

B. A. Part - II - SOCIOLOGY
Paper - III (Methods of Social Research)

Topic : Scientific Method
College : Magadh Mahila College, Patna
(Department of Sociology)

By : Dr. Archana Kumari
Email ID : archnakumari706@gmail.com
Mob. No. : 9835638936

SCIENTIFIC METHOD

- **Learn Objective**

To understand the meaning of Scientific method.

To explain its characteristics.

- **Introduction :**

The student of research methods is faced with a two -fold task. He must first learn to “unlearn” some common place ideas about science and at the same time he must learn contemporary ideas about scientific activity. The student is probably already aware of the extensive writings about “science” in sociology.

Indeed, the extent of such writings is so great as to suggest to some that we “declare a moratorium on the use of the word ‘science’ in order to avoid arguments as to whether a given piece of research is or is not “Scientific.” Such a moratorium might be well for the peace of mind of the research practitioner. However, since the student does in fact pick up ideas, erroneous as well as correct ones, about science, such a moratorium would seem to work at the expense of the beginning student.

- **Science :**

Science is scientific study of Mystry of Nature. Science includes both a goal and the means for obtaining that goal. Briefly, the goal of science is a theory., By “theory” we mean a ‘verifiable generalization of a high order which in some sense explains observed phenomena.”

- **According to karl Pearson :** “There is no short cut to truth, no way to gain knowledge, of the universe except through this gateway of scientific method.”

Science goes with the method, not with the subject matter. Some important elements of science are-

- (1) Observation
- (2) Verification and Classification
- (3) Generalization
- (4) Prediction
- (5) Scientific Attitude

- **Scientific Method**

The scientific method involves developing and testing theories about the world based on empirical evidence. It is defined by its commitment to systematic observation of the empirical world and strives to be objective, critical, skeptical and logical. The scientific method is an essential tool in research .

A method of research in which a problem is identified, relevant data is gathered, hypothesis is formulated from the data and testable explanation is found for the hypothesis.

Scientific method is characterized by systematic observation, measurement experimentation, formulation and testing of hypothesis and its modification.

- **Definitions of Scientific Method :**

- **According to George A. Lundberg :** “Social scientists are committed to the belief that the problems which confront them are to be solved, if at all by judicious and systematic observation, verification, classification, and interpretation of social phenomena. This is an approach in its most rigorous and successful form is broadly designated as the scientific method.”

- **According to R.N. Thouless :** “Scientific method is a system of techniques (different in many respects in different sciences, although retaining the same general character) for attaining the end of discovering general laws.”

- **Characteristics of scientific Method :**

- **According to Martindale and Monachies :** “Science too is a mode of thought, and like all thinking it arises in response to problems. It differs from the other modes of thought primarily in its method. Among the methods characteristic of the science are

- (1) the emphasis it places upon the observation
- (2) the attempt to test its ideas in practice
- (3) the development of experiment, of model situations that may serve to test its ideas
- (4) the invention of new instruments that permit more precise observation and more exact measurement
- (5) the rigorous exclusion of the scientists evaluations from the study, and the concentration on the problem of how things actually happen rather than on why they happen or what ought to happen”.

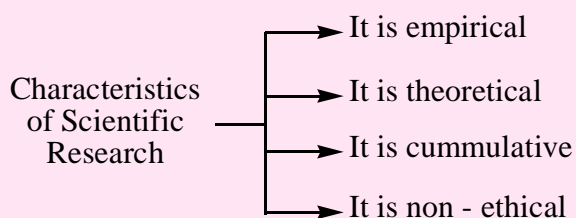
- ***Some Characteristics of Scientific Method are :***

- (1) **Verifiable evidence :** i.e., factual observation which other observers can see and check.

- (2) **Accuracy :** It means truth or correctness of a statement or describing things exactly as they are and avoiding jumping to unwarranted conclusion either by exaggeration or fantasising.

- (3) **Systematic Observation** : Strictly speaking the scientific method is systematic that is, it relies on carefully planned studies rather than on random or haphazard observation. Nevertheless, Science can begin from some random observation.
- (4) **Objective Approach** : The scientific method is objective. It relies on facts and on the world as it is, rather than on beliefs, wishes or desires. Scientists attempt (with varying degrees of success) to remove their biases when making observations.
- (5) **Precision** : i.e., making it as exact as necessary, or giving exact number or measurement. Instead of saying “I interviewed a large number of people”, one says, “I interviewed 493 persons”. Instead of saying, most of the people were against family planning, one says, seventy two percent people were against family planning.” Thus, in scientific precision, one avoids colourful literature and vague meanings.
- (6) **Logical** : Logic is defined as the discourse of argument. Analytically, logic is separable from any science, it constitutes a field of inquiry itself . however science is not independent of the logic supporting it, at some point in his inquiry, the researcher reaches a conclusion regarding the acceptability of some proposition.
- (7) **Training investigators** : Imparting necessary knowledge to investigators to make them understand what to look for, how to interpret it and avoid inaccurate data collection.
- (8) **Predictive** : Science is concerned with relating the present to the future. In fact, scientists strive to develop theories because, among other reasons, they are useful in predicting behaviour. A theory’s adequacy lies in its ability to predict a phenomenon or event successfully.

According to Henry Jhonson-



● **Conclusion :**

All above characteristics of scientific method point out that any generalisation based on this type of investigation is true. A systematically collected body of scientific evidence is rarely challenged.