in political inquiry and their importance for understanding political inquiry.

5.0: SUMMARY

After reading this unit, students should be able to understand the meaning of explanation and prediction in political inquiry. They should also be able to identify the criteria for making complete explanation and the elements for complete and incomplete explanation.

6.0: TUTOR-MARKED ASSIGNMENT

(a) Critically examine the meaning of explanation in political inquiry.

(b) Analyze the usefulness of prediction in political inquiry.

(c) Examine critically the criteria for complete explanation in political inquiry.

7.0: REFERENCES/FURTHER READING

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UNIT 2: PATTERNS OF EXPLANATION IN POLITICAL INQUIRY

1.0: INTRODUCTION

This unit introduces the various patterns of explanation in political inquiry. It identifies the patterns and explains them in their various categories bringing out the qualities of each pattern and their usefulness in political investigation. The unit identifies about six patterns in this regard which include dispositional, intentional, rational, macro-institutional, system-maintaining, and genetic patterns. The unit however explains the

possibility of adopting two or more patterns in a particular explanation which is a common phenomenon in Political Science.

2.0: OBJECTIVES

After reading this unit, students should be able to:

(a) Understand the meaning of patterns of explanation in political inquiry.

(b) Identify the various patterns of explanation in political inquiry.

(c) Explain these patterns and identify their various activities.

(d) Assess the use to which each of these patterns for their analysis in political investigation.

3.0: MAIN CONTENT

3.1: Patterns of Explanation in Political Inquiry

There are six patterns. The first three, dispositional, intentional, and rational, employ human characteristics as independent variables. The others are macro-institutional, system maintaining, and genetic. It will become clear that a single criterion has not been used to classify patterns. For instance, dispositional explanations are distinguished from macro explanations mainly by content, that is, the different types of concepts used as independent variables in their generalizations. On the other hand, a dispositional explanation and a genetic explanation have different structures. But we need not provide lengthy justification of this multiplicity of criteria, since our basic thesis is that all sound explanations are nomological. In this unit, we are interested in describing the methods (patterns) of explanation used by Political Scientists.

Before moving to the patterns, one more point needs clarification. Each of the patterns is an ideal type of sorts. The explanations that one finds in the literature of Political Science

are often mixed. However, in most explanations, one pattern is dominant, or two or more co-equal patterns are distinguishable; therefore, we are justified in speaking about six patterns and assuming that such discussion is useful for the practicing Political Scientist.

Self-Assessment Exercise

Identify the various patterns of explanation in political inquiry.

3.2: The Dispositional Pattern

The dispositional pattern in Political Science is so labeled because it uses dispositional concepts. A disposition is a tendency to respond in a certain way in a given situation. Included in the class of dispositional concepts are attitudes, opinions, beliefs, values, and personality traits. The dispositional pattern can be distinguished from the intentional pattern because the former makes no reference to conscious motives. In other words, the link between the disposition and behaviour is not "out in the open."

May Brodbeck has pointed out that the dispositional definition may be employed as the generalization in an explanation. Thus, we might explain an individual's electoral decision by stating the following definition: "A leftist is one who votes left" (voting left defines the disposition), and then claiming that the individual is leftist. However, the explanation is, in May Brodbeck's words, "vacuous and circular." That is, useful dispositional explanations that tell us something about the world will relate the disposition to another factor, the result being an empirical generalization. Such an explanation is not vacuous and circular. Thus, the pattern's nomological nature becomes evident. Dispositions are antecedent conditions, independent variables that must be linked to resulting actions by covering laws before they can explain anything.

There are as many types of dispositional explanations as there are kinds of dispositions. Some of these have already been mentioned. However, there are several other dimensions according to which dispositional explanations can be classified. Dispositions may be

attributed to individuals, decision makers, groups, types of people, classes, nations, or all men. The law or relationships can be explicitly stated, consciously assumed, or unconsciously implied; and based on controlled analysis of statistical evidence, observation and experience, or commonsense speculation. A succinct statement of these dimensions can be made in a series of questions, the answers to which provide a clear categorization of any dispositional explanation:

1. What kind of dispositional concept?

2. Who has the disposition?

3. How is it related to behaviour (how well-developed and articulated are the laws)?

4. What kind of evidence is provided (how scientific)?

The last two questions can be asked of any pattern.

Let us consider an example. Lewis Dexter has attempted an explanation of the proposed fact that congressmen believe the mail they receive from their constituents is valuable and worthy of consideration. The explanation is based on a number of attitudes and beliefs that Dexter thinks lead to the general disposition (the belief). He discusses five such dispositions. Included are values: "Most congressmen genuinely treasure the right of petition and the opportunity of the individual citizen to complain about mistreatment" and beliefs: "Some congressmen actually believe and many others like to feel that on any issue of national significance rational communication between them and any constituent is possible." Dexter characterizes these as dispositions peculiar to congressmen. In order to use them in explanations, they must be related as generalizations to the phenomenon being explained.

Dexter also uses another kind of dispositional concept. This is a general psychological attitude attributed to all or most people. "Most people seem to prefer to know what they

are supposed to do" helps explain the congress man's desire for indications of constituents' wishes. The statement containing dispositions concerning most people can be considered a generalization about most people. Since congressmen are people, the generalization applies to them. We can conclude that dispositions employed in explanations must be found in generalizations. For this reason, the dispositional pattern has explanatory power.

Self-Assessment Exercise

How would you describe the dispositional pattern of explanation in political inquiry?

3.3: The Intentional Pattern

The existence of a dispositional pattern in our typology indicates that much political behaviour is not intentional. Still, there is a class of actions that seem to manifest such purposive behaviour. This is the basis for the inclusion of an intentional pattern. The term intention refers to all actions (not necessarily successfully carried out) that are consciously purposive. Political scientists often attempt to explain political phenomena by showing that the explanandum is the result of some intentional action.

The simplest kind of intentional explanation can be schematically presented: "X does Y because he intended to do it." But this is not a complete explanation of Y, because no grounds are given for expecting its occurrence. Just because X intended to do Y doesn't mean X will actually do it, unless we have a law, based on empirical evidence that such a person as X acts upon his intentions. Thus, this simple law is necessary: intentions need not result in actions. Some sort of statement is required that provides grounds for explaining the action. Thus, for instance, saying that Senator Smith lent his support to the Civil Rights Act of 1969 because that was his intention doesn't explain anything unless we include the general law that "When a senator intends to support a bill, he usually

does." Even in this overly simplified case, a generalization is necessary for sound explanation.

Usually, however, what we have called an intentional or purposeful explanation includes more justification of its explanandum than "because he wanted or intended to," and "he who intends to, does." If we want an intentional explanation of a political phenomenon (X) that goes beyond this trivial argument, we will probably have to refer to goals or objectives. It can be asserted that another important characteristic of most intentional explanations is that there is some reference made to goals, purposes, or objectives. The structure of the pattern then becomes, "X did Y because he wanted G," based on the generalization "people who want G tend to do Y under these particular conditions."

We have noted two kinds of intentional explanations based on two kinds of intentional generalizations. The second clause is important because intentional explanations, whether of the simple (because he intended to) or more important goal-seeking (because he had X-goal) type, require laws that relate the intention to the explanandum phenomenon and demonstrate why it is as it is. The mere stating of an intention or a goal does not explain (unless there are laws implied and we accept it as a partial or elliptical explanation).

Lewis J. Edinger's explanation of why the nonpolitical elite in postwar Germany were not anti-Nazi is intentional because it is based on the proposed fact that the costs of a purge of pro-Nazi officials would have been more than the Allies were willing to pay. Edinger explains the lack of a purge by setting forth the conditions for the decision to carry one out-that is, recruiting an entirely new group of anti-Nazi, nonpolitical leaders. His explanatory law is, "The more extensive the purge the more it will cost. On the other hand, the less the victor is willing to pay one or the other price, the more difficult it will be to carry through such a purge." Clearly, the term that makes this a variation on the intentional theme is "willing." If X is not willing to pay the price, it will not carry out the purge. The explanation is not, "X failed to carry out the purge because it didn't want to,"

but, “because it didn’t want to pay the price required.” The lawful relationship exists between purging and willingness to pay the price. In short, goals are cited to explain the action.

So intentional explanations, like all other sound explanations, are nomological. They differ from the other patterns only in the type of concepts used and the way in which generalizations are arranged. However, some philosophers of Social Science see in intentional explanation a unique way of accounting for social phenomena - a method of explanation logically distinct from the nomological model. The basis of this position is a belief that a citing of intentions explains by showing the meaningfulness of the behaviour in question. “The explanatory force of learning the agent’s intention depends upon the author’s familiarity with intentional behaviour; the explanation must solve a puzzle and in order for the puzzle to exist there must be a ‘previous stock of knowledge and beliefs’ with which the perplexing event is at variance.” This interpretation of intentional explanation is based upon an assumption that we tried to refute in the first section. We contended that the psychological fact of familiarity has nothing to do with the logical requirements of explanation. There seems to be an added attractiveness in viewing intentional explanation as being somehow more “meaningful” than other kinds. However, an intention explains a political fact only insofar as it is lawfully related to it. That the fact is made psychologically meaningful is neither a necessary nor sufficient condition of the explanation.

Self-Assessment Exercise

Analyze the intentional pattern of explanation in political inquiry.

3.4: The Rational Pattern

A rational-type explanation is based on the presumed or demonstrated rationality of men (all or types of men). This pattern may be considered as a special case of intentional

explanation in the most general sense. However, it is sufficiently distinct and in wide enough use among political scientists to justify separate consideration

A rational explanation has the form "X because Y is rational" or, bringing out its nomological nature, "X because Y is rational and in situation S, a rational man does X." There are many points in this basic characterization that require explication, but first a preliminary definition of rationality is in order.

Most definitions talk about rational behaviours or action; thus, people are rational insofar as they behave rationally. Robert Dahl and Charles Lindblom have stated what seems to be the consensus definition of rational behaviour: "An action is rational to the extent that it is correctly designed to maximize goal achievement, given the goal in question and the real world as it exists." An individual is rational if his pursuit of goals is as efficient as possible. The importance of goals to rationality indicates why we could say at the outset that rational explanation is, in a way, a special kind of intentional explanation. According to the definitions we have been considering, all rational behaviour is goal-seeking. The only difference between it and the intentional pattern is the claim that rational action is the best way to achieve a goal. An intentional explanation makes no such claim; it merely states that X has goal Y and in situation S, people with Y tend to do W to achieve it-W is not necessarily the best method. J. W. N. Watkins has succinctly made his point: "If we define purposeful behaviour as trying to do or achieve something, it follows that fully rational behaviour is a limiting case of purposeful behaviour." We can see why the rational pattern is often confused with intentional explanation.

We have referred to the nomological nature of rational explanation. Let us now show in more detail why this pattern shares the basic logical structure of all adequate scientific explanations. Saying that "A man, M, voted for candidate X because M was rational," while providing the outline of an explanation, does not really account for the behaviour. It lacks the information that relates the initial condition, "M is rational" to the

explanandum, “M voted for candidate X.” This is provided by the generalization that, “A rational man in situation S (the available candidates) would vote for X (or an X-type candidate).” Given the condition that M is rational; the direction of voting is explained (or predicted). If we adopt the consensus definition of rationality - the rational seeking of given goals - then the explanation takes the form: “M has goal G (to have his interests acted upon); M is rational; in situation S, a rational man with goal G will vote for an X-type candidate; X is an X-type candidate; therefore, M will vote for X.” The structure of the two is the same; the second case is simply more refined.

According to Carl Hempel’s formulation of the rational pattern, rationality becomes a sort of dispositional concept, for it presents A’s action as a manifestation of his general disposition to act in characteristic ways in ways that qualify as appropriate or rational-in certain situations. To have the disposition of being rational is not logically different from identifying with the Democrats (attitude) or being authoritarian (personality trait). We have previously classified rational explanations as a special case of the intentional pattern. Now “being rational” has been characterized as dispositional. These two ideas can be integrated, with the result being an interesting formulation of the rational pattern. We can say that explaining rationally consists of stating an agent’s goal; attributing a disposition, rationality, to the agent; and, finally, formulating a law relating them to the action being explained. “If X has A goal and is rational, then he does C.”

Another portrayal of the rational pattern is Graham Allison’s attempt to explain Soviet and American decisions during the 1962 Cuban Missile Crisis. According to his formulation, (this is one of three patterns Allison tries out) one begins with an action, the decision of the Soviets to place missiles in Cuba, then makes the assumptions that Premier Krushchev made the decision and that he was rational. The explanation would involve determining what the goal of a rational leader making such a decision would be. After sifting through a number of possible goals and considering the potential gains and losses of each, Allison concludes that Krushchev was trying to close the missile-gap—

decrease American superiority in nuclear weapons by placing Russian missiles at America's doorstep. According to this rational account, this is the only goal that was worth the great risk of an American retaliation.

This is apparently a reasonable explanation of the Soviet decision, yet we don't actually know what the intentions of the Soviets were. Thus, as Allison would point out, he has not actually explained that decision, but he has instead given it a rational reconstruction: it might be that Krushchev had other goals and/or was not rational. We might view this example as an explanation sketch; if Krushchev was rational, if his goal was to close the missile gap, and if there is a generalization that indicates leaders in this kind of strategic situation will usually take great risks to improve their nation's position, then we have begun to explain the decision.

Self-Assessment Exercise

Justify the rational pattern of explanation in political inquiry.

3.5: The Macro Pattern

We have now analyzed three patterns of explanation. Each pattern accounts for political phenomena in a different way, on the basis of different types of independent variables. Yet, all are similar in that (1) they are nomological, and (2) the concepts, and subsequently the generalizations containing them that account for the explanada, explicitly refer to human characteristics, whether individual or group. The pattern of explanation, which will be analyzed in this section, parts company with the first three patterns on the latter point. That is, the generalizations that a macro-institutional explanation employs have as antecedent factors or independent variables institutional or physical concepts, so that in an institutional law A — B, the A is such a concept. There are, consequently, two variations of the macro pattern, the institutional and the physical.

The dispositional pattern already analyzed includes some group properties - group dispositions, such as public opinion and national character. These are properly considered as statistical averages of many individual opinions or individual personality traits. Thus, since we have classified such concepts as dispositional, they will not be included in this section. What we are saying is that there is a difference between an institution (admittedly made up of individuals and properties of individuals) and a group property such as public opinion. The opinion of a group is a direct disposition of the individuals who make up the group. When an institution such as the party system is cited as the cause of a political phenomenon, a property of that institution, its decentralized nature, for instance, is usually being referred to implicitly or explicitly. Thus, one might want to call decentralization a disposition of a party, since its existence is determined by observing certain behaviours of political parties in given situations.

This is not incompatible with our macro pattern, even when we add the additional assumption that such dispositions as party decentralization and group cohesion are ultimately reducible to laws about individual behaviour. That is, we can give this interpretation of party decentralization and still opt for the usefulness of a macro pattern of explanation in political science because the decentralization of a party is not a direct characteristic of its members as is a public's opinion. While according to methodological individualism this concept is definable in terms of individual behaviour, an individual is not cohesive; but an individual has opinions or personality traits. Therefore, we talk about the decentralization of the party, or the institution. This is because, while the party's decentralized nature is in part a result of human dispositions these interact to give the institution a characteristic that none of the individuals possess.

One of the best-known explanations in the literature of Political Science is the accounting for of the U.S. two-party system. One of the first formulators of such an explanation was E. E. Schattschneider. The general hypothesis he operates from is "The American two-party system is the direct consequence of the American election system, or system of

representation." Two institutional features of the electoral system in particular are cited as antecedent conditions-single-member districts and plurality elections. The French sociologist Maurice Duverger has stated his version of the law: "The simple-majority single-ballot system favours the two-party system," and he says about it, "Of all the hypotheses that have been defined in this book, this approaches the most nearly perhaps to a true sociological law." These arguments are important to us because they represent straightforward institutional explanations. The fact of having a two-party system is adequately accounted for by laws relating it to institutional properties of the electoral system.

We have sketched the general nature of the macro pattern and provided a justification for its consideration as a separate kind of explanation. One kind of macro explanation uses institutions and properties of institutions. There is another subclass of the macro category. Besides institutional explanations, there are those explanations employing physical characteristics of the environment. Thus, David Easton identifies three categories of, as he calls it, situational data: "(1) the physical environment; (2) the nonhuman organic environment; and (3) the social environment or patterns of human activity flowing from social interaction." The latter is close to the institutional category we have just discussed, and the former refers to our present concern. Easton also says that "Our physical environment influences our activity, regardless of the kind of people we are, our nonorganic resources, topography, and spatial location, such as being near or distant from the seat of government, influences the kind of political lives we lead." A physical explanation in Political Science in simplest terms takes the form "A; if A (a physical fact), then B; therefore B (explanandum)." Physical facts include geographical variables and characteristics of the political system; for instance, the type of electoral ballot can be considered as a physical explanatory factor.

Some students of politics have noticed a relationship between the type of ballot and the incidence of straight-party voting. Angus Campbell states the association in the following

manner, “We find, in the states which make it relatively easy for the voter to mark a straight ticket, that the number of straight tickets marked is some 20 percent higher than in those states where the ballot requires a series of separate decisions among the candidates for each of the various offices.” In a study of the impact of the Australian Ballot on voting behaviour in the United States, Jerold Rusk concludes that “institutional properties of the electoral system, considered either as an entity or as a network of component parts, have played and continue to play a crucial role in influencing and shaping voting behaviour-in essentially defining the conditions and boundaries of decision making at the polls.”

Enough has been said to indicate that the macro institutional pattern is, like all sound explanatory types, nomological. In fact, macro explanations are perhaps more readily recognized as such than many other patterns because they claim that a political phenomenon is associated with a certain institutional characteristic or physical fact. That this association has to be expressed in a law seems evident.

Self-Assessment Exercise

Critically examine the macro-institutional pattern of explanation in political inquiry.

3.6: The System-Maintaining Pattern

There are many activities in Political Science called functional or system- maintaining. These may not be explicit in this book as you are expected to have studied these in some other areas of your discipline. Our pattern includes only those that attempt to provide sound explanations of political phenomena. Thus, several types of functional analysis have been rejected for inclusion in this section because they are not explanatory.

An important case of presumably sound but actually invalid explanation must be distinguished from the potentially sound variety of system-maintaining explanation. In it

the behaviour pattern or institution that is the explanandum is supposedly explained by showing that it is necessary for the performance of functions that are required by the system. The application of the label teleological can be seen as justified, for the present existence of a political phenomenon is being explained by its end. This kind of functional- teleological explanation is not sound. It is difficult enough to demonstrate that a certain function is necessary for the maintenance of a system - for instance, the allocation of values. However, it is another thing to prove conclusively that a particular political institution or activity is the only thing that can perform the function. Thus, we might be able to present evidence that a certain political function is necessary for the maintenance (continued existence) of the social system. But one cannot show that a particular political institution is the only one that could perform the function.

At this point, we can discuss the sound type of system-maintaining explanation. Its main feature is the assertion and perhaps demonstration of a causal relationship between variables and a system. "It should be apparent that functional explanation is essentially causal; if it is concerned with the effects of a given activity or practice on a system, its purpose must be the establishment of cause and effect relationships." Based on the analysis earlier on made, it seems reasonable to assume that if causality has any significance at all, it is because "to show cause" means "to subsume under general law the concept of cause is reducible to the covering-law model. It follows that to explain functionally or to use the system-affecting pattern is to employ laws; thus, there is no difference in this respect from other sound patterns of explanation. In explaining a certain change, state, or maintenance of a system, we show what factors help produce it. The causal relationship can only be accounted for by citing a law that indicates the resulting state of affairs is expectable under the circumstances. The distinctive feature of system-maintaining explanations is the dependent variable, system maintenance. Such an explanation demonstrates that certain functions are necessary for the maintenance of the system and that specific variables fulfill these functions.

Self-Assessment Exercise

Discuss the system-maintaining pattern to the study of political inquiry.

3.7: The Genetic Pattern

Of the six patterns of explanation we have distinguished, the one that is the most distinctive structurally is the genetic pattern. Each of the other patterns can be reduced to the admittedly oversimplified schema, "If A (representing laws and initial conditions), then B (the explanandum)." But, in Ernest Nagel's words, "The task of genetic explanations is to set out the sequence of major events through which some earlier system has been transformed into a later one." Thus, a genetic explanation does not fit the above schema because it involves several stages. Its basic pattern (in its simplest form, involving only two stages) is, "If A (factors at time 1), then B (consequent factors); and if C (B plus other factors at time 2), then D (explanandum)." It is clear that the factors in the schema occur at different times. This is why we said the genetic pattern is characterized by stages. A simple causal explanation, "If A then B; A, therefore B," involves a time sequence. However, a genetic explanation is marked by at least two explanation stages, each of which can be considered a separate explanation, which together show why a political phenomenon is as it is or was what it was. In other words, an explanation fitting the genetic pattern first explains a state of affairs X and then proceeds to explain, on the basis of X, another state of affairs, and so on.

Thus, the genetic pattern accounts for the present state of a political phenomenon by showing how it developed over time from previous stages. It differs from other patterns because of this developmental element and the multiplicity of stages. From what we have said so far it seems reasonable to conclude that the genetic pattern is often identified with historical explanation. It is also interesting to note that much of the methodological analysis of the genetic pattern has been carried out by philosophers of history. Many of the explanations provided by Political Scientists that can be classified as genetic are

actually historical. In these instances, the Political Scientist functions as an historian in accounting for political events or situations. For instance, Wilfred E. Binkley traces the development of the office of the Presidency using a narrative style that mentions the key historical occurrences that Binkley believes influenced the formation of the office. But genetic and historical explanations are not identical. There are genetic explanations that are not historical in the technical sense, for instance, the explanation of the development of party identification in The American Voter.

A main characteristic of many genetic explanations is a narrative style or chronicling of events. However, in accounting for a political phenomenon, not every antecedent event is relevant. We can say genetic explanations account for political phenomena by describing a series of relevant events, which in a chain-like fashion determine the state of the explanandum.

However, there is more to genetic explanation than a listing of relevant stages in the development of a political phenomenon. A genetic explanation accounts for a political phenomenon by showing how it was changed or influenced at various stages in its development. The important point is that each stage supposedly has some influence on the following stage, and so on until the explanandum is reached; one talks about "necessary conditions." The question is how can each stage be linked to the next? Our answer is through the use of generalizations. That is, a law explains why the phenomenon changed from A to B, and then another law relates some part of B to C, and so on. Thus, we see that if a genetic explanation is to be of any value, it must be nomological, for it depends on the demonstration that one stage has an effect on the next.

An example will help clarify our argument. William Riker's explanation of the decline of judicial review can be interpreted as a genetic explanation. Taking some liberties with his analysis, we can present the following as an explanation of the phenomenon in question:

(1) the Supreme Court's experience with the "Court-packing" bill of 1937 persuaded it to practice judicial restraint;

(2) one manifestation of its judicial restraint was its periodic restriction of doctrines that had been used to justify striking down acts of Congress;

(3) therefore, when acts of Congress that previously were affected by such doctrines come before the Court, it does not employ the doctrines. Thus, it does not practice judicial review.

The explanation is genetic because the explanandum is the result of the relationships between three stages of the Court's history. And each relationship must be expressed in the form of a law; for instance, "a judicial body which is trying to divest itself of a power will give up devices that justify the exercise of the power."

In addition to laws, nomological explanations contain initial conditions. The upshot of this fact is the realization that each stage of a genetic explanation is a separate explanation. Thus, using the example from Riker, we see that the explanation of the Supreme Court's adoption of judicial restraint (because of the fear engendered by the attack of Roosevelt in 1937) is logically independent of the next step. Each of the consequent steps can be pulled out of context and made to stand as a complete explanation of a single development.

The realization that initial conditions are a part of genetic explanations provides the foundation for an important caveat about the pattern. It is that the genetic pattern should not be thought of as an historical theory of society like Spengler or Marx. A genetic explanation merely states that, "At stage I, A happened, which, because of events 1 and 2 at stage II, helped cause B, which, because of events 3 and 4 at stage III, helped cause C." In other words, the explanation does not read A $\rightarrow$ B $\rightarrow$ C (or as it would in Marxian theory, feudalism $\rightarrow$ capitalism $\rightarrow$communism). This is because we are noting how a

combination of conditions at each stage influences the next stage. There is nothing inevitable about the outcome C, because events 1, 2, 3, and 4 did not have to happen (although they were caused). Again, contrast this with Marx's inevitable historical stages.

Self-Assessment Exercise (Unit 2)

Distinguish the genetic pattern of explanation in political inquiry

4.0: CONCLUSION

At the end of this unit, it could be observed that patterns of explanation in political inquiry vary based on the concept being explained. These patterns have different structures even though some are structurally similar.

5.0: SUMMARY

This unit has explained the various patterns of explanation in political inquiry by identifying the major characteristics of each and their usefulness. It has also categorized them into various orientation based on the structure of these patterns.

6.0: TUTOR-MARKED ASSIGNMENT (TMAs)

(a) Explain some patterns of explanation in political inquiry

(b) Identify the various patterns of explanation in political inquiry.

(c) Distinguish between dispositional pattern and macro-institutional pattern of explanation in political inquiry.

(d) Critically assess the genetic pattern of explanation in political inquiry.

7.0: REFERENCES/FURTHER READING

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UNIT 3: THEORIES AND MODELS IN POLITICAL INQUIRY

1.0: INTRODUCTION

This unit explains the meaning and development of theory and models in Political Science. The unit explores the similarity between theory and models in political analyses and explains their usefulness. It analyzes the importance of theory to political analysis and investigation and shows how to build a theory for political investigation. Also, it explains the usefulness of models and their possible misuse in the realm of political investigation.

2.0: OBJECTIVES

After reading this unit, students should be able to:

(a) Understand the meaning of theory in political inquiry

(b) Identify the usefulness of theory in political investigation

(c) Understand the meaning of models in political inquiry

(d) Identify and explain the usefulness and misuse of models in political inquiry.

3.0: MAIN CONTENT

3.1: Theories and Models in Political Inquiry

Among the activities that are probably essential to the development of a scientific discipline, two that seem especially interesting to Political Scientists are model building and theory construction. There are several reasons for analyzing them in the same unit. Models and theories are structurally and to a certain extent functionally similar. In a general sense, they take us to next level of scientific analysis, after the formulation of concepts and hypotheses. Both models and theories combine concepts and organizations in various ways. On the other hand, their similarity often leads to the unwarranted conclusion that they are identical. For instance, Social Scientist Herbert Simon once began a paper entitled. "The Uses and Limitations of Models," with these words: "in contemporary usage the term 'Model' is, I think simply a synonym for 'theory.' I am to speak, then, on 'Theories: Their Uses and Limitations."

It is useful to make a methodological distinction between theories and models because, as they are used by Political Scientists, they have different purpose, and the failure to realize this difference can lead to confusion and even disillusionment. Thus in addition to analyzing the nature of models and theories, each important in its own right, this unit will attempt to demonstrate that the student of politics is aided in his studies if he understands the difference between them.

The distinction between models and theories is in many ways not a hard and fast one. However, given the normal activities of Political Scientists - all scientists, for that matter - the following proposition is in order; theories are used primary to explain political

facts, models to discover them. This implies a more basic distinction between scientific explanation and discovery, a distinction that will be analyzed in more detail later in the unit. At this point, let us remember that how a Political Scientist develops an hypothesis (discovery) and how he goes about confirming and explaining it are logically distinct activities.

Self-Assessment Exercise

Examine the place of theory and models in political inquiry.

3.2: Theory

It might be useful to begin an analysis of scientific political theory with two distinctions, one important but often ignored, the other misleading yet widely circulated. The first distinction points out that the political theory now under consideration is not the same as that venerable activity that often goes by the same name but which in some cases is labeled political philosophy. Let us recall the normative character of political philosophy, its emphasis on *ought* questions. What should be the goals of the political system? What is the best political system?

These activities can be contrasted with the scientific-empirical nature of political theory, which has to do with *is* questions. Confusion arises from the traditional interchangeability of political philosophy and political theory. While an ever-increasing number of Political Scientists are accepting one form or another of the distinction just mentioned, the confusion lingers. This is attributable not so much to the failure of Political Scientists to understand the nature of scientific theory, although this is one source of difficulty, as to the continued substitution of theory for philosophy, based on the unquestioned assumption that the two refer to the same activity. They don't; the subject of this section is empirical political theory, not normative political philosophy.

A second distinction, the misleading one, is often made between theory and practice. As manifested in the popular statement "That's fine in theory, but it won't work in practice," it assumes that theory or theoretical thinking is false or unrealistic. A student of political theory, Arnold Brecht, put it another way: "The relation between practice and theory is well indicated in the popular saying that we learn best through 'trial and error.' Trial is practice; error refers to theory. When theory miscarries in practical trials, it needs correction. This unit will demonstrate that there is no divorce in the above sense between theory and practice. Rather than being unrealistic or false, a sound theory is the basis for reliable knowledge of politics. Theories help us explain and predict political phenomena, and ultimately help us to make well-founded, practical decisions.

A second related and more sophisticated interpretation of the "theory versus practice" distinction views the former as the result of speculation. Its key phrase is, "That's fine in theory, but will it work in practice?" The distinction is still a fundamental one, but theory is given a higher status. Now, at least, a theory is not necessarily false, for according to this interpretation it is an elaborate hypothesis, a set of guesses to be tested. Thus, to be theoretical is to be hypothetical, potentially true. While this view is more generous than the first, it is misleading in ways that will become more evident as we move along.

Self-Assessment Exercise

Define a theory and distinguish between theory and practice.

3.3: The Nature of Political Theory

Having discussed what political theory is not, it is time to discuss what it is. There seem to be several variations that are popular among Political Scientists. Quentin Gibson has given a definition of theory that is basic: "Sets or systems of statements logically inter-connected in various complex ways". In a similar vein, Nelson Polsby et al have written that, "A scientific theory … is a deductive network of generalizations from which

explanations or predictions of certain types of known events may be derived". The simplest interpretation of theory views it as set of related empirical generalizations. Therefore, several generalizations about a particular area of politics can be classified as a theory. Take, for instance, the laws derived from voting studies. Since each law describes the relationship between a social, economic, political, or psychological variable and a type of voting act (men tend to vote more than women), the conjunction of several can explain voting behavior in a more general way. Alternatively, one may view David Bray-Brooke's "miniature axiomatic system" as a theory, at least a potential theory, of party behavior. It is an attempt to relate a number of generalizations from the literature of party behavior and organize them into a systematic theory.

The notion of political theory as a collection of empirical generalizations about a particular field or subject is a popular one among many Political Scientists. To others it represents a simplified version of the interpretation of theory that is more commonly accepted by the scientific community at large. According to this interpretation, a theory is characterized by the use of theoretical constructs, which we spoke about in previous module. Thus, a theory might be defined as "a set of generalizations containing concepts we are directly acquainted with and those that are operationally defined; but, more importantly, theoretical concepts that, although not directly tied to observation, are logically related to those concepts that are.' This provides the basis for a distinction between theories and empirical generalizations. While the latter can be empirically tested (confirmed or rejected), because their concepts are directly tied to observation, we can't test in the same way a generalization that contains theoretical (or, by definition, no observable) concepts. However, this is not to say that theories cannot be tested and evaluated.

Despite their characteristic use of theoretical concepts, sound theories are empirical. We can say that a scientific theory has two features. One structural, the other substantive; one referring to the relationship between its concepts, the other to its empirical content. Carl

Hempel has provided a more technical description of the elements of scientific theory: "any … scientific theory may be conceived of as consisting of an uninterpreted, deductively developed system and of an interpretation which confers empirical import upon the terms and sentences of the later. We might begin with a purely formal logical system such as Euclidean geometry, where concepts are implicitly or internally defined, and then directly define (tie to observables) some of its concepts. This would then give the other concepts, those we have labeled theoretical, indirect empirical import. There is a difference between an uninterpreted mathematical or logical system and a scientific theory, and difference is the empirical nature of the latter.

Philosopher of science May Brodbeck notes in answer to the question, "What exactly is a model and what purposes does it serve?" that "I venture to suggest that 10 model builders will give at least five different, or at least, apparently different answers to this question." It is probably that definitions of model are so numerous that we cannot mention all of them. However, there is no notion of model that merits initial consideration. It is more rigorous than the others and usually serves as their foundation, often in an indirect way. However, in its fully developed form, this notion of model is not the most widely accepted (or even recognized) in political science.

The technical, or the professionally acceptable meaning of model is based on the notion of isomorphism, which refers to the similarity between one thing and another (its model) More technically, isomorphism requires the followings:

1) that "there must be a one-to-one correspondence between the elements of the model and the elements of the thing of which it it's the model, and

2) that "certain relations are preserved". Models of this sort are found in all areas of life (for instance, scale-model airplanes); in science, the isomorphism is usually thought to hold between two theories, or more explicitly, their laws. This is what we will take as the core meaning of model. If the elements (generalizations or concepts) of one theory are in

one-to-one correspondence to the elements of another theory and the required relations hold, the one may be called a model of the other.

This type of model - an isomorphism between two empirical theories - is nonexistent in Political Science; the reason is the lack of any sound scientific theories of politics. However, following May Brodbeek, we can mention another notion of model that also involves isomorphism, this time between an empirical theory (in the sense of a set of empirical generalizations) and a set of purely arithmetical truths. "if this is the case, then the latter is called an arithmetical representation of the empirical theory. This meaning may be more relevant to Political Science, largely because of the increasing use of game theory, which is an "arithmetical representation."

Besides these isomorphic models, there are, as Brodbeck notes, several other common usage of the term, none of them directly involving isomorphisms.

1) "Any as yet untested or even untestable theory may be dubbed a model,"

2) Model may also be used to refer to abstracted theories, like those about economic man.
3) Theories making use of ideal entities such as perfectly straight lines are often called models.

4) When numbers can be attached to the concepts of a theory; it is often called a model. Brodbeck calls these uses of model unnecessary.

However, it would seem that they, or combinations and variations of them, are what Political Scientists have in mind when they use the term model. For instance, in speaking of model-building activity, Williams Riker writes, "The essential feature of this method is the creation of a theoretical construct that is somewhat simplified version of what the real world to be described is believed to be like". Riker's idea of model doesn't appear to emphasize an isomorphic relationship; this is the key point. Rather, he, along with many

other Political Scientists, uses model in the idealizing and abstracting sense mentioned by Brodbeck (usages two and three).

The basic argument of this section, that models are unlike theories in that they do not explain, assumes that model either means arithmetical representations or realized or abstracted theories in the general sense just described. Isomorphism of theories will not be considered because, as we have already noted, there are few, if any, theories in political science. Some might say we are subverting the real meaning of model. However, we are primarily interested in what Political Scientists attempt to do with models. Furthermore, even the subverted notions of model are remotely based on isomorphism. An idealization or simplification of something is a rough isomorphism, because the former resembles the latter to a greater or lesser degree. Perhaps a way out of this controversy is to substitute another word for models; "conceptual scheme" is one in widespread use. Thus, "model" would be saved for cases where there is an isomorphism between theories. However, because most Political Scientists continue to use the term model, we will also.

Self-Assessment Exercise

Identify the nature of political theory.

4.0: CONCLUSION

It is obvious that scientific inquiry of political phenomena will not be possible without the construction of theory. This stems from the formulation of hypothesis and law. Therefore, theory construction and model building are common phenomena in establishing the scientific orientation of Political Science.

5.0: SUMMARY

In this unit, we have tried to explain the meaning of theory and model as well as establishing their uses and misuse in political inquiry. Also, this unit has analyzed the heuristic value of both theories and models to the understanding of the science of political inquiry.

6.0: TUTOR-MARKED ASSIGNMENT (TMAs)

1. Critically examine the role of theory in political investigation.

2. Analyze the quality of a good theory in political inquiry.

3. Describe the usefulness of models in political inquiry.

4. Identify the misuse of models in political inquiry.

7.0: REFERENCES/FURTHER READING

Brodbeck, M. (1959) "Models, Meanings, and Theories", in Leonard Gross (ed.) *Symposium on Sociological Theory,* Evanston, III: Row, Peterson.

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UNIT 4: FUNCTIONS OF THEORIES

1.0: INTRODUCTION

This unit explains the functions of theory in Political Science. It analyzes the various functions as performed by theory in political investigation bringing to fore the role of theory in the analysis of concept formation and introduction. It also explains the place of theory in Political Science discipline as a whole and how this affect orientations in political inquiry.

2.0: OBJECTIVES

After reading this unit, students should be able to:

(a) Identify the functions of theory in Political Science.

(b) Analyze the place of theory in political investigation.

(c) Be able to construct theory for political analysis.

(d) Differentiate between theory and model.

3.0: MAIN CONTENT

3.1: Functions of Theories in Political Inquiry

Since theories are empirical, they can be evaluated according to their soundness. A close analysis of a proposed theory should indicate whether it is properly constructed and empirically based. But perhaps a more fruitful approach to the nature of scientific theory is through an examination of the functions it performs, for one way to evaluate a theory is to determine how well it is doing what it is expected to do. Several comments have already suggested that a theory's major function is importantly to explain singular facts and occurrence, but perhaps more importantly to explain empirical generalizations. This latter function is what gives the scientific theory its power.

Briefly, a theory can explain empirical generalizations because it is more general, more inclusive than they are. The great power of Newtonian mechanics, demonstrate over the centuries, is based upon the ability of a rather small set of theoretical laws to explain a great number of empirical laws about bullets, missiles, and other moving objects. "Explain," following the logic of the previous module, means that the empirical generalizations are deductively implied by the theory.

The same situation could exist in Political Science, although it is presently misleading to talk about an existing theory of politics (in the second, more sophisticated sense of theory). Let us suppose that general stimulus-response learning theory can explain a wide range of empirical laws, all the way from the voting behavior of individuals to the military activity of nation-states. The point is that if learning theory were a sound theory of political behavior, a set of general laws using such theoretical concepts as "demand" and "habit" would explain or imply a number of generalizations that previously had appeared to be independent, or at least not closely related.

This implies that in one sense a theory is not to be judged true or false, but more or less useful as an explainer of empirical laws. Since laws describe our knowledge in a particular field, the sound theory explains the knowledge more generally and completely, indicating to use the interconnection between seemingly isolated facts.

In taking this position, we cannot overlook a controversy that exits among philosophers of science over the status of theories. Some say they are true or verified in the sense that empirical laws are. That is, they are real descriptions of the world of observation. This position, usually labeled the realist, recognizes no local or philosophical distinction between theoretical and non-theoretical concepts, since they both refer to real entities. The opposing school of thought, the instrumentalist, takes another position closer to one we adopted in the last paragraph. It argues that there is no point in trying to determine whether a theory is true or false, since it is neither. It does not describe the world, but explains or predicts worldly phenomena.

A theory is tested according to how well it performs its major functions; thus, the label "instrument." This is close to our notion of theory. However, the strict instrumentalist's complete rejection of the realist theories is questionable. While a theory contains theoretical concepts, it is also tied to observation through an empirical interpretation. Thus, it more or less describes the world. The theoretical concepts fill in the gaps and allow the theory to explain in more general terms what has been explained by individual empirical laws.

Lurking behind explanation is another function of theories, scientists use theories to organize, systematize, and coordinate existing knowledge in a particular field. According to the first notion of theory, a set of related empirical generalizations, a theory is systematization. A theory of voting behaviour would be a set of relevant generalizations that have been collected and put into logical juxtaposition. According to the higher level notion of theory, a theory organizes as it explains. As several diverse generalizations are

accounted for by the theoretical propositions of the theory, they are also related and made parts of a system of knowledge.

Theories explain and organize existing knowledge. They also suggest potential knowledge by generating hypothesis. A theory can, on the basis of its highly abstract generalizations, often predict an empirical generalization – predict that a particular relationship holds. The hypothesis can then be tested and accepted or rejected. Thus, in addition to its explanatory and organizational functions, theory has a heuristic one – to suggest and to generate hypotheses.

Self-Assessment Exercise

Explain the functions of theory in political inquiry.

3.2: The Place of theory in Political Science

In determining the role of theory in Political Science, we ought to remember the two notions of theory, for a different conclusion may be arrived at in regard to each. The first question that confronts us is: "Do we have any scientific theories in political science?" From what has been said in this unit, the answer would appear to be no, if we are talking about the higher – level notion of theory. But if this is the case, is there any point in talking about theories? There are probably other mythological topics more significant to contemporary Political Scientists. While, because of limited resources and time, there is some wisdom in this position, it is perhaps too restrictive. For even without a sound scientific theory in hand, the Political Scientist is not wasting his time if he takes an interest in theory-construction. There is a payoff in asking such questions as: what would we have if we had a sound high-level theory? What would be its structure and what functions would it perform? Given the characteristics of scientific theory, are there any potential or near-theories awaiting further development in Political Science literature?

The first set of questions has been touched upon in this module, the last question will be of some relevance to the more substantive analyzes contained in other modules.

If "theory" means a collection of empirical generalizations, then our answer to the original question about the existence of political theories can be more generous. For there are theories, or at least near-theories, of certain kinds of political behavior consider our knowledge of voting behavior. Finally, recall the relationship between the lower-and higher-level notions of scientific theory. The implication is that a collection of laws can serve as the foundation of an abstract theory. Thus, if the higher-level notion is accepted as the standard of theory, the collected laws of voting behavior can be classified as a near-theory. In any case, the condition of theory in political science is not as bleak as it might appear, although at this point in the discipline's development the political scientist's time and effort might be more profitably spent on pre-theoretical activities.

Self-Assessment Exercise (Unit 4)

Examine the place of theory in Political Science.

4.0: CONCLUSION

While it is discernible to stress that theory plays a vital role in any scientific investigation, it is also important to explain that theory construction has to do with socio-cultural environment of the builders and the users. In most cases, scholars examine event in their peculiar environment to construct theory, which may and may not be applicable in other environments. This explains the heuristic value of theory in explaining political phenomena based on scholar's orientation.

5.0: SUMMARY

After reading this unit, it would be observed that we have explained the functions of theory and its place in political investigation in particular and Political Science in general.

The unit has also explained the relationship of the environment to the construction of theory.

6.0: TUTOR-MARKED ASSIGNMENT (TMAs)

(a) Critically examine the place of theory in Political Science investigation.

(b) Identify and explain the functions of theory in Political Science.

(c) Describe the factors to be considered in constructing a veritable theory.

7.0: REFERENCES/FURTHER READING

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UNIT 5: USE AND MISUSE OF MODELS IN POLITICAL INQUIRY

1.0: INTRODUCTION

This unit explains the basic application of models to political analysis and the possibility of misusing models. The unit also explains other available devices in the explanation of political analysis and investigation. The unit further explores the orientations of various scholars in building models for political analysis and the extent to which these models are realizable or unrealizable in Political Science arena.

2.0: OBJECTIVES

After reading this unit, students should be able to:

(a) Understand the various usages of models for political analysis.

(b) Identify various ways by which models can be misused.

(c) Understand the analysis of models as constructed by scholars.

(d) Identify other intellectual devices that can be used for political analysis.

3.0: MAIN CONTENT

3.1: Use and Misuse of Models in Political Inquiry

Our argument begins with the realization that those Political Scientists who construct models often characterized them as unrealistic or idealized. This seems to be the most popular use of model or conceptual scheme in Political Science (although it diverges from the more technical meaning). While asserting its idealized nature, the Political Scientist will often attempt to use his model to explain phenomena. Or more accurately, the creator of a model realizes its limitations as an explanatory device, while those who come after and use the model for their own purposes are prone to make more extravagant claims about its explanatory usefulness. These claims, in their extravagance, are unfounded.

We will now attempt to show why the function of models is not to explain. Let us first consider arithmetical representations. Our primary example will be game theory, since it is one of the most popular and promising models in Political Science. Game theory is arithmetic because it defines rationality - maximizing one's gains and minimizing one's losses - in terms of probability calculus and set theory. It is supposedly isomorphic because the Political Scientist attempts to connect it to laws about political behavior. In this regard, Anthony Downs has provided a model of party politics, William Riker has provided a model of coalition formation, and L.S. Shapley and Martin Shubik have provided a model of power in a committee system.

However, as May Brodbeck has noted, " The trick for the social scientist … Is to find appropriate descriptive terms which when coordinated to the arithmetical ones result in true empirical laws of human behavior. We would argue that, thus far, the confirmed empirical laws have not been discovered. But more importantly, the model-builders usually admit their model as unrealistic. For instance, Anthony Downs say of his model

of rational decision-making, "The model is not attempt to describe reality accurately. Like all theoretical constructs in the Social Sciences, it treats a few variables as crucial and ignores others, which actually have some influence. Notice that beside the model's isomorphic nature (not obvious from this quote) there is reference to idealizing and abstraction. Returning to our central point, even while admitting that his model is unreal, Downs claim that, "it proposes a single hypothesis to explain government decision making and party behavior in general. At another point, he argues, "Theoretical models should be tested primary by the accuracy of their predictions rather than by the reality of their assumptions. Our criticism of this argument rejects the explanatory power of models. In admitting that his model is ideal, unreal, and so forth, Downs has articulated its inability to explain political phenomena. Constructing a theory of rational behavior and then stating that no one really behaves rationally undercuts the model's explanatory value.

We can draw several preliminary conclusions about models and explanation. First, attempts to make arithmetic theories, such as game theory, models of actual political behaviour force the Political Scientist to frame unrealistic assumptions. In admitting that his model does not fit the real world, the model-builder admits, consciously or not, its lack of explanatory power. A mathematical model such as game theory can explain if the actual political world operates in accordance with it - if the two are isomorphic.

Furthermore, models such as game theory contain idealizations referring to concepts like "rational political behavior". Insofar as they are unreal - because they leave out variables - they cannot explain. May Brodbeck has said of such ideal types in economic, "The better the theory, the more knowledge we have about the conditions under which the neglected variable do or do not make a difference. If there are no economic men or if the ideal type of capitalism does not exist, and then certain suggested theories are false. Calling the models will not make them truer". This is the heart of the matter; the

formulators of such models often use them as if they were theories; in other words, they confuse models with theories.

Let us recall the nature of scientific theory. If a theory is viewed as a system of related empirical generalization, we must conclude that models are not theories, for they (model) are not constituted of confirmed empirical generalizations. Since confirmed generalizations are essential to explanation, models cannot be granted the same explanatory states as theories. However, what about the more refined and more widely held conceptions that views a theory as a system of generalizations containing directly observable and operationally defined concepts, and theoretical concepts, which although not observable are logically related to those that are? Are the idealizations and speculations of models logically similar to theoretical concepts? This is the crux of the issue, for if they are, then it would seem that theories are not entitled to a superior explanatory status.

Our answer is that idealized concepts, which are admittedly unreal, cannot be equated with theories that contain theoretical concepts. A theoretical concept is so labeled, not because it is divorced from reality, but because it is derived from observational terms within a theory. Theoretical notions cannot be understood apart from the particular theory that implicitly defines them. Furthermore, to be explanatory, such a theory must have some empirical content, so that the theoretical constructs are linked, at least indirectly, to observational phenomena. The theoretical concepts are non-empirical, idealized, or admitting unreal, but instead, they are not observable; they fit within the empirical theory

Thus, we see that a model (in the idealizing sense) is not an empirical theory. Idealized concepts are not equivalent to theoretical concepts. Insofar as they are ideal they are unreal. The gist of this is that empirically sound theories refer to experience; thus, they can explain experience. If a mathematical model is truly isomorphic with a segment of

political phenomena, it will have empirical referents, and so be able to explain; at this point, it becomes a theory.

We have now argued that models, as they are usually construed by Political Scientists, do not explain as theories can; this includes both notions of theory - a set of related observational-empirical laws, or a set of theoretical laws. But, in criticizing the assumption that models in Political Science explain, we have not meant to detract from their overall scientific value. Models such as game theory can be of heuristic value. It is not difficult to see how. If the Political Scientist is trying to accumulate basic knowledge in his field, it probably helps to have something available that stimulates his imagination and sharpens his insight. It is probably not an exaggeration to say that in a relatively immature discipline like Political Science, such stimulation and sharpening is necessary. Some models admirably perform these functions. If the model is a simplified interpretation of reality, the researcher is forced to consider what the situation would be like if the model did describe reality and to what extent the model is unreal. If the model is based on a formal theory such as game theory, there is a host of relationships suggested that can be tested. If a model of politics is based upon a structure or theory in another area, a biological model for instance, the researcher has a potentially rich supply of hypotheses generated as he compares his field with the other.

The reason for our earlier assertion that all models are basically isomorphic now comes to the surface. Actually, models in political science are suggestive primarily because they are representations of something else. The heuristic use of models generally takes the following form: we observe theory or system A; we see certain similarities between it and our own area of interest, B (they appear to be isomorphic to some extent); so we begin to wonder if some of the relationships that hold in A also hold in B. We recognize that certain adjustments and additions are probably necessary, but at least the model we derive from A will provide a basis for the formulation of hypotheses and the organization of our study of politics. It is at this point that the “familiarity” argument; which we rejected in

our discussion of explanation and prediction as a sound criterion for explanations, becomes relevant. If we use a familiar system, say the game of poker, to organize our study of an unfamiliar situation or area, international politics for instance and then progress has been made. The model, in this case simply game theory, opens the door.

The distinction between the explanatory and heuristic value of theories and models is based upon the more fundamental distinction between scientific justification and discovery. Throughout our analysis of the nature of generalizations, explanation, and the function of theories in political inquiry, we have been dealing with scientific justification, the relationship of evidence to hypotheses. As we have seen, this is amenable to logical analysis. There are methods of distinguishing between a good and a bad explanation or no explanation at all, between a sound or unsound theory, and between an acceptable and unacceptable generalization.

Scientific discovery, on the other hand, has to do with where the concepts, hypotheses, and theories come from, how the scientist conceives of them. This deals with the psychology of scientists and is an activity that emphasizes creativity, imagination, even genius. Therefore, it is a more difficult process to analyze; so difficult that some have concluded it is possible. Donald Schon, in writing about those who have studied the subject of innovation in science, notes that their "theories on the subject fall into one of two categories: either they make the process mysterious and therefore, intrinsically unexplainable; or they regard novelty as illusory and, therefore, requiring no explanation. However, since models are an integral part of the process of discovery, and since models can be analyzed, certain aspects of the process can be analyzed.

If models are mainly of heuristic value, if their primary function within the scientific enterprise is to suggest relationships between concepts - to generate hypotheses - then they belong in the realm of scientific discovery and not explanation. This is our major conclusion. The objective of our analysis has not been to question the importance of

models, but to point out that they have different role in the development of scientific knowledge. Given the fact that there are few, if any, developed theories of politics, the significance of any device that suggests possible relationships cannot be exaggerated.

Self-Assessment Exercise

Identify the various misuses of models in political inquiry

3.2: Models and other Heuristic Devices in Political Science

We have evaluated game theory in general terms as a model of politics. But there are others less explicit and more speculative. But we will consider a few models here to make the argument more meaningful. Several are rough attempts at isomorphism, while others are idealized models or conceptual schemes. Their inability to explain, often realized by their creators, will become obvious, but their possible heuristic value will be emphasized.

Kenneth Boulding has examined several models of social conflict. He labels two of them the "ecological" model and the "epidemiological" model. The former draws attention to the similarity between the conflict of groups in human society and the competition of species in biological ecosystems. The latter compares the spread of contagious diseases through a population to certain types of group conflict, such as conversion. The chapters that Boulding devotes to these models are provocative discussions of suggestive similarities between different systems of phenomena. No explanations or potential explanations are forthcoming. This Boulding admits. "In applying simply mechanical models such as we have explored in this and in previous modules to the enormously complex dynamics of conflict in society, we should look for insights rather than for exact correspondences. The key word is "insights" for it indicates the heuristic emphasis of model-building.

More ambitions claims have been made by some Social Scientists interested in general systems theory. The comparing of systems of social behaviour with chemical systems and

biological systems, for instance, seems to some to lay the foundation for explanation. Models and theories are never perfect but simply approach the limit of correct explanation. But we would argue that the mere noting of similarities between systems explains nothing. Analogies and metaphors are often enlightening, but they account for no facts. Once again, we return to the heuristic value of models. Anatol Rapaport has written in this regard, "Metaphor and analogy, although they cannot be accepted as scientific 'explanations' are sometimes important aids in the sense that they prepare the mind to make more precise investigations. This also applies to the much more sophisticated Systems Analyses of Political Scientists such as David Easton.

There is another kind of model-building in Political Science that is seemingly remote from isomorphic analysis. It is characterized instead by idealized sets of assumptions about given areas of political phenomena. As we implied at the beginning of this section, this activity is perhaps the most prevalent of those that go under the name of model building. Less elaborate models, this time of party systems, are analyzed by Samuel Eldersveld. He clearly uses them in a heuristic fashion to suggest relationships that can be tested. This use of ideal models can be traced back to German Sociologist Max Weber's notion of ideal types. In his studies of Bureaucracy, Weber found that if he began with an idealized or perfect concept of bureaucracy, he could use it as a standard to compare real world bureaucracies. By "idealized" Weber meant "intentionally unreal." Likewise, the ideal models of modern political scientists are not meant to be of reality but useful heuristic devices.

As we have already implied, some Political Scientists call the kind of model we have just discussed a "conceptual scheme." The term seems to imply a set of ideal assumptions about a given subject area. Thus, William C. Mitchell has said in introducing his own "structural-functional" conceptual scheme: "A conceptual scheme or framework is an essential tool in all ideas, and directives that guide the selection and interpretation of

facts." Again, models or conceptual schemes are more important for their suggestiveness than their explanatory power

In addition to idealized or speculative models, there are other heuristic techniques or strategies of discovery that are available to Political Scientists. These are alternatives to models, but they can often be used in complementary manner. We will conclude this module with a brief discussion of some of them. This will, it is hoped, clarify the heuristic nature of models and indicate that there are alternatives available. A popular heuristic device is Verstechen or Empathic understanding. According to its users, Verstechen suggests possible relationship by somehow "getting into" other people's heads to speculate about how others would behave in certain situations. There are several related techniques of discovery in political inquiry. One of the most popular techniques is the contraction of "alternative futures" grounded speculations about what the world will be like in 10, 20 and 50 years, based on present trends. One of the most famous practitioners of this method is Herman Kahn. In the 1950s and 60s, he predicted what the world would be like in the 1970s. That his predictions were not always accurate should not detract from the heuristic usefulness of his work; "as if" speculation is meant to be suggestive rather than predictive.

A strategy somewhat similar to "as if" speculations but probably more empirically grounded has been described by Alexander George: "The analyst rehearses in his mind the different possible versions of a missing piece, trying to decide which version is more plausible, given the values of the pieces already known to him." This might be interpreted as the first step towards theory building, but note that it has to do with the discovery, not justification, of facts. It is one type of a broader category of heuristic techniques, generically called mind experiments. We have all performed such experiment while sitting at our desk, driving our cars, or daydreaming in class. Let us quote J.A. Laponce (), one of the few Social Scientists to think seriously about mind experiment:

> In such an experiment, the mind is treated as one would a laboratory; it is emptied of unwanted ideas, of unwanted variables, it is made to relate only the factors under study, which are, either left free to play and interact among themselves - or on the contrary have to interact according to specific rules. These experiments in the mind, these anticipatory experiments which in a writer, produce plays and novels, in a Social Scientist result in theories, formulae, and computer simulations.

A more sophisticated, yet less widespread heuristic technique is the mathematical and logical demonstration that a given type of poetical behaviour is logically possible. This is usually done in regard to rational political behaviour. For instance, William Riker has shown, by means of mathematical reasoning that "Congress may act irrationally and probably does so occasionally". Riker defines rationality as transitivity of preferences and then presents a mathematical proof that shows how Congress' preferences can be intransitive. Thus, this scientific technique indicates to the Political Scientist that certain political outcomes are logically possible and so are potential explanada.

We will consider one or more heuristic strategy in political inquiry. It is the increasingly employed technique of simulations. In a simulation run, an artificial political situation is fabricated or an actual situation is reproduced, and individuals act out political roles or a computer makes a series of decisions based on data and decision-criteria that have been programmed into it. The result in either case is a possible outcome given the data. Simulation is important both in producing such possible outcomes and in providing hypotheses about how decisions are made. However, some Political Scientists seem to equate simulation runs with empirical experiments. According to our analysis, this is slightly misleading, for the simulations situation is not analogous to the experimental laboratories of the Physicist or Chemist.

Self-Assessment Exercise (Unit 5)

Identify other devices in the study of Political Science

4.0: CONCLUSION

After reading this module, students should be able to understand the meaning of theory and models in Political Science. They should be able to identify the functions of theory and model in political inquiry. They should also be able to understand the uses and misuse of theory and model in Political Science generally.

5.0: SUMMARY

In this module, we have explained the meaning of theory and models in political inquiry. We have also established the relationship between theory and models in political inquiry, and the functions of theory in Political Science. The Module also explained the uses and misuse of theory and models in Political Science, as well as the significance of theory and models in Political Science.

6.0: TUTOR-MARKED ASSIGNMENT

1. Define a theory.
2. Explain the relationship between theory and model.
3. Mention the functions of theory in any scientific inquiry.
4. Identify the use and misuse of theory and model in political inquiry.

7.0: REFRENCES/FURTHER READING

Brodbeck, M. (1959) "Models, Meanings, and Theories", in Leonard Gross (ed.) *Symposium on Sociological Theory,* Evanston, III: Row, Peterson.

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MODULE SIX: TECHNIQUES OF DATA GATHRING IN POLITICAL INQUIRY

UNIT 1: Methods of Data Gathering in Political Inquiry

1.0: INTRODUCTION

This unit introduces you to the importance of data gathering in any scientific inquiry, particularly survey research. It explores the need for collection of data in order to be able to provide adequate analysis of social issues and political phenomenon. It underscores the

basis of selecting a subset of the subject matter for analysis and on the basis of that making generalization based on the results derived from the sample selected.

2.0: OBJECTIVES

After reading this unit, students should be able to do the following:

(a) Understand the meaning of data gathering in political inquiry

(b) Identify the various method or techniques of data gathering in political inquiry

(c) Distinguish between the various methods of data gathering in political inquiry

(d) Understand the usages of the various methods of data gathering in political inquiry.

3.0: MAIN CONTENT

3.1: Data Collection in Political Inquiry

This perhaps is the most fundamental aspect of research in the Social Sciences, as in other fields of study. Since social research has as its primary objectives the understanding of social life by discovering new facts, documenting or rejecting old ones, tracing sequences and connections between events, and formulating generalizations concerning interrelationships, data collection becomes inevitable. However, the fact of data collection needs to be mastered, because it constitutes a major factor in determining the validity of research findings and the essence of the scientific inquiry itself.

Data collection can be defined as “the science and art of acquiring information about sampled units that are likely to be of interest”. It is the process of obtaining relevant information regarding the major idea in a study. Data are not just collected for collection sake but they are gathered regarding the major idea in the study. Since data gathering is a primary efforts aimed at understanding social life through discovering of new facts,

documentation of old ones or its rejection and also trying to establish relation between variables.

Sound measurement is not only simply a matter of careful concept explication followed by selection of statistical model, which minimize error, but the quality of data is inextricably tied to the methods and techniques used for generating data. There is no amount of sophistication with statistical manipulation that can fully overcome deficiencies inherent in data generated by an inappropriate instrument. Today, survey research is a frequently used mode of observation in the social sciences. In a typical survey, the researcher selects a sample of respondents and administers a standardized questionnaire to them or conduct interview for them. Surveys may be used for descriptive, explanatory, and exploratory purposes. They are chiefly used in studies that have individual people as the unit of analysis. Although this method can be used for other units of analysis, such as groups or interactions, some individual persons must serve as respondents or informants. Thus, we could undertake a survey in which families were the unit of analysis, but we would need to administer the survey questionnaire or conduct interview for the participants in the selected families (or to some other informants).

Survey research is probably the method available to the social researcher who is interested in collecting original data for describing a population too large to observe directly. Careful probability sampling provides a group of respondents whose characteristics may be taken to reflect those of the larger population.

Surveys are also excellent vehicles for measuring attitudes and orientations in a large population. What is important at any given point is to be able to identify the appropriate method of data gathering for a particular investigation. It is impossible to begin the analysis of social issues without having information about the issue. Since most of the debate or discussion in social sciences concerns human beings and since the population of human beings is such that cannot be observed at a go, it is important that a devise is designed to study the population indirectly, hence the use of sample. When such sample

has been selected, it is also important to understand the techniques to employ in collecting data on the sample selected in order to be able to describe the population using the result from the sample. In this case, the method or technique adopted to collect data in this respect determines the accuracy or otherwise of our analysis. In most cases, the nature of research being undertaken and the number of objects or items in our sample determine the method or technique of data collection. This is the reason why the questionnaire method is mostly preferable in survey research, particularly where the number of respondents is high.

According to David Leege and Wayne Francis, social scientists in the past have relied heavily on two sources for data collection, (i) published governmental documents, and (ii) the large scale survey. But scholars currently have available to them a wide variety of instruments for collecting data, viz:

(i) Questionnaire Method

(ii) Interview Method

(iii) Observation Method

(iv) Document/Content Analysis

All these shall be discussed in detail in the subsequent units.

Self-Assessment Exercise

Define data collection.

Identify the old methods of data collection available to researchers.

4.0: CONCLUSION

After reading this unit, student should be able to understand the meaning and importance of data collection. They should also be able to identify the various techniques available to

researcher in the social sciences. Also, students should be able to identify the old methods of data collection which researchers were used to before the introduction of survey methods.

5.0: SUMMARY

In this unit, we have explained the meaning of data collection and explicitly analyzed the importance of data collection to survey research in the social sciences. The unit has also been able to establish the old method of data collection available to researchers before the advent of survey methods. Students also mentioned the survey methods in this unit for proper identification.

6.0: TUTOR-MARKED ASSIGNMENTS (TMAs)

1. Attempt a detail explanation of data collection in Social Sciences.

2. What are the various methods of data collection in the Social Sciences?

3. Distinguish between the old method of data collection and the new methods of data collection.

7.0: REFERENCES/FURTHER READING

Asika, N. (1991) *Research Methodology in the Behavioural Sciences*, Ikeja, Longman.

Babbie, E. (2007) *The Practice of Social Research*, USA, Wadsworth.

Okoko, E. (2000) *Quantitative Techniques in Urban Analysis*, Ibadan, Kraft Books.

UNIT 2: The Questionnaire Method

1.0: INTRODUCTION

This unit explains the meaning of the questionnaire method as a data collection instrument in the Social Sciences. It explains the uses of questionnaire method and the meaning of open-ended and close-ended types of questionnaire. The unit also explains the steps to be taken in designing a good questionnaire and the advantages and disadvantages of the questionnaire method in Social Sciences research.

2.0: OBJECTIVES

After reading this unit, students should be able to do the following:

(a) Understand the meaning of questionnaire as a method of data collection in survey research.

(b) Distinguish between open-ended and close-ended types of questionnaire

(c) Understand the steps to follow in designing a good questionnaire

(d) Identify the advantages and disadvantages of questionnaire method.

3.0: MAIN CONTENT

3.1: The Questionnaire Method

A questionnaire is an instrument specifically designed to elicit information that will be useful for analysis. Questionnaire provides the best opportunity for the collection of raw data, especially when administered appropriately. A questionnaire normally contains a set of questions, the answers to which may constitute part of, or the main data required in a research. In design, a questionnaire may be arranged into several sections, section aimed at specific or group of information. Normally, a heading, identifying the source of the question is needed, for example, Department of Political Science, National Open University of Nigeria, Lagos. This will be followed by a brief explanation of the use(s) to which the information will be put, and possibly an assurance of anonymity where necessary to the questionee.

The body of the questionnaire may be arranged into questions A, B, C etc., with A soliciting information on personal data, for example, sex, age, marital status, name (where unavoidable) and so on, and B asking for information on social status, for example, income, position in societal hierarchy and so on.

The design of a questionnaire must reflect the type of contact that it will make with respondents, and type of information requested for. Self administered questionnaire is much more preferable to mailed questionnaire. Although some of the specific points to follow are more appropriate to structured questionnaires than to the open-ended questionnaires used in qualitative, in-depth interviewing, the underlying logic is valuable whenever we ask people questions in order to gather data.

Although the term questionnaire suggests a collection of questions, an examination of a typical questionnaire will probably reveal as many statements as questions. This is not without reason. Often, the researcher is interested in determining the extent to which respondents hold a particular attitude or perspective. If you can summarize the attitude in a fairly brief statement, you can present that statement and ask respondents whether they agree or disagree with it. As you may know, Rensis Likert greatly formalized this procedure through the creation of the Likert scale, a format in which respondents are asked to strongly agree, agree, disagree, or strongly disagree, or perhaps strongly approve, approve, and so forth.

Both questions and statements can be used profitably. Using both in a given questionnaire gives you more flexibility in the design of items and can make the questionnaire more interesting as well.

Self-Assessment Exercise

Describe what you understand by questionnaire method of data collection.

3.2: Open-Ended and Close-Ended Questions

In asking questions, researchers have two options. They can ask open-ended questions, in which case the respondent is asked to provide his or her own answer to the question. For example, the respondent may be asked, "What do you think is the problem with Nigeria's electoral system?" and be provided with a space to write in the answer (or be asked to report it verbally to an interviewer).

In the case of closed-ended questions, the respondent is asked to select an answer from among a list provided by the researcher. Closed-ended questions are very popular in survey research because they provide a greater uniformity of reponses and are more easily processed than open-ended ones. Open ended responses must be grouped before they can be coded for computer analysis processing. The grouping process requires the

researcher to isolate and aggregate similar responses and code them. The coding process often requires the researcher to interpret the meaning of responses, opening the possibility of misunderstanding and researcher bias. There is also a danger that some respondents will give answers that are essentially irrelevant to the researcher's intent. Closed-ended responses, on the other hand, can often be transferred directly into a computer format.

The chief shortcoming of closed-ended questions lies in the researcher's structuring of the responses. When the relevant answers to a given question are relatively clear, there should be no problem. In other cases, however, the researcher's structuring of responses may overlook some important responses. In asking about "the problem with Nigeria's electoral system," for example, his or her checklist of issues might omit certain issues that respondents would have said were part of the problems.

The construction of closed-ended questions should be guided by two structural requirements. First, the response categories provided should be exhaustive or totally inclusive: They should include all the possible responses that might be expected. Often, researchers ensure this by adding a category such as "Other (Please specify_____)". Second, the answer categories must be mutually exclusive: The respondent should not feel compelled to select more than one. (In some cases, you may wish to solicit multiple answers, but these may create difficulties in data processing and analysis later on). To ensure that your categories are mutually exclusive, carefully consider each combination of categories, asking yourself whether a person could reasonably choose more than one answer. In addition, it's useful to add an instruction to the question asking the respondent to select the one best answer, but this technique is not a satisfactory substitute for a carefully constructed set of responses.

One of the advantages of the questionnaire method is that it can be used to cover a large sample where interview may not be appropriate. In most cases, researchers have more respondents to interview and the only way to reduce the stress is to adopt the

questionnaire method. Also, it is appropriate for quantitative analysis which allows for the use of computer for ease of analysis. The fact that it gives room for wider coverage, it also allows for wider opinions on issues.

However, questionnaire method is open to manipulations, like any other quantitative method. Cases of dishonesty in filling questionnaire abound, particularly where the research involves the use of inexperienced and uncommitted research assistants. In this case, the commitment of the research assistant is very important for the reliability and validity of the responses through questionnaire method.

Self-Assessment Exercise

Distinguish between open-ended and close-ended questionnaire.

3.3: Guides to the Design of a Questionnaire

In designing a questionnaire, certain guides must be considered so as to make the filling of the questionnaire interesting to the respondents. This is important because some questionnaires are boring and time consuming and this may create boredom thereby making the respondent to abandon the questionnaire half way. This may not be in the interest of the researcher as this may occur in several respects, even when the respondents are not in the same environment. Therefore, the following guides should be taken into consideration when designing a questionnaire:

Make items clear: It should go without saying that questionnaire items need to be clear and unambiguous, but the broad proliferation of unclear and ambiguous questions in surveys makes the point worth emphasizing. We can become so deeply involved in the topic under examination that opinions and perspectives are clear to us but not to our respondents – many of whom have paid little or no attention to the topic. The possibilities for misunderstanding are endless, and no researcher is immune Polivka and Rothgeb, 1993).

Avoid Double-Barreled Questions: Frequently researchers ask respondents for a single answer to a question that actually has multiple parts. That seems to happen most often when the researcher has personally identified with a complex question. As a general rule, whenever the word *and* appears in a question or questionnaire statement, check whether you are asking a double-barreled question.

Respondents Must be Competent to Answer: In asking respondents to provide information, you should continually ask yourself whether they can do so reliably. It is always important for researchers to act respondents when designing and sending out questionnaire. In this manner, researchers will be able to identify the competency of respondents to answer questions in a questionnaire.

Questions should be Relevant: Similarly, questions asked in a questionnaire should be relevant to most respondents. When attitudes are requested on a topic that few respondents have thought about or really care about, the results are not likely to be useful. When you obtain responses to fictitious issues, you can disregard those responses. But when the issue is real, you may have no way of telling which responses genuinely reflect attitudes and which reflect meaningless answers to an irrelevant question.

Short Items are Best: In the interests of being unambiguous and precise and of pointing to the relevance of an issue, researchers tend to create long and complicated items. This should be avoided. Respondents are often unwilling to study an item in order to understand it. The respondent should be able to read an item quickly, understand its intent, and select or provide an answer without difficulty.

Avoid Negative Items: The appearance of a negation in a questionnaire items paves way for easy misinterpretation. For example, ask a respondents to agree or disagree with the statement "EFCC should not prosecute corrupt politicians", a sizeable number of the respondents will read over the word *not* and answer on that basis. Thus, some will agree

with the statement when they are indeed in favour of EFCC prosecuting corrupt politicians, and other will agree when they oppose it.

Self-Assessment Exercise
List and explain five guides to the design of a questionniare

4.0: CONCLUSION

After reading this unit, students should be able to understand the use of questionnaire method in collecting data for scientific inquiry. They should be able to identify the different styles of designing a questionnaire and distinguish between open-ended and closed-ended questions. Also, students should be able to identify the merits and demerits of questionnaire method of data collection in any scientific inquiry.

5.0: SUMMARY

This unit examines the meaning of questionnaire method as a technique of data collection in scientific inquiry. It explains the uses of questionnaire and the technicalities involved in the various format and styles of designing questionnaire. Apart from this, the unit examines the structures of questionnaire available and the applicability of these structures for different research orientations and their method of analysis. The unit also explained the advantages and disadvantages of using questionnaire method.

6.0: TUTOR-MARKED ASSIGNMENT (TMAs)

1. Define the meaning of questionnaire method of data collection.
2. Distinguish between open-ended and closed-ended questionnaire.
3. List and explain five important guides to design a questionnaire.
4. List three advantages and three disadvantages of questionnaire method.

7.0: REFERENCES/FURTHER READING

Asika, N. (1991) *Research Methodology in the Behavioural Sciences*, Ikeja, Longman.
Babbie, E. (2007) *The Practice of Social Research*, USA, Wadsworth.
Okoko, E. (2000) *Quantitative Techniques in Urban Analysis*, Ibadan, Kraft Books.

UNIT 3: The Interview Method

1.0: INTRODUCTION

This unit examines the meaning of interview method as a technique of data collection in scientific inquiry. It explains the uses of interview method and the types of interview method available to a researcher. The unit also examines the structure of interview method and their merits and demerits vis-à-vis other methods of data collection.

2.0: OBJECTIVES

After reading this unit, students should be able to do the following:

i. Understand the meaning of interview method as a technique of data collection.

ii. Identify the uses of interview method.

iii. Identify the various types of interview method.

iv. Identify the advantages and disadvantages of interview method.

v. Understand the basic tool of analysis with interview method.

3.0: MAIN CONTENT

3.1: Meaning of Interview Method

The interview method is an alternative method of collecting data in a survey research. Rather than asking respondents to read questionnaires and enter their own answers, researchers send interviewers to ask questions orally and record respondents' answers. In a way, interview is a data collection encounter in which one person (an interviewer) asks questions of another (a respondent). Interview may be conducted face-to-face or by telephone. Interviewing is typically done in a face-to-face encounter, but telephone interviewing follows most of the same guidelines.

Most interview surveys require more than one interviewer, although the researcher might undertake a small-scale interview by him or herself. Respondents seem more reluctant to turn down an interviewer standing on their doorstep than to throw away a mailed questionnaire. The presence of an interviewer also generally decreases the number of "don't know" and "no answers". Further, if a respondent clearly misunderstands the intent of a question or indicates that he or she does not understand, the interviewer can clarify matters, thereby obtaining relevant responses. Also, the interviewer can observe respondents as well as ask questions.

Survey interview is of necessity based on an unrealistic stimulus-repsonse theory of cognition and behavior. Researchers must assume that a questionnaire item will mean the same thing to every respondent, and every given response must mean the same when given by different respondents. Although this is an impossible goal, survey questions are drafted to approximate the ideal as closely as possible. The interviewer must also fit into

this ideal situation. The interviewer's presence should not affect a respondent's perception of a question or the answer given. In other words, the interviewer should be a neutral medium through which questions and answers are transmitted. As such, different interviewers should obtain exactly the same responses from a given respondent. This neutrality has a special importance in area samples. To save time and money, a given interviewer is typically assigned to complete all the interviews in a particular geographic area – a city block or a group of nearby blocks. If the interviewer does anything to affect the responses obtained, the bias thus interjected might be interpreted as a characteristic of the area.

Interviewers must ask questions in such a way that respondents will answer honestly and fully. To this end, interviewers must establish rapport, such as the interviewer should not rush the respondents, and also must be a good listener. A large school of thought favours the position good interviewers are born, not taught. Certainly, a skilled questioner needs ample supplies of personality, training and experience. Interviews can be classified into three, viz: poll-type, informal, and analytical. The poll type interview allows interviewers to read questions precisely as they are written and otherwise adheres strictly to instructions. Little skill is demanded. The informal or intensive or qualitative or conversional or case history interview allows the interviewer moderate latitude. He or she may select any one of several phrasings of a question, or he may change the order of questions if the respondent leads him unexpectedly to a topic that normally appears later in the interview. Analytical interviewing, which permits almost unlimited latitude, falls in the domain of psychiatrist, psychoanalyst, or psychiatric social workers. Since it is rarely used for research purposes and requires extensive training, it is beyond the scope of social sciences.

Interviewing has some advantages. It can used with almost all segments of the population provided the interviewer is familiar with the language and culture of the segments of the population concerned, particularly in a plural or multi ethnic society. Also, the

interviewing situation offers a better opportunity than the questionnaire method to appraise validity of response since the interviewer meets face-to-face with the respondents. Again, interview method is flexible in approach. It allows an interviewer to respond adequately to the stimuli of respondents during the interview. Finally, it is a more appropriate method for revealing information about complex and emotion-laden subjects.

The disadvantages are: it is very much expensive as it involves cost of transportation and telephone in most cases. It is inappropriate in a society where the telecommunication gadget is unreliable such as Nigeria. Also, the uncooperative attitude of respondents is usually the greatest headache of a researcher when this method is used.

Self-Assessment Exercise

Discuss interview method.

List three advantages and disadvantages of interview method.

3.2: Types of Interview Method

Apart from the classification of interview method into face-to-face and telephone interviews, it is also important to recognize that interview can be classified into three main types. These are the Focus Group Discussion (FGD), In-Depth Interview (IDI), and the Key Informant Interview (KII).

Focus Group Discussion: This is a planned, facilitated discussion among a small group of stakeholders designed to obtain perceptions in a defined area of interest in a permissive, non-threatening environment. A focus group discussion (FGD) is a group discussion of approximately 6 - 12 persons guided by a facilitator, during which group members talk freely and spontaneously about a certain topic. A FGD is a qualitative method. Its purpose is to obtain in-depth information on concepts, perceptions and ideas

of a group. A FGD aims to be more than a question-answer interaction. The idea is that group members discuss the topic among themselves, with guidance from the facilitator.

Focus groups are good for initial concept exploration, generating creative ideas and determining differences in opinion between various stakeholders groups. Focus groups are often used as a means of triangulation with other data collection methods. They are not effective for responding to general questions, building consensus or making decisions. Focus groups are relatively inexpensive and the format is flexible, allowing participants to question each other and to elaborate upon their answers. Guided discussion in focus groups more closely captures the spontaneous give and take of social interaction that goes into opinion formation, which is lost in a structured interview. The method is relatively simple, allowing participants to readily grasp the process and purpose. When the power differential between the participants and the decision-makers is great enough to discourage frank participation, the focus group provides the security of a peer group.

The multiple voices of the participants, as well as the flexibility in process structure, results in limited researcher control over the focus group process. Sometimes group expression can interfere with individual expression and the results may reflect ‘groupthink’. Alternatively, if facilitation is poor and/or the group participants are not well selected, the results of the discussion may reflect only the views of the most dominant participants.

In-Depth Interview: In-depth interviewing is usually done at the beginning of a major research project, when you will be studying a population that you have never researched before. In-depth interviews - also called "semi-structured interviews", or "informal interviews" - are very different from survey interviews. They are much more similar to journalistic interviews. Some of the differences between survey interviewing and in-depth interviewing are:

- A survey usually has at least 100 interviews, but with informal research, 20 respondents is often enough.
- A survey has a fixed questionnaire. All the respondents are asked the same questions (except those skipped), in the same order.
- But with in-depth interviewing, there are no specific questions. Instead of beginning with "Which of the following statements..." an informal interviewer might say "Can you tell me about a time when you..."
- With in-depth interviewing, there is no specific order. The respondent may jump from one subject to another. The interviewer has a list of things to be discovered, but the wording and sequence of the "questions" depend on the "answers" the respondent gives.
- Instead of using a fully random sample, in-depth interviews are usually done with people who are deliberately chosen to be as different as possible from each other.

The reason for these differences between survey interviewing and in-depth interviewing is that their purposes are different. Unlike survey interviewing, in-depth interviewing does not claim to obtain results that can be generalized to a whole population. You normally use in-depth interviewing for collecting background information, so that when you write a questionnaire, you will be able to use questions and wording that are more relevant to the population being studied.

Choosing interviewers

With a survey interview, as long as the questionnaire is well designed and instructions are clear, interviewers can be relatively unskilled. With in-depth interviews, there are only three rules

1. You need to decide in advance which main topics you want the interview to cover.

2. You need to decide whether everybody will be asked the same questions, or you will change the questions, depending on the respondent.

3. The interview needs to be recorded in some way.

Because there are no fixed rules, there are no standard procedures, so the quality of the interview depends very much on the skill of the interviewer. It is therefore normal to use highly skilled interviewers, who have been working closely with the project leaders, so that the interviewers know the main issues of interest in the study. Often, it is the chief researchers themselves who do the informal interviews, because they have a better knowledge than anybody else of the project's purposes.

If the chief researchers are not experienced or confident interviewers, trained interviewers can be used, but they should be chosen well in advance, and participate in the development of the research.

Use pairs of interviewers

It has been found that it is best for interviewers to go out in pairs. At the beginning of each interview, one speaks to the respondent, while the other takes notes and works the tape recorder. Part of the way through the interview, the two interviewers swap their roles. The advantage of this is that different interviewers think of different questions, and often a respondent will say something to one interviewer but not to another.

As soon as the interview is finished, the two interviewers can discuss the findings. Before they do anything else, they should write up their notes on the interview. Even if the interview has been taped, some nuances will be forgotten as soon as the next interview is done. Also, having notes on each interview makes it easier to interpret the results, and serves as a backup if the tape recording fails.

After each interview, the two interviewers can also discuss their techniques of interviewing, the wording they use, and decide on ways to improve. In each of the first few interviews, some issues will arise that you had not thought of before, and these will create questions to be asked in later interviews. In fact, it is only when you stop finding new questions that you can be sure the sample was large enough.

Finding respondents

With a survey, you are trying to obtain a true cross-section of the population, and the best way to achieve this is through random sampling. In-depth interviewing is different. It is usually a preliminary exercise, designed to find the most appropriate questions to ask in a later survey. So it is the survey that will provide the representative results: the in-depth interviews by themselves do not produce definitive data. In-depth interviews need to ensure that many different types of respondent are interviewed. This is best done, not with random sampling, but with maximum-diversity sampling. When the sample size is less than about 30, a random sample will have a high chance of not being fully representative of the population.

Key Informant Interview: The key informant interview is a standard anthropological method that is widely used in health related and other social development inquiry. This is one method used in rapid assessment for gathering information from the affected community. The term "key informant" refers to anyone who can provide detailed information and opinion based on his or her knowledge of a particular issue. Key informant interviews seek qualitative information that can be narrated and cross checked with quantitative data, a method called "triangulation". A key informant interview is a loosely structured conversation with people who have specialized knowledge about the topic you wish to understand. Key informant interviews were developed by ethnographers to help understand cultures other than their own. A good key informant can convey this specialized knowledge to you.

Reasons to Use Key Informant Interviews

Key informant interviews let you explore a subject in depth. The give and take of these interviews can result in the discovery of information that would not have been revealed in a survey. Key informant interviews provide opportunities for the following:

- **Examining specialized systems or processes**. Key informants can help you understand the systems that affect drug and alcohol abuse. For example, you could ask a parole officer to explain how juvenile probation works (which might reveal strategic points for intervention).

- **Identifying target populations or issues that you may want to investigate further**.

- **Gathering information when cultural barriers make survey or focus group research difficult**. Key informant interviews with community leaders who know their communities well, and have the skills to work with the mainstream culture, can provide the information you need.

- **Refining your data collection efforts**. For example, key informants can tell you, "Don't advertise for respondents in that paper—nobody reads it." Or "Offer incentives before Christmas, because that's when people need money."

- **Clarifying the findings of your quantitative research**. For example, suppose a survey done a year into your program revealed a dramatic increase of drug use in your community. Interviews with law enforcement officials could reveal that this increase was the result of increased availability of less expensive drugs—something your program did not anticipate and was not designed to affect.

- **Assessing progress**. For example, interviews are often used in coalition work to assess the progress of the coalition.

- **Generating recommendations**. For example, interviews with school prevention specialists might help you understand the gaps in their services and help you target your program to fill these gaps.
- **Mobilizing the community**. People who are directly involved in your data collection efforts are more likely to be invested in your prevention activities.

Key informant interviews have some advantages over other forms of data collection. They are easier and less expensive than focus groups since they involve only one respondent and one interviewer and do not require incentive payments, refreshments, or special facilities. Other benefits include the following:

- They are inexpensive and simple to conduct.
- They provide readily understandable information and compelling quotations for reports.
- They are flexible, as questions and topics can be added or omitted during the interview.

Self-Assessment Exercise

Distinguish between Focus Group Discussion and In-Depth Interview.

3.3: General Guidelines for Survey Interviewing

The manner in which interviews ought to be conducted will vary somewhat by survey population and survey content. Nevertheless, some general guidelines apply to most interviewing situations. Firstly, appearance and demeanour is important in interview. As a rule, interviewers should dress in a fashion similar to those they will be interviewing. A richly dressed interviewer will probably have difficulty getting good cooperation and responses from poorer respondents; a poorly dressed interviewer will have similar difficulties with richer respondents. To the extent that the interviewer's dress and

grooming differ from those of the respondents, it should be in the direction of cleanliness and neatness in modest apparel. If cleanliness is not next to godliness, it appears at least to be next to neutrality. Dress and grooming are typically regarded as signs of a person's attitudes and orientations. Torn jeans, green hair, and razor blade earrings may communicate - correctly or incorrectly – that the interviewer is politically radical, sexually permissive, favourable to drug use, and so forth. Any of these impressions could bias responses or affect the willingness of people to be interviewed.

Secondly, familiarity with the questionnaire is another important guide to a good interview. If an interviewer is unfamiliar with the questionnaire, the study suffers and the respondent faces an unfair burden. The interview is likely to take more time than necessary and be unpleasant. Moreover, the interviewer cannot acquire familiarity by skimming through the questionnaire two or three times. He or she must study it carefully, question by question, and must practice reading it aloud. Ultimately, the interviewer must be able to read the questionnaire items to respondents without error, without stumbling over words and phrases. A good model is the actor reading lines in a play or movie. The lines must be read as though they constituted a natural conversation, but that conversation must follow exactly the language set down in the questionnaire. By the same token, the interviewer must be familiar with the specifications prepared in conjunction with the questionnaire. Inevitably, some questions will not exactly fit a given respondent's situation, and the interviewer must determine how the question should be interpreted in that situation.

Thirdly, interviewer should be able to follow question wording exactly. A slight change in the wording of a given question may lead a respondent to answer "yes" rather than "no". it follows that interviewers must be instructed to follow the wording of questions exactly. Otherwise, all the effort that the developers have put into carefully phrasing the questionnaire items to obtain the information they need and to ensure that respondents interpret items precisely as intended will be wasted.

Whenever the questionnaire contains open-ended questions, those soliciting the respondent's own answers, the interviewer must record those answers exactly as given. No attempt should be made to summarise, paraphrase, or correct bad grammar. This exactness is important because the interviewer will not know how the responses are to be coded. Indeed, the researchers themselves may not know the coding until they have read a hundred or so responses. Therefore, it important that interviewer record the responses exactly as they are presented.

Finally, interviewers should be able to probe for responses. Sometimes respondents in an interview will give an inappropriate or incomplete answer. In such cases, a probe, or request for an elaboration, can be useful. Probes are more frequently required in eliciting responses to open-ended than closed-ended questions.

Self-Assessment Exercise

List and explain three general guidelines for survey interviewing.

4.0: CONCLUSION

It is important to note that the interview method of data collection provides opportunity for researchers to study the environment of the interviewee, apart from asking question on the chosen subject. In most cases, the environment plays important role in the responses of respondents. Also, the use of interview method should be justified at every point in time, since there are different classifications of this method.

5.0: SUMMARY

In this unit, we have explained the meaning of interview method, the uses of the method and the various types or classification of the interview method. The unit has also demonstrated the advantages of the method over other methods of data collection in the social sciences.

6.0: TUTOR-MARKED ASSIGNMENT

(i) Describe the methods employed in interview method.

(ii) List and explain the various classifications of interview method you know.

(iii) Distinguish between an In-Depth Interview and a Key Informant Interview.

(iv) Identify the major guidelines to conduct an interview.

7.0: REFERENCES/FURTHER READING

Asika, N. (1991) *Research Methodology in the Behavioural Sciences*, Ikeja, Longman.

Babbie, E. (2007) *The Practice of Social Research*, USA, Wadsworth.

Okoko, E. (2000) *Quantitative Techniques in Urban Analysis*, Ibadan, Kraft Books.

UNIT 4: Participant Observation Method

1.0: INTRODUCTION

This unit introduces students to the meaning of participant observation as a technique of data collection in the field of social sciences. It explores the importance of the participant observation method and the uses of the method. It analyzes the heuristic value of the method as well as the danger it portends for some social inquiry.

2.0: OBJECTIVES

After reading this unit, students should be able to do the following:

i. Understand the meaning of participant observation as a technique of data gathering.

ii. Identify the uses of participant observation in social research.

iii. Explain the advantages and disadvantages of participant observation.

iv. Understand the guidelines for the conduct of participant observation.

3.0: MAIN CONTENT

3.1: Meaning of Participant Observation

Participant observation is a qualitative method with roots in traditional ethnographic research, whose objective is to help researchers learn the perspectives held by study populations. As qualitative researchers, we presume that there will be multiple perspectives within any given community. We are interested both in knowing what those diverse perspectives are and in understanding the interplay among them. Qualitative researchers accomplish this through observation alone or by both observing and participating, to varying degrees, in the study community's daily activities. Participant observation always takes place in community settings, in locations believed to have some relevance to the research questions. The method is distinctive because the researcher approaches participants in their own environment rather than having the participants come to the researcher. Generally speaking, the researcher engaged in participant observation tries to learn what life is like for an "insider" while remaining, inevitably, an "outsider."

While in these community settings, researchers make careful, objective notes about what they see, recording all accounts and observations as field notes in a field notebook. Informal conversation and interaction with members of the study population are also important components of the method and should be recorded in the field notes, in as much detail as possible. Information and messages communicated through mass media such as radio or television may also be pertinent and thus desirable to document. Data obtained through participant observation serve as a check against participants' subjective reporting of what they believe and do. Participant observation is also useful for gaining an understanding of the physical, social, cultural, and economic contexts in which study participants live; the relationships among and between people, contexts, ideas, norms,

and events; and people's behaviours and activities – what they do, how frequently, and with whom.

In addition, the method enables researchers to develop a familiarity with the cultural milieu that will prove invaluable throughout the project. It gives them a nuanced understanding of context that can come only from personal experience. There is no substitute for witnessing or participating in phenomena of human interaction – interaction with other people, with places, with things, and with states of being such as age and health status. Observing and participating are integral to understanding the breadth and complexities of the human experience – an overarching research endeavour for any public health or development project.

Through participant observation, researchers can also uncover factors important for a thorough understanding of the research problem but that were unknown when the study was designed. This is the great advantage of the method because, although we may get truthful answers to the research questions we ask, we may not always ask the right questions. Thus, what we learn from participant observation can help us not only to understand data collected through other methods (such as interviews, focus groups, and quantitative research methods), but also to design questions for those methods that will give us the best understanding of the phenomenon being studied.

The main disadvantage of participant observation is that it is time-consuming. In traditional ethnographic research, researchers spend at least one year in the field site collecting data through participant observation and other methods. This is not practical for most applied research studies, which necessarily require a shorter period of data collection. This weakness is partially mitigated in most current international development projects by the tendency for the inquiry to be more focused than in traditional ethnographic study and for the data collection team to include researchers who are native rather than foreign to the region. Researchers who already possess a solid base of cultural awareness are better able to concentrate on the research question itself.

A second disadvantage of participant observation is the difficulty of documenting the data – it is hard to write down everything that is important while you are in the act of participating and observing. As the researcher, you must therefore rely on your memory and on your own personal discipline to write down and expand your observations as soon and as completely as possible. It is easy to tell yourself that you will do this task later, but, because memory fades quickly, postponing the expansion of notes can lead to loss or inaccurate recording of data. The quality of the data therefore depends on the diligence of the researcher, rather than on technology such as tape recorders.

A third disadvantage of participant observation is that it is an inherently subjective exercise, whereas research requires objectivity. It is therefore important to understand the difference between reporting or describing what you observe (more objective) versus interpreting what you see (less objective). Filtering out personal biases may take some practice. One way to practice is to write down objective observations of a given event on one side of a page, and then offer more subjective interpretations of the same event on the other side of the page, as illustrated in the box at left. Alternately, in team-based research, field staff can review one another's field notes and help identify objective versus subjective observations.

Self-Assessment exercise

Explain participant observation method

List three advantages and three disadvantages of participant observation.

3.2: Importance of Participant Observation

Participant observation is a standard approach of anthropological and sociological research through which you become immersed in the day-to-day activities of the people you are trying to understand. Beyond simple observation and participation, it is a process for establishing rapport and for learning to blend into a community so that its members will act naturally while maintaining the ability to remove oneself from the setting to be able to analyse and write about the experience (Bernard, 2002).

Participant observation is useful for providing an in–depth and holistic view of a community or of particular phenomena under study. Extended periods of participant observation allow you to apprehend a people's knowledge, their beliefs and practices, and how they interrelate. It is typically used in conjunction with other qualitative and quantitative methods, such as surveys, questionnaires and interviewing. By allowing you to collect various types of data, it can increase the validity of your research and facilitate involvement in sensitive activities that might otherwise remain hidden from an outsider. As a community becomes more familiar with you, and as you become more a part of the community, there are often fewer instances of what Bernard (2002), refers to as "reactivity": people acting a certain way when they are aware of being observed. Additionally, with greater cultural understanding and awareness you can develop questions that make sense to the community and are culturally relevant, thus eliciting answers that are more accurate and richer data.

Critics argue that information collected during participant observation is not truly representative of a culture, as much of the data is based on a researcher's background and goals, rather than on what actually happens within a community. Accuracy of participant observation can be improved by reflecting on how your gender, ethnicity, class, and theoretical approach may affect observation, analysis, and interpretation. For example, because male and female researchers have access to different people, settings and bodies of knowledge they often elicit different information. An awareness of these differences will allow you to accept your own subjectivity, to accurately represent your data and to portray from which subset of the community they are derived. Additionally, this awareness can ensure greater accuracy and respect from the community as they come to accept that what you think is being said matches the intentions of those observed.

Self-Assessment Exercise

Articulate the importance of participant observation.

4.0: CONCLUSION

The use of participant observation method for collection of data provides researcher the opportunity to gather raw data and directly from the event or people being observed. However, the addictive nature of the method may turn the researcher or the participant into another object of research. This is because it is not every social activity that is participant observable without paying price. For instance, a researcher of drug use may eventually become another drug addict if care is not taken, particularly in the case of dangerous drugs like cocaine, heroine, morphine and so on.

5.0: SUMMARY

In this unit, we have been able to establish the nature of participant observation as a method of data collection in the social sciences. This unit has also been able to highlight the advantages of participant observation over other methods and the danger inherent in the use of the method for social inquiry.

6.0: TUTOR-MARKED ASSIGNMENT (TMAs)

1. Describe the usefulness of participant observation.
2. List and explain three advantages and three disadvantages of participant observation.
3. Describe the importance of participant observation.
4. Distinguish between participant observation and key informant interview.

7.0: REFERENCES/FURTHER READING

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UNIT 5: Documentary/Content Analysis Method

1.0: INTRODUCTION

2.0: OBJECTIVES

3.0: MAIN CONTENT

3.1: Meaning of Documentary Analysis Method

Documentary analysis is a social research method and is an important research tool in its own right and is an invaluable part of most schemes of triangulation. Documentary work involves reading lots of written material (it helps to scan the documents onto a computer and use a qualitative analysis package). A document is something that we can read and which relates to some aspect of the social world. Official documents are intended to be

read as objective statements of fact but they are themselves socially produced. Documentary research is the use of outside sources to support the viewpoint or argument of an academic work. The process of documentary research often involves some or all of conceptualising, using and assessing documents. The analysis of the documents in documentary research would be either quantitative or qualitative analysis (or both). The process is utilized in most academic work (in fact, most high school and certainly college level courses would insist on references in academic work) in supporting the academic prose of the writer.

Documentary research involves the use of texts and documents as source materials: government publications, newspapers, certificates, census publications, novels, film and video, paintings, personal photographs, diaries and innumerable other written, visual and pictorial sources in paper, electronic, or other `hard copy' form. Along with surveys and ethnography, documentary research is one of the three major types of social research and arguably has been the most widely used of the three throughout the history of sociology and other social sciences. It has been the principal method - indeed, sometimes the only one - for leading sociologists. The key issues surrounding types of documents and our ability to use them as reliable sources of evidence on the social world must be considered by all who use documents in their research. The paucity of sources available until now means that this compendium will be invaluable to social researchers." (Scott 2006).

Self-Assessment Exercise

What do you understand by documentary research?

3.2: Merits and Demerits of Documentary Research

The first advantage of such an approach to doing research is that it is usually readily available. The information to be used in documentary research can be accessed by researchers by simply visiting the resource centres or just browsing the internet. The second advantage is that doing this research is less expensive as compared to surveys and ethnography. For surveys, one has to do a pilot study and then do actual field data collection incurring travelling expenses. Experimentation may involve use of scientific apparatus that have to be purchased. The only costs involved in documentary research may be bureau and miscellaneous expenses. The third advantage is that some information may only be obtained by secondary sources. For example, information on ancient histories which cannot be found by interview surveys or archaeological data that has been documented but the sites might have changed and can only be obtained from libraries or museum. Despite the above merits, documentary research has the following limitations. Information obtained may be biased. Personal biases and prejudices could have influenced past work that was documented by authors. Such information may therefore lack credibility and hence research findings based on such work may be discredited.

Self-Assessment Exercise

List two advantages and disadvantages of documentary research.

3.3: Meaning of Content Analysis

Content analysis has been defined as a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding. Holsti (1969:14) offers a broad definition of content analysis as, "any technique for making inferences by objectively and systematically identifying specified characteristics of messages". Under Holsti's definition, the technique of content analysis is not restricted to the domain of textual analysis, but may be applied to other areas such as coding student

drawings, or coding of actions observed in videotaped studies (Stigler, Gonzales, Kawanaka, Knoll, & Serrano, 1999). In order to allow for replication, however, the technique can only be applied to data that are durable in nature.

Content analysis enables researchers to sift through large volumes of data with relative ease in a systematic fashion (GAO, 1996). It can be a useful technique for allowing us to discover and describe the focus of individual, group, institutional, or social attention (Weber, 1990). It also allows inferences to be made which can then be corroborated using other methods of data collection. Krippendorff (1980) notes that "[m]uch content analysis research is motivated by the search for techniques to infer from symbolic data what would be either too costly, no longer possible, or too obtrusive by the use of other techniques" (p. 51).

Content analysis can be a powerful tool for determining authorship. For instance, one technique for determining authorship is to compile a list of suspected authors, examine their prior writings, and correlate the frequency of nouns or function words to help build a case for the probability of each person's authorship of the data of interest. Mosteller and Wallace (1964) used Bayesian techniques based on word frequency to show that Madison was indeed the author of the Federalist papers; recently, Foster (1996) used a more holistic approach in order to determine the identity of the anonymous author of the 1992 book *Primary Colors*.

Content analysis is also useful for examining trends and patterns in documents. For example, Stemler and Bebell (1998) conducted a content analysis of school mission statements to make some inferences about what schools hold as their primary reasons for existence. One of the major research questions was whether the criteria being used to measure program effectiveness (e.g., academic test scores) were aligned with the overall program objectives or reason for existence.

Additionally, content analysis provides an empirical basis for monitoring shifts in public opinion. Data collected from the mission statements project in the late 1990s can be objectively compared to data collected at some point in the future to determine if policy changes related to standards-based reform have manifested themselves in school mission statements.

Self-Assessment Exercise

Describe the content analysis method.

3.4: Merits and Demerits of Content Analysis

Content analysis offers several advantages to researchers who consider using it. In particular, content analysis:

- looks directly at communication via texts or transcripts, and hence gets at the central aspect of social interaction
- can allow for both quantitative and qualitative operations
- can provides valuable historical/cultural insights over time through analysis of texts
- allows a closeness to text which can alternate between specific categories and relationships and also statistically analyzes the coded form of the text
- can be used to interpret texts for purposes such as the development of expert systems (since knowledge and rules can both be coded in terms of explicit statements about the relationships among concepts)
- is an unobtrusive means of analyzing interactions
- provides insight into complex models of human thought and language use

Content analysis suffers from several disadvantages, both theoretical and procedural. In particular, content analysis:

- can be extremely time consuming
- is subject to increased error, particularly when relational analysis is used to attain a higher level of interpretation
- is often devoid of theoretical base, or attempts too liberally to draw meaningful inferences about the relationships and impacts implied in a study
- is inherently reductive, particularly when dealing with complex texts
- tends too often to simply consist of word counts
- often disregards the context that produced the text, as well as the state of things after the text is produced
- can be difficult to automate or computerize.

Self-Assessment Exercise

List five advantages and disadvantages of content analysis method.

4.0: CONCLUSION

The documentary method is easy to collect without much ado, but its pitfall is to obey the doctrine of "official secrecy" where it is strictly followed. In the same manner, content analysis provides opportunity for researchers to understand the work of others, even if they are no longer living. It allows for true representation without misconception.

5.0: SUMMARY

This unit has demonstrated the importance of documentary/content analysis method in social sciences research. It is important to note that both can be used in a particular research exercise. What is important is for the user to be mindful of the advantages and disadvantages of these methods of data collection.

6.0: TUTOR-MARKED ASSIGNMENT

1. Describe documentary analysis/research in social sciences.

2. Examine the uses of content analysis in data collection.

3. Distinguish between documentary analysis and content analysis.

4. List three advantages and three disadvantages of documentary analysis.

5. List three advantages and three disadvantages of content analysis.

7.0: REFRENCES/FURTHER READING

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