Deduction: Testing Theory

Deduction is the research approach used to test a theory. It involves the development of a theory that is subjected to a rigorous test. The stages involved in such research are:

a) deducing a hypothesis from the theory ,
b) expressing the hypothesis in operational terms ,
c) testing the operational hypothesis ,
d) examining the specific outcomes of the enquiry , and
e) Modifying the theory in the light of the findings, if necessary.

An attempt is thus made to verify the revised theory by going back to the first step and repeating the whole cycle

Induction: Building Theory

In this approach, the researcher tries to understand the nature of the problem, gather the required quantitative and qualitative data, and analyze them to draw conclusions. Hence, developing an understanding about the problem and making proper analysis of its different dimensions are the strengths of inductive research. The result of this analysis would be the formulation of a theory. Thus, in an inductive approach, theory is built from the empirical evidences gathered through different sources. In deductive approach, data would follow a theory.

Characteristics of a Scientific Method:

The chief characteristic of a scientific method are:

1. Verifiability: The conclusion drawn through a scientific method is subjected to verification at any time. The preposition is that the phenomenon under investigation must be capable of being observed and measured. In case direct observation could not be done, other methods such as interview can be utilized for verification. For instance, two man's order of preference for various jobs, although incapable of being observed can still be verified by means of an interview.

2. Generality: Laws derived through scientific method are universal in their applications. They are not limited to individual objects or individual groups of objects. The individual groups or objects considered as specimen or instances, and there are relationships discovered through these individual groups should be applicable to whole group called Universe.

3. Predictability: Another characteristic of a Scientific method is that its results can be predicted with sufficient accuracy. For example, we can say with certainty that if water is heated to 100°C, it will vaporize, and if it is cooled to O'C, it will turn to ice. Also we can say that if an unbiased coin is tossed 500 times, head will turn about 250 times. Predictability is fixed on two factors i.e. fixing of relationship between the cause and the effect and the stability of causative factors.

4. Objectivity: The results obtained through a scientific method should be free from investigator's own views, wishes or prevalent notions i. e., they must be subjected to objective observations. The main criterion of objectivity is that all persons should arrive to the same conclusion about the phenomenon. For example, when we say Coal is black, it is objective statement because coal will appear black to all people. But when we say Coal is useful mineral, the statement may not be objective, for every one may not agree to the statement.

5. System: In every scientific study, there is an accepted mode of investigation. The result arrived true, at by means of a haphazard method, even true, cannot be called scientific because its accuracy is purely accidental.

Types of Research

Research can be divided into two broad types relative to its purposes; applied and fundamental

1. Applied Research

Applied research is conducted in response to a specific problem, which requires a solution. The major purpose of applied research is to answer practical and useful questions about policies programs, projects, procedures, or organizations. Business executives, therefore, take interest in applied research. They often hire outside researchers and consultants to study a problem of concern to them in order to find solutions that can be implemented to rectify the problem situation

As applied research is concerned with knowledge that has immediate applications, it is also called decisional research. The attempt to get a cure for Bird Flu is a case in point.

EXAMPLE: *The Dairy Development Corporation (DDC) has to improve its productivity in order to remain competitive in the market. There are two alternative strategies to improve its productivity. One is to pay attention to all of its existing brands and make continuous improvement; the other is to focus on new brand development. Each of these alternatives has some advantages and disadvantages. The Corporation will now have to research into each of these strategies and see which one would best be suitable to it, taking into account its capabilities, know-how, resources and so on.*

The above example indicates the need for an applied research to work out a strategy in view of the strengths and weaknesses of the DDC. Applied research is thus more concerned with knowledge that has immediate application and would be useful in making decisions and formulating policies.

The defining quality of applied research is that the researcher attempts to conduct a study whose

results can be applied directly to a specific situation. To accomplish this task, the researcher must choose a research strategy that maximizes the applicability of findings. Applied research often results in recommendations on decisions or actions.

2. ***Fundamental Research***

Fundamental research is undertaken to improve our understanding of certain problems that commonly occur in organizational setting, and how to solve them. It is undertaken for the sole purpose of adding to our knowledge that is fundamental and generalizable. It is conducted without any practical end-use in mind. It is also known as pure or basic research.

The purpose of fundamental research is not to apply the findings to solve an immediate problem at hand, but rather to generate more knowledge and understanding of the phenomena and problems that occur in several organizations, and to build theories based on the research results. Such theories subsequently become the foundation for further study of the phenomena.

Fundamental research is also concerned with the development, examination, verification and refinement of research methods, procedures, techniques and tools that form the body of research methodology. Thus, fundamental research simply aims to advance knowledge and to identify and explain relationships between variables.

EXAMPLE: The HRD Managers' Conference recently held in Kathmandu focused on the issue of employee socialization, training and commitment. The participants in that HRD Conference commonly believed that socialization and training should have a great impact on the productivity and organizational commitment of employees However, through the years; it has been observed that the productivity of workers over forty years of age does not improve from Socialization and training. On the other hand, organizational commitment of employees over 40 years is relatively higher. Why is this so? The participating HRD managers were looking for answers to these phenomena. What factors might be responsible for these phenomena? What type of socialization and training should be given to employees to improve their productivity and organizational commitment?

To answer the questions raised by the HRD managers, one has to undertake a basic research. Our existing knowledge is not enough to answer these questions. The purpose of the research is thus to simply increase the amount of knowledge on the issue of employee commitment and training, not to actually come up with a practical solution to a problem. The researcher therefore, has to design an investigation and conduct a study observing socialization and training programs in different work settings and recording the effects of such programs on the productivity and commitment of younger and older employees.

Several of such experiments conducted in different work situations would give the research some idea about the relationship between socialization, training, commitment and productivity of employees belonging to different age groups. The main purpose of conducting fundamental research is thus to advance the level of scientific knowledge.