

HYPOTHESIS: MEANING, TYPES AND FORMULATION

Written by Dasvinder Singh

Research Scholar, Department of Laws, Panjab University, Chandigarh, India

ABSTRACT

Hypothesis is a tentative statement about the solution of the problem. Hypothesis offers a solution of the problem that is to be verified empirically and based on some rationale. Hypothesis guides the research process in a systematic way towards a achieving a desired goal. Certain important characteristics of an ideal hypothesis include being clear, specific, empirically testable and being related to a body of theory. It acts as a temporary solution and helps the researcher to start his investigation in an objective manner. Hypotheses can be of various types such as working, scientific, alternative, research, null or statistical hypothesis. A hypothesis can virtually relate to anything under the sun. Hence, a great caution and practical approach needs to be adopted while formulating a hypothesis. Two basic methods of hypothesis formulation are qualitative method and quantitative method. Formulation of hypothesis is very crucial to the solution of research problem because hypothesis helps in keeping the research of the researcher focused. It helps in narrowing the sample so that eventually the researcher is not left with useless data. If the hypothesis is ill-defined then it will become very difficult rather practically impossible for the researcher to have a reasonable basis for his research. A properly tested hypothesis helps to either verify a theory or deny it. It may also suggest some modifications in an existing theory. Although hypothesis do not generally challenge the well-known laws of the nature or the well-established principles of science which have been proved beyond reasonable doubt yet hypothesis do at times help in formulating new theories.

INTRODUCTION

“We cannot take a single step forward in any inquiry unless we begin with a suggested explanation or solution of the difficulty which originated it. Such tentative explanations are suggested to us by something in the subject-matter and by our previous knowledge. When they are formulated as propositions, they are called hypothesis.”

-Morris R Cohen & Ernest Nagelⁱ

Research is combination of two words Re + Search which means the repetition of search. Research means to go around as to explore. Research is the process of collection of evidence or information for ascertaining an assumption or verifying some hypothesis.ⁱⁱ

Since hypothesis is an intelligent guess or a tentative solution hence the formulation of hypothesis becomes imperative as soon as a research question is formulated.ⁱⁱⁱ Hypothesis is merely a tentative assumption made in order to draw and test its logical or empirical consequences. It is a tentative, testable statement. A statement to be a hypothesis must be capable of being tested. If its validity cannot be put to empirical confirmation, a proposition, howsoever attractive or interesting may be ceases to be a hypothesis.^{iv}

The formulation of a hypothesis is a step towards formalizing the research process. It is an essential part of scientific method of research. The quality of hypothesis determines the value of the results obtained from research. The value of hypothesis in research has been aptly stated by **Claude Bernard** as, *“The ideas are the seed; the method is the soil which provides it with the conditions to develop, to prosper and give better fruits following its nature. But just as the soil will never produce anything other than what has been sown, similarly only those ideas which have been put to the experimental methods will be developed by the latter.”* Thus, the ideas stated in the form of hypothesis will determine the output of results.^v

MEANING

The word hypothesis is made up of two Greek roots which mean that it is some sort of ‘*sub-statements*’, for it is the presumptive statement of a proposition, which the investigation seeks to prove. The scientist observes a special class of phenomena and broods over it until by a flash of insight he perceives an order and intelligent harmony in it. This is often referred to as an ‘*explanation*’ of the facts he has observed. He has a ‘*theory*’ about particular mass of fact. This theory when stated testable proposition formally and clearly subjected to empirical or experimental verification is known as a hypothesis. The hypothesis furnishes the germinal basis of the whole investigation and remains to the end its corner stone, for the whole research is directed to test it out by facts. At the start of investigation, the hypothesis is a stimulus to critical thoughts offers insights into the confusion of phenomena. At the end it comes to prominence as the proposition to be accepted or rejected in the light of the findings.^{vi}

The word hypothesis consists of two words:

Hypo + thesis = Hypothesis

‘Hypo’ means tentative or subject to the verification and ‘Thesis’ means statement about solution of a problem.

The world meaning of the term hypothesis is a tentative statement about the solution of the problem. Hypothesis offers a solution of the problem that is to be verified empirically and based on some rationale.^{vii}

Ordinarily, ‘hypothesis’ is a plausible statement or generalization that is susceptible to empirical testing in a scientific manner. It is a mere assumption, some supposition, a predictive or a provisional statement, that is capable of being objectively verified and empirically tested by scientific methods. In its most elementary stage, a hypothesis may be a mere hunch, guess, or an imaginative idea. Hypothesis is a tentative proposition about something, which can be put to empirical test to determining its validity. It is a tentative statement of presumed relationship between two or more concepts or variables.^{viii}

Thus, a tentative generalization or theory formulated about the character of phenomena under observation are called hypothesis. It is a proposition about the factual and conceptual elements. Hypothesis is called a leap into the dark. It is a brilliant guess about the solution of a problem.^{ix}

DEFINITIONS

The term hypothesis has been defined in several ways. Some important definitions are given below:

- *“A proposition, condition or principle which is assumed, perhaps without belief, in order to draw out its logical consequences and by this method to test its accord with facts which are known or may be determined.”*
-Webster’s New International Dictionary^x
- *“A hypothesis is a tentative generalisation the validity of which remains to be tested. In its most elementary stage, the hypothesis may be any hunch, guess, imaginative idea which becomes the basis for further investigation.”*
- Lungberg
- *“It is a tentative supposition or provisional guess which seems to explain the situation under observation.”*
- James E. Greighton
- *“Science employs hypothesis in guiding the thinking process. When our experience tells us that a given phenomenon follows regularly upon the appearance of certain other phenomena, we conclude that the former is connected with the latter by some sort of relationship and we form a hypothesis concerning this relationship.”*
- A.D. Carmichael^{xi}
- *“A hypothesis states what we are looking for. A hypothesis looks forward. It is a proposition which can be put to a test to determine its validity. It may prove to be correct or incorrect.”*
-Goode and Hatt
- *“A hypothesis is a statement temporarily accepted as true in the light of what is, at the time, known about a phenomenon, and it is employed as a basis for action in the search for new*

truth, when the hypothesis is fully established, it may take the form of facts, principles and theories.”

- Barr and Scates

- *“It is a shrewd guess or inference that is formulated and provisionally adopted to explain observed facts or conditions and to guide in further investigation.”*

- John W. Best^{xii}

CHARACTERISTICS OF A WORKABLE HYPOTHESIS

It is said that man’s mind, like his body, is often active without any immediate goal. A number of interesting hypothesis may emanate from man’s mind but all of them may not necessarily be empirically verifiable. A ‘workable’ or ‘usable’ hypothesis would be the one that satisfies many of the following criteria:^{xiii}

1. Hypothesis Should Be Conceptually Clear

The concepts used in the hypothesis should be clearly defined, not only formally but also, if possibly, operationally. Formal definition of the concepts will clarify what a particular concept stands for, while the operational definition will leave no ambiguity about what would constitute the empirical evidence or indicator of the concept on the plane of reality. Obviously, an undefined or ill-defined concept makes it difficult or rather impossible for the researcher to test his hypothesis as there will not be any standard basis for him to know the observable facts. However, a researcher, while defining concepts, should use, as far as possible, the terms that are communicable or definitions that are commonly accepted. It should be stated as far as possible in most simple terms so that it can be easily understandable to all concerned. He should not create ‘*a private world of words.*’^{xiv}

2. Hypothesis Should Be Specific

A hypothesis should be couched in specific terms. No vague or value-judgmental terms should be used in formulation of a hypothesis. It should specifically state the posited relationship

between the variables. It should include a clear statement of all the predictions and operations indicated therein and they should be precisely spelled out. Specific formulation of a hypothesis assures that research is practicably significant. It helps to increase the validity of results because the more specific the statement or prediction, the smaller the probability that it will actually be borne out as a result of mere accident or chance. A researcher, therefore, must remember that narrower hypothesis is generally more testable and he should develop such a hypothesis.^{xv}

3. *Hypothesis Should Be Empirically Testable*

A hypothesis, as, stated earlier, should be formulated in such a way that it should possibly be to empirically verifiable. It should have empirical referents so that it will be possible to deduce certain logical deductions and inferences about it. Such statements as ‘pigs are well named because they are so dirty’ can hardly be usable hypothesis as they do not have any empirical referents for testing their validity.^{xvi}

4. *Hypothesis Should Be Related to Available Techniques*

A hypothesis needs to be empirically tested. This requirement obviously makes it necessary that a hypothesis should be related to available techniques of data collection. A researcher who does not know what techniques are available to him to test his hypothesis cannot test his hypothesis. His ignorance of the available techniques, makes him weak in formulating a workable hypothesis.^{xvii}

5. *Hypothesis Should Be Related to A Body of Theory or Theoretical Orientation*

It is needless to re-emphasize here that a researcher, through testing his hypothesis, intends to contribute to the existing fact, theory or science. While formulating his hypothesis, he has to take a serious pause to see the possible theoretical gains of testing the hypothesis. A hypothesis, if tested, helps to qualify, support, correct or refute an existing theory, only if it is related to some theory or has some theoretical orientation.^{xviii}

FUNCTIONS

The following are the main functions of hypothesis in the research process suggested by **H.H. Mc Ashan**:

1. It is a temporary solution of a problem concerning with some truth, which enables an investigator to start his research work.
2. It offers a basis in establishing the specifics what to study for and may provide possible solutions to the problem.
3. Each hypothesis may lead to formulate another hypothesis.
4. A preliminary hypothesis may take the shape of final hypothesis.
5. Each hypothesis provides the investigator with definite statement which may be objectively tested and accepted or rejected and leads for interpreting results and drawing conclusions that is related to original purpose.^{xix}

The functions of a hypothesis may be condensed into three. The following are the threefold functions of a hypothesis:

- a) To delimit the field of the investigation.
- b) To sensitize the researcher so that he should work selectively, and have very realistic approach to the problem.
- c) To offer the simple means for collecting evidences to the verification.^{xx}

TYPES

Hypothesis may broadly be classified as working hypothesis, research hypothesis, null hypothesis, statistical hypothesis, alternative hypothesis and scientific hypothesis.

1. *Working Hypothesis*

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.^{xxi}

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.”

2. *Scientific Hypothesis*

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

3. *Alternative Hypothesis*

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

4. *Research 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 among upper-class students living in hostels or rented rooms. Research hypothesis may be derived from theories or may result in developing of theories.^{xxiii}

5. *Null Hypothesis*

Null hypothesis is reverse of research hypothesis. It is a hypothesis of no relationship. Null hypothesis does not exist in reality but are used to test research hypothesis.

Why is research hypothesis changed in null hypothesis for verification? The main reasons according to Black and Champion are:

- (1) It is easier to prove something *false* than to prove it *true*.
- (2) When one tries to prove something, it indicates his firm belief and commitment to the idea but when he wants to disprove it, it indicates his objectivity.
- (3) It is based on *probability* theory, i.e., it can either be *true* or *false*. It cannot be *both*.
- (4) It is a convention in social research to use null hypothesis.^{xxiv}

6. *Statistical Hypothesis*

Statistical hypothesis, according to **Winter**, is a statement/observation about statistical populations that one seeks to support or refute. The things are reduced to *numerical quantities* and decisions are made about these quantities, e.g., income difference between two groups: group A is richer than group B. Null hypothesis will be: group A is not richer than group B. Here, variables are reduced to measurable quantities.^{xxv}

For the purpose of testing statistical significance, hypotheses are concisely classified into two types:

1. *Null Hypothesis*

A null hypothesis is a statement that there is no actual relationship between variables. (H₀ or H_N). The final conclusion of the investigator will either retain a null hypothesis or reject a null hypothesis in favor of an alternative hypothesis. Not rejecting H₀ does not really mean that H₀ is true. There might not be enough evidence against H₀. Once the null hypothesis has been stated, it is easy to construct the alternative hypothesis. It is essentially the statement that the null hypothesis is false. Example can be “There is no significant difference in the anxiety level of children of High IQ and those of low IQ.”^{xxvi}

2. *Alternate Hypothesis*

An alternative hypothesis is a statement that suggests a potential outcome that the researcher may expect. (H₁ or H_A). It is established only when a null hypothesis is rejected. Often an alternative Hypothesis is the desired conclusion of the investigator. The two types of alternative hypothesis are: (a)

- i. Directional Hypothesis and
- ii. Non-directional Hypothesis.

Directional Hypothesis is a type of alternative hypothesis that specifies the direction of expected findings. Sometimes directional hypotheses are created to examine the relationship among variables rather than to compare groups. Directional hypothesis may read, "...is more than..", "...will be lesser.." Example can be "Children with high IQ will exhibit more anxiety than children with low IQ"^{xxvii}

Non-directional Hypothesis is a type of alternative hypothesis in which no definite direction of the expected findings is specified. The researcher may not know what can be predicted from the past literature. It may read, "..there is a difference between.." Example can be "There is a difference in the anxiety level of the children of high IQ and those of low IQ."^{xxviii}

Goode and Hatt have given the following three types of hypotheses on the basis of level of abstractness:

1. Hypothesis which **presents proposition in common sense terms** or, about which some common-sense observations already exist or, which seeks to test common sense statements.
For example: bad parents produce bad children, or committed managers always give profits, or rich students drink more alcohol.
2. Hypothesis which are **somewhat complex**, i.e., which give statement of a little complex relationship.^{xxix}
For example: Communal riots are caused by religious polarization, Crime is caused by differential associations, Juvenile delinquency is related to residence in slums, or Deviant behaviour is caused by mental disorders.
3. Hypothesis which are **very complex**, i.e., which describe relationship between two variables in more complex terms, e.g., high fertility exists more in low income, conservatives, and rural people than in high income, modern, and urban people. Here dependent variable is 'fertility' while independent variables are income, values, education, and residence, etc. The other example is: Muslims have high fertility rate than

Hindus. We have to keep number of variables constant to test this hypothesis. This is abstract way to handle the problem.^{xxx}

FORMULATION

Hypothesis can pertain to virtually anything. For example, urbanization and urban life style boost suicide rate, broken homes tend to lead juvenile delinquency, modernization and education among women lead to increase in divorces, poverty causes criminality, and unemployment among youths leads to violent crimes. There can be no restrictions whatsoever about what can be hypothesized. However, hypothesis needs to be empirically tested. In fact, a researcher needs to put a great deal of thought into formulation of his hypothesis.^{xxxi}

Formulation of Hypothesis differs with the method of research conducted such as:

1. *Qualitative Method*

The researcher uses questions, not objectives or hypothesis. He poses a central question, which is being examined in the study in the most general form- “the broadest question that can be asked in a study.” Several sub-questions are raised related to the central question to narrow the focus of study but to leave the questioning at an open end. They are under continual review and restructuring along the course of research. Questions begin with “what”, “how”. They focus on a single concept. The questions use non-directional terminology.^{xxxii}

2. *Quantitative Method*

The researcher uses questions and hypothesis to compose and focus the purpose of study. Hypothesis or research questions used to compare, relate and describe variables. The research follows from a test of theory and the question and the hypothesis or the research questions are included in the theory. Independent and dependent variables are measured separately. It is not a combination of both either a research question or a hypothesis. Hypothesis needs to be structured before the data-gathering and interpretation phase of the research. A well-grounded hypothesis indicates that the researcher has sufficient knowledge in the area to undertake the

investigation. The hypothesis gives direction to the collection and interpretation of data. Consider the example of a simple association between two variables, Y and X.^{xxxiii}

- i. Y and X are associated (or, there is an association between Y and X).
- ii. Y is related to X (or, Y is dependent on X).
- iii. As X increases, Y decreases (or, increases in values of X appear to effect reduction in values of Y).

The first hypothesis provides a simple statement of association between Y and X. Nothing is indicated about the association that would allow the researcher to determine which variable, Y or X, would tend to cause the other variable to change in value.

The second hypothesis is also a simple statement of association between Y and X, but this time it may be inferred that values of Y are in some way contingent upon the condition of the X variable.

The third hypothesis is the most specific of the three. Not only does it say that Y and X are related and that Y is dependent on X for its value, but it also reveals something more about the nature of the association between the two variables.^{xxxiv}

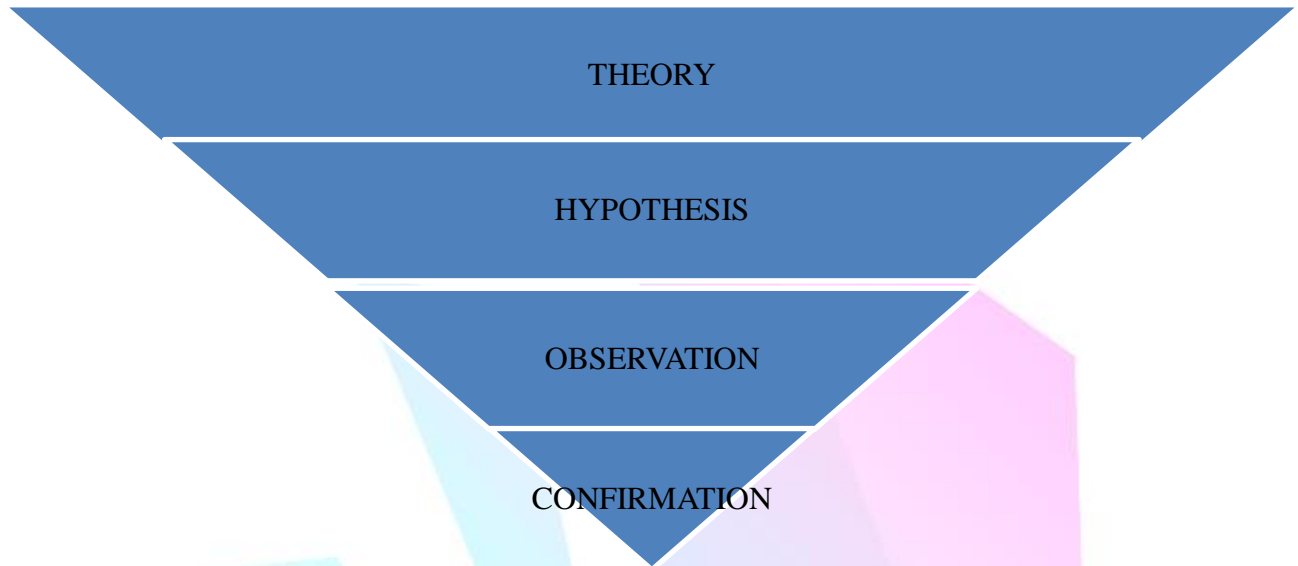
DEDUCTIVE AND INDUCTIVE APPROACHES

There are two broad methods of reasoning such as deductive and inductive approaches. The main difference between inductive and deductive approaches to research is that whilst a deductive approach is aimed at testing theory, an inductive approach is concerned with the generation of new theory emerging from the data.

Deductive Approach:

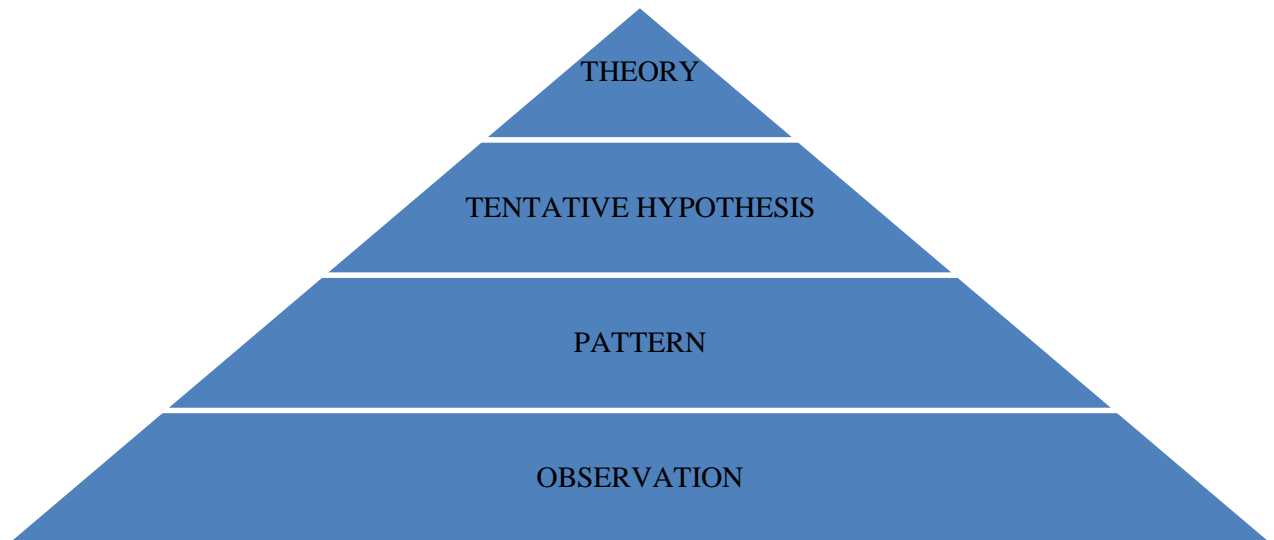
Deductive reasoning works from the more general to the more specific. Sometimes this is informally called a “**top-down**” or “**waterfall**” approach. Researcher might begin with thinking up a theory about his topic of interest. He then narrows that down into more specific hypothesis that he can test. Researcher narrows down even further when he collects

observations to address the hypothesis. This ultimately leads the researcher to be able to test the hypothesis with specific data -- a confirmation (or not) of our original theories.^{xxxv}



Inductive Approach:

Inductive reasoning works the other way, moving from specific observations to broader generalizations and theories. Informally, sometimes this is called as a “**bottom up**” or “**hill-climbing**” approach. In inductive reasoning, researcher begins with specific observations and measures, begins to detect patterns and regularities, formulate some tentative hypothesis that he can explore, and finally end up developing some general conclusions or theories.^{xxxvi}



IMPORTANCE

The importance of hypothesis can be described in the following ways:

1. *It Focuses Research:* Without it, research is unfocussed research and remains like a random empirical wandering. It serves as necessary link between theory and the investigation.
2. *It Places Clear and Specific Goals:* A well thought of hypothesis places clear and specific goals before the research worker and provides him with a basis for selecting sample and research procedure to meet these goals.
3. *It Prevents Blind Research:* “The use of hypothesis prevents a blind search and indiscriminate gathering of masses of data which may later prove irrelevant to the problem under study.”

– *P. V. Young*^{xxxvii}

George J. Mouley thinks that a good Hypothesis serves the following purposes:

- a) Gives help in deciding the direction in which he has to proceed.
- b) It helps in selecting pertinent fact.
- c) It helps in drawing conclusions.^{xxxviii}

D.B. Van Dalen advocates the importance of Hypothesis in the following ways:

- i. A hypothesis pin points the problem. The investigator can examine thoroughly the factual and conceptual elements that appear to be related to a problem.
- ii. A hypothesis provides the framework for drawing conclusions.
- iii. These hypotheses simulate the investigator for further research studies.
- iv. A hypothesis provides the map that guides and expedites the exploration of the phenomenon under consideration.^{xxxix}

DIFFERENCE BETWEEN HYPOTHESIS, ASSUMPTIONS AND POSTULATES

Hypothesis, assumptions and postulates are generally confused with one another. However, following are the major differences between them^{xl}:

Sr. No.	Hypothesis	Assumptions	Postulates
1.	Hypothesis are tentative statements or a proposed explanation of any observable phenomenon.	Assumptions are statements of what the researcher believes to be facts but cannot verify.	Postulates are propositions which are accepted as true. Postulates are fundamental propositions used to prove other statements.
2.	The experiment will either prove the hypothesis right or wrong.	Assumptions are basically hunches or anything that is taken for granted.	Postulates are not proven; they are simply accepted at their face values.

3.	Hypothesis provides enough evidence to be regarded as a valid theory.	Assumption can be used as premise of a particular argument but may not be otherwise accepted.	Postulates provides basis for legal reasoning.
----	---	---	--

CONCLUSION

Hypothesis is important for a study. Hypothesis is important for bringing clarity, specificity and focus to a research study. A hypothesis is a speculative statement that is subjected to verification through a research study. In formulating, a hypothesis it is important to ensure that it is simple, specific conceptually clear, able to be verified, rooted in a body of knowledge and able to be operationalized. The study of hypothesis for logical consistency is a phase of thinking. It consists of checking the logical character of reasoning by which the consequences of hypothesis are deduced for verification. In the second place, the study of hypothesis for logical consistency involves checking if for the agreement with the already known laws of nature. It must not conflict with the highest and simplest laws of good thinking and it must not disagree with those principles of science which are considered valid beyond reasonable doubt. The suggested inferences are tested in thought, for logical coherence, before they are tested in action. A Hypothesis is never proved; it is merely sustained or rejected. If it fails to meet the test of its validity, it must be modified or rejected. A hypothesis can be useful even it is partially incorrect. The negative instances which occur require only clarification and refinement of the hypothesis rather than its outright rejection. It has a significant role in the formulation of theory, principles and laws. It is also known as tentative theory, after verification it takes the shape of final theory. A theory engenders new hypothesis, these are subjected to verification, after the verification it becomes a new theory in field studies. In building up the theories, this cyclic process continues.^{xli}

“A hypothesis serves as a powerful beacon that lights the way for the research worker.”

-Van Dalen^{xlii}

BIBLIOGRAPHY

Articles

1. Cavanaugh Joseph, *Formulation, Analysis and Testing of the Interactance Hypothesis* 15 ASA (1950).
2. Mourougan Sendil, Sethuraman K. Dr., *Hypothesis Development and Testing* 19 IOSR-JBM (2017).

Books

1. AHUJA RAM, RESEARCH METHODS (Rawat Publications, 2015).
2. BHALLA KAUR RANJIT DR. & PURI MOHIT DR., ADVANCED RESEARCH METHODOLOGY (Kanishka Publishers, New Delhi, 1st ed. 2013).
3. GOODE WILLIAM & HATT PAUL, METHODS IN SOCIAL RESEARCH (Surjeet Publications, New Delhi, 1st ed. 2006).
4. KAPOOR D. DR. & SAIGAL PUJA MS., RESEARCH METHODOLOGY: METHODS AND TECHNIQUES (Mayur Enterprises, New Delhi, 2013).
5. PUROHIT MONA DR., LEGAL EDUCATION AND RESEARCH METHODOLOGY (Central Law Publications, 2010).
6. SINGH KUMAR YOGESH, FUNDAMENTAL OF RESEARCH METHODOLOGY AND STATISTICS (New Age International Pvt. Limited Publishers, 2006).
7. VIBHUTE KHUSHAL PROF. & AYNALM FILIPOS, LEGAL RESEARCH METHODS TEACHING MATERIAL (Justice and Legal System Research Institute, 2009).

ENDNOTES

ⁱ PROF. KHUSHAL VIBHUTE & FILIPOS AYNALM, LEGAL RESEARCH METHODS TEACHING MATERIAL 115 (Justice and Legal System Research Institute, 2009).

ⁱⁱ DR. MONA PUROHIT, LEGAL EDUCATION AND RESEARCH METHODOLOGY 110 (Central Law Publications, 2010).

ⁱⁱⁱ *Id.*

^{iv} PROF. KHUSHAL, *supra* note 1 at 56.

^v DR. RANJIT KAUR BHALLA, DR. MOHIT PURI, ADVANCED RESEARCH METHODOLOGY 119 (Kanishka Publishers, New Delhi, 1st ed. 2013).

- vi YOGESH KUMAR SINGH, FUNDAMENTAL OF RESEARCH METHODOLOGY AND STATISTICS 54 (New Age International Pvt. Limited Publishers, 2006).
- vii DR. RANJIT, *supra* note 5 at 120.
- viii A concept is an idea, something conceived in mind. It is a mental abstraction or construction developed to symbolize an idea, a thing or an event. When it is operationally defined, it becomes a variable. Two variables are related when the values observed for one variable vary, differ, or change according to those of another. Merely fact of association between variables is not sufficient for concluding their association is causal.
- ix DR. RANJIT, *supra* note 5 at 120.
- x PROF. KHUSHAL, *supra* note 1 at 117.
- xi YOGESH KUMAR, *supra* note 6 at 55.
- xii DR. RANJIT, *supra* note 5 at 121.
- xiii PROF. KHUSHAL, *supra* note 1 at 122.
- xiv WILLIAM GOODE & PAUL HATT, METHODS IN SOCIAL RESEARCH 68 (Surjeet Publications, 1st ed., 2006).
- xv PROF. KHUSHAL, *supra* note 1 at 123.
- xvi *Id.* at 124.
- xvii WILLIAM GOODE, *supra* note 14 at 69.
- xviii WILLIAM GOODE, *supra* note 14 at 70.
- xix YOGESH KUMAR, *supra* note 6 at 58.
- xx DR. RANJIT, *supra* note 5 at 127.
- xxi RAM AHUJA, RESEARCH METHODS 76 (Rawat Publications, 2015).
- xxii *Ibid.*
- xxiii RAM AHUJA, *supra* note 21.
- xxiv *Id.*
- xxv *Id.*
- xxvi Sendil Mourougan & Dr. K. Sethuraman, *Hypothesis Development and Testing*, 19 IOSR-JBM 34-40 (2017).
- xxvii *Id.*
- xxviii Sendil Mourougan, *supra* note 26.
- xxix RAM AHUJA, *supra* note 21 at 78.
- xxx *Id.* at 79.
- xxxi PROF. KHUSHAL, *supra* note 1 at 117.
- xxxii Sendil Mourougan, *supra* note 26.
- xxxiii *Id.*
- xxxiv *Supra* Note 26.
- xxxv *Id.*
- xxxvi Sendil Mourougan, *supra* note 26.
- xxxvii DR. RANJIT, *supra* note 5 at 127.
- xxxviii YOGESH KUMAR, *supra* note 6 at 59.
- xxxix *Id.*
- xl DR. D. KAPOOR, MS. PUJA SAIGAL, RESEARCH METHODOLOGY: METHODS AND TECHNIQUES 157 (Mayur Enterprises, 2013).
- xli YOGESH KUMAR, *supra* note 6 at 77.
- xlii RAM AHUJA, *supra* note 21 at 79.