

have pointed out a number of standards to be met in formulating a hypothesis:

1. It should be empirically testable, whether it is right or wrong.
2. It should be specific and precise.
3. The statements in the hypothesis should not be contradictory.
4. It should specify variables between which the relationship is to be established.
5. It should describe one issue only.

A hypothesis can be formed either in descriptive or relational form. In the former, it describes events, whereas in the latter it establishes relations between variables. A hypothesis can also be formed in the directional, non-directional or null form.

NATURE OF HYPOTHESES

A scientific justified hypothesis must meet the following criteria:

- It must accurately reflect the relevant sociological fact.
- It must not be in contradiction with approved relevant statements of other scientific disciplines.
- It must consider the experience of other researchers.

Hypotheses cannot be described as true or false. They can only be relevant or irrelevant to the research topic. For instance, the causes of poverty in a village can be explored in terms of:

- (i) Low development of agriculture (caused by lack of irrigation, sandy soil, erratic rainfall and use of traditional agricultural implements) causes poverty.
- (ii) Lack of infrastructure (electricity, roads, markets) causes poverty.
- (iii) Barriers in rural development are resource barriers (water, soil, minerals), support barriers (rainfall, irrigation, livestock) and social system barriers (credit, infrastructure, extravagant expenditure and market barriers).

The important hypotheses could be:

1. Rural poverty is positively co-related with availability of and accessibility to credit.
2. Rural poverty is the result of lack of infrastructural facilities.
3. Poverty is associated with extravagant social expenditure.
4. Rural poverty is adversely related to resource barriers (water, soil, minerals).

Sarantakos (1998:135) has presented a few hypotheses pertaining to the effects of education on religiosity: (i) high education is associated with low religiosity, (ii) education is adversely related to religiosity, (iii) education is positively correlated with religiosity, and (iv) there is no relationship between education and religiosity.

DIFFERENCE BETWEEN A PROPOSITION, A HYPOTHESIS AND A THEORY

A proposition

A proposition is "a statement about relationships among concepts or variables" (Zikmund, 1981:22). Bailey (1978:40) says that it is a generalised statement of a relationship among facts or about one or more facts or phenomena. Consider the following proposition in business administration: If reinforcements follow each other at evenly distributed intervals and everything else is held constant, the resulting habit will increase in strength as a positive growth function of the number of trials (Zikmund, op.cit:22). This proposition identifies relationship between the concepts 'reinforcements' and 'habit'. It identifies the direction and magnitude of this relationship.

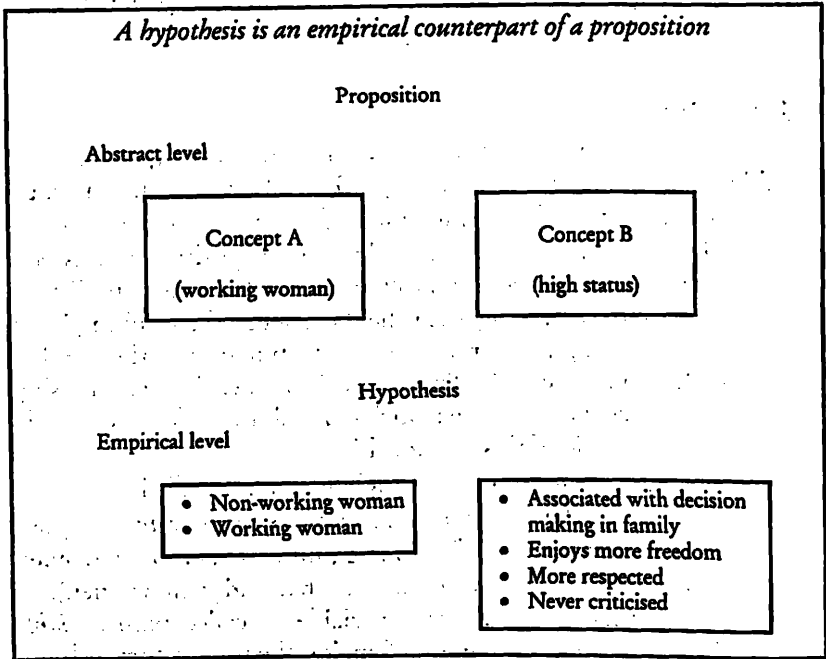
A proposition that discusses a single variable is called *univariate* proposition (e.g., hostler boys are more smokers). A *bivariate* proposition is one that relates two variables (e.g., illiterate and poor women are more exploited by in-laws than educated and rich women). A proposition relating more than two variables is called *multivariable* (e.g., the higher the illiteracy among females, the poorer their self-image and the higher their exploitation by males).

Multivariate propositions are generally written as two or more bivariate propositions. For instance, in the above example, the two bivariate propositions will be: (1) the higher the illiteracy among women, poorer will be their self-image; and (2) the lower the self-image, the higher will be women's exploitation. Of these two propositions, either both can be rejected or accepted or one can be accepted and other rejected. In social research, most propositions are bivariate.

Just as concepts are the building blocks of propositions, propositions are the building blocks of theories. Sub-types of propositions include hypotheses, empirical generalisations, postulates and theorems.

A hypothesis

A hypothesis is a proposition that is empirically testable. For example, the proposition "non-working women enjoy lower social status than working women" can be empirically verified. Here, the variables are woman's work and social status which can be measured.



Bailey (1982:41) has also said: "Hypothesis is a proposition stated in a testable form which predicts a particular relationship between two or more variables." It is also described as "a tentative statement asserting a relationship between certain facts".

For example, in Sutherland's "Theory of Differential Associations" pertaining to the causes of crime, the important proposition given is that "crime is a behaviour learned in a process of communication with persons in primary groups who define the legal rules unfavourably". The questions we can ask here are: Is crime learnt through interaction? Is interaction with criminals more important in learning crime? How and why is interaction in primary groups different from the one in other (or secondary) groups? On the basis of these

arguments, Sutherland's proposition (about crime causation) has not been accepted.

According to Blalock, the task of science is not to prove but to disprove and reject the hypothesis. For example, take the following hypothesis: "Probability that the sale of commodity is dependent on multiple causes is greater than the probability that it is caused by one single factor." This has to be disproved and rejected.

A theory

According to Theodorson and Theodorson (1969:436), a theory is a set of assumptions. The body of the theory is composed of logically interrelated and empirically verifiable propositions. The propositions of a theory are constantly subject to further empirical testing and revision. Zikmund (1988:20) has described theory as "a coherent set of internal propositions explaining apparent relationships of certain observed phenomena".

The two purposes of theory are understanding and prediction. In most situations, prediction and understanding go hand in hand. To predict phenomena, we must have an explanation of why variables behave as they do. Theories provide these explanations. For example, the Aggression-Frustration Theory is that aggression is a response to frustration. The explanation is that aggression is a learned social behaviour and that it is provoked when the individual feels frustrated (not deprived). He learns that *aggression often pays*. This learning is not only by one's own experiencing but also by observing others. But merely to say that aggressive responses are learned does not help us predict when such responses will actually occur. Aggressive acts are motivated by a variety of aversive experiences like frustration, pain, insults. Such experiences arouse individuals emotionally. But whether they will act aggressively or not will depend upon what consequences they anticipate. Individuals act aggressively when they feel they will be rewarded.

The propositions that comprise a theory are regarded as scientific laws if they have been sufficiently verified to be widely accepted. Through the process of *deduction*, a theory provides specific hypotheses for research, and through *induction*, research data provide generalisations to be incorporated into and modify a theory. The essence of theory is that it attempts to explain a wide variety of empirical phenomena.

According to Black and Champion (1976:56), a theory is "a set of systematically related propositions specifying causal relationships among variables. The ideas in a theory must conform to the following criteria (*Ibid*:57):

1. They must be logically consistent, i.e., there should be no internal contradictions.
2. They must be interrelated.
3. The propositions should be mutually exclusive.
4. They must be capable of being subjected to empirical scrutiny.

TYPES OF HYPOTHESES

Hypotheses are classified as working hypotheses, research hypotheses, null hypotheses, statistical hypotheses, alternative hypotheses and scientific hypotheses.

Working hypothesis is a preliminary assumption of the researcher about the research topic, particularly when sufficient information is not available to establish a hypothesis, and as a step towards formulating the final research hypothesis. Working hypotheses are used to design the final research plan, to place the research problem in its right context and to reduce the research topic to an acceptable size. For example, in the field of business administration, a researcher can formulate a *working* hypothesis that "assuring bonus increases the sale of a commodity". Later on, by collecting some preliminary data, he modifies this hypothesis and takes a *research* hypothesis that "assuring *lucrative* bonus increases the sale of a commodity".

Scientific hypothesis contains statement based on or derived from sufficient theoretical and empirical data.

Alternative hypothesis is a set of two hypotheses (research and null) which states the opposite of the null hypothesis. In statistical tests of null hypotheses, acceptance of H_0 (null hypothesis) means rejection of the alternative hypothesis; and rejection of H_0 means similarly acceptance of the alternative hypothesis.

Research hypothesis is a researcher's proposition about some social fact without reference to its particular attributes. Researcher believes that it is *true* and wants that it should be *disproved*, e.g., Muslims have more children than Hindus, or drug abuse is found more among upper-class students living in hostels or rented rooms. Re-