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RESEARCH ARTICLE

SIGNIFICANCE OF HYPOTHESIS IN LEGAL RESEARCH

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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.

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Introduction:-

Hypothesis is a hunch the researcher or research team has. Basically, a hypothesis is nothing more or less than a hunch to solve your research problem. Researchers tend to prefer a hypothesis that turns out correct, partly because of the human preference for winning instead of losing, but also partly because of the philosophy behind the scientific method. Researchers tend to stick to previous results that have not been falsified. It is however of much greater importance to ensure that hypothesis is manageable and being able to be tested by any kind of study. A good hypothesis adds to existing theory by proposing rules, laws, and processes and allows predictions to new situations.

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A good hypothesis by adding predictions on the how or why.¹ So, use sentences that include variations. If one cannot assess the predictions by observation or by experience, the hypothesis classes as not yet useful, and must wait for other that include variations.

Objectives:-

There are important following objectives of hypothesis:

1. To define meaning and importance of hypothesis.
2. To explain the significance of hypothesis in research methodology.
3. To discuss the characteristics of good hypothesis
4. To highlight the sources of hypothesis.

Meaning:

“Hypo” means less than or under, and “thesis” mean s idea or general opinion to be defended by a person and thus hypothesis means an idea form beforehand which has less value than the generally formed view. If we have to proceed towards some destination for which we don’t know the way, we try to form an idea about the direction to proceed and by trial and error, we reach that goal.² The primary idea is called a hypothesis.

Definition and Nature of Hypothesis:

According to George A. Lundburg, “A hypothesis is tentative generalization, the validity of which remains to be tested. In this most elementary stage, the hypothesis may be any hunch, guess, imaginative idea, which becomes the basis for action and investigation” A hypothesis is conjectural statement of the relation between two or more variables.

It is a tentative answer to the research question or an educated guess of the research outcome. Hypothesis is always in a declarative sentence form and they relate either generally or specifically from variable to variable. The testable proposition is called Hypothesis. It is a proposition, condition or principle which assured perhaps, without a belief in order to draw out its logical consequences. By this method, we can test its agreement with facts which are known and may be determined.³

On this account one can say that, hypothesis is a tentative statement which expresses the nature of relationship between two or more variables usually in the forms of cause-effect relationship. Hypothesis constitutes part of the researcher’s attempt at explaining casual relationships.

It's important to note that a hypothesis is not considered an established fact until it has been thoroughly tested and confirmed by multiple independent experiments and observations. If a hypothesis is supported by evidence and repeatedly validated, it may evolve into a scientific theory, which is a broader and more comprehensive explanation of natural phenomena.⁴

Importance of the Hypotheses:

The importance of hypotheses is more widely acknowledged in studies that make predictions about outcomes. In experimental research, the researchers are interested in making predictions about the outcome of the experiment or what the results are expected to show and therefore the role of hypotheses is considered to be of utmost importance. In the historical or descriptive research, on the other hand, the researcher is investigating the history of a city or a nation, the life of a man, the happening of an event, or is seeking facts to determine the statuesque of some situation and thus may not have a basis for making a prediction of results. A hypothesis, therefore, may not be required in such fact-finding studies.⁵ Hillway (1964) too is of the view that “when fact finding alone is the aim of the study, a hypothesis may not be required.”

¹ Dr. Ranjit Kaur Bhalla and Dr. Mohit Puri, *Advanced Research Methodology* 119 (Kanishka Publishers, New Delhi, 1st edn. 2013).

² Dr. Mona Purohit, *Legal Education And Research Methodology* 110 (Central Law Publications, 2010).

³ William Goode and Paul Hatt, *Methods in Social Research* 68 (Surjeet Publications, 1st edn., 2006).

⁴ Yogesh Kumar Singh, *Fundamental of Research Methodology and Statistics* 54 (New Age International Pvt. Limited Publishers, 2006).

⁵ Sendil Mourougan and Dr. K. Sethuraman, *Hypothesis Development and Testing*, 19 (IOSR-JBM 34-40 (2017)).

It is a fundamental component of the scientific method and is used to form predictions that can be tested through further experimentation or investigation. Hypotheses are typically formulated as clear and specific statements that can be either supported or refuted by empirical evidence.

The importance of hypothesis may be summarised as under:

1. Hypotheses facilitate the extension of knowledge in an area. They provide tentative explanations of facts and phenomena, and can be tested and validated. It sensitizes the investigator to certain aspects of situations which are relevant from the standpoint of the problem in hand.
2. Hypotheses provide the researcher with rational statements, consisting of elements expressed in a logical order of relationships which seek to describe or to explain conditions or events, that have not yet been confirmed by facts.

The hypotheses enable the researcher to relate logically known facts to intelligent guesses about unknown conditions. It is a guide to the thinking process and the process of discovery. It is the investigator's eye – a sort of In the scientific context, a hypothesis is often presented as an if-then statement. The "if" part represents the independent variable or the cause, while the "then" part represents the dependent variable or the effect that is expected to occur as a result of the independent variable. Through rigorous testing and analysis of data, scientists can evaluate the validity of the hypothesis and draw conclusions about the relationship between the variables under investigation guiding light in the work of darkness.

3. Hypotheses provide direction to the research. It defines what is relevant and what is irrelevant. The hypotheses tell the researcher specifically what he needs to do and find out in his study. Thus, it prevents the review of irrelevant literature and the collection of useless or excess data. Hypotheses provide a basis for selecting the sample and the research procedures to be used in the study.⁶ The statistical techniques needed in the analysis of data, and the relationships between the variables to be tested, are also implied by the hypotheses. Furthermore, the hypotheses help the researcher to delimit his study in scope so that it does not become broad or unwieldy.
4. Hypotheses provide the basis for reporting the conclusions of the study. It serves as a framework for drawing conclusions. The researcher will find it very convenient to test each hypothesis separately and state the conclusions that are relevant to each.

On the basis of these conclusions, one can make the research report interesting and meaningful to the reader. It provides the outline for setting conclusions in a meaningful way. Hypothesis has a very important place in research although it occupies a very small pace in the body of a thesis. It is almost impossible for a research worker not to have one or more hypotheses before proceeding with his work.

Formulating of Hypothesis

Hypothesis are guesses or tentative generalizations, but these guesses are not merely accidents. Hypotheses are the products of considerable speculation as well as imagination. The hypotheses are generated via a number of means but are usually the result of a process of inductive reasoning where observations lead to the formation of a theory. Researchers then use a large battery of deductive methods to arrive at a hypothesis. It can be understood from the following diagram. Hypothesis a forerunner for a research problem and many a times is encircled as an enquiry or question. It typically asks what or why about the relationship among variables. It is just a provisional enquiry which emerged from literature reviews, surveys and instinct. This may be an inquiry or an announcement or a statement. These explainable statements can be used by the investigator for the research problem.

Usually three important factors that affect the formulation of the hypothesis are richness of background knowledge, versatility of intellect and analogy.⁷

Types of research hypothesis:

Different types of research hypothesis are used in legal research:

⁶ Dr. D. Kapoor and Ms. Puja Saigal, *Research Methodology: Methods and Techniques* 157 (Mayur Enterprises, 2013).

⁷ available at: www.columbia.edu/itc/hs/nursing/m6728/misc/class6 (last visited on May 06, 2024)

Null hypothesis:

A null hypothesis states that there is no change in the dependent variable due to changes to the independent variable. This means that the results are due to chance and are not significant. A null hypothesis is denoted as H_0 and is stated as the opposite of what the alternative hypothesis states.⁸

Example: "The newly identified virus is not zoonotic."

Alternative hypothesis:

This states that there is a significant difference or relationship between the variables being studied. It is denoted as H_1 or H_a and is usually accepted or rejected in favor of the null hypothesis.

Example: "The newly identified virus is zoonotic."

Directional hypothesis:

This specifies the direction of the relationship or difference between variables; therefore, it tends to use terms like increase, decrease, positive, negative, more, or less.

Example: "The inclusion of intervention X decreases infant mortality compared to the original treatment."

Non-directional hypothesis:

While it does not predict the exact direction or nature of the relationship between the two variables, a non-directional hypothesis states the existence of a relationship or difference between variables but not the direction, nature, or magnitude of the relationship. A non-directional hypothesis may be used when there is no underlying theory or when findings contradict previous research.⁹

Example, "Cats and dogs differ in the amount of affection they express."

Simple hypothesis:

A simple hypothesis only predicts the relationship between one independent and another independent variable.

Example: "Applying sunscreen every day slows skin aging."

Complex hypothesis:

A complex hypothesis states the relationship or difference between two or more independent and dependent variables.

Example: "Applying sunscreen every day slows skin aging, reduces sun burn, and reduces the chances of skin cancer." (Here, the three dependent variables are slowing skin aging, reducing sun burn, and reducing the chances of skin cancer.)

Associative hypothesis:

An associative hypothesis states that a change in one variable results in the change of the other variable. The associative hypothesis defines interdependency between variables.

Example: "There is a positive association between physical activity levels and overall health."

Causal hypothesis:

A causal hypothesis proposes a cause-and-effect interaction between variables.

Example: "Long-term alcohol use causes liver damage."¹⁰

Note that some of the types of research hypothesis mentioned above might overlap. The types of hypothesis chosen will depend on the research question and the objective of the study.

Hypothesis Testing and Theory

When the purpose of research is to test a research hypothesis, it is termed as hypothesis-testing research. It can be of the experimental design or of the non-experimental design. Research in which the independent variable is manipulated is termed 'experimental hypothesis-testing research' and a research in which an independent variable is not manipulated is called 'non experimental hypothesis testing research'.

⁸ Dr. S.R. Myneni, *Legal Research and Methodology* 80 (Allahabad Law agency 20013)

⁹ Ram Ahuja, *Research Methods* 76 (Rawat Publications, 2015).

¹⁰ C. G. Hempel, *Fundamentals of concept formation in empirical science* 36 (Chicago, Illinois: The University of Chicago Press 1952).

a) The level of significance:

This is very important concept in the context of hypothesis testing. It is always some percentage (usually 5%) which should be chosen with great care, thought and reason. In case we take the significance level at 5 per cent, then this implies that H_0 will be rejected when the sampling result (i.e. observed evidence) has a less than 0.05 probability of occurring if H_0 is true. In other words, the 5 percent level of significance means that researcher is willing to take as much as a 5 percent risk of rejecting the null hypothesis when it (H_0) happens to be true.¹¹

Thus, the significance level is the maximum value of the probability of rejecting H_0 when it is true and is usually determined in advance before testing the hypothesis.

b) The criteria for rejecting the null hypothesis may differ

Sometimes the null hypothesis is rejected only when the quantity of the outcome is so large that the probability of its having occurred by mere chance is 1 time out of 100. We consider the probability of its having occurred by chance to be too little and we reject the chance theory of the null hypothesis and take the occurrence to be due to a genuine tendency. On other occasions, we may be bolder and reject the null hypothesis even when the quantity of the reported outcome is likely to occur by chance 5 times out of 100. Statistically the former is known as the rejection of the null hypothesis at 0.1 level of significance and the latter as the rejection at 0.5 level. It may be pointed out that if the researcher is able to reject the null hypothesis, he cannot directly uphold the declarative hypothesis. If an outcome is not held to be due to chance, it does not mean that it is due to the very cause and effect relationship asserted in the particular declarative statement. It may be due to something else which the researcher may have failed to control.¹²

c) Decision rule or test of hypothesis:

Given a hypothesis H_0 and an alternative hypothesis H_a we make a rule which is known as decision rule according to which we accept H_0 (i.e. reject H_a) or reject H_0 (i.e. accept H_a). For instance, if H_0 is that a certain lot is good (there are very few defective items in it) against H_a that the lot is not good (there are too many defective items in it), then we must decide the number of items to be tested and the criterion for accepting or rejecting the hypothesis. We might test 10 times in the lot and plan our decision saying that if there are none or only 1 defective item among the 10, we will accept H_0 otherwise we will reject H_0 (or accept H_a). This sort of basis is known as decision rule.¹³

d) Two-tailed and One-tailed tests:

In the context of hypothesis testing, these two terms are quite important and must be clearly understood. A two-tailed test rejects the null hypothesis if, say, the sample mean is significantly higher or lower than the hypothesized value of the mean of the population. Such a test is appropriate when the null hypothesis is some specified value and the alternative hypothesis is a value not equal to the specified value of the null hypothesis. In a two-tailed test, there are two rejection regions, one on each tail of the curve which can be illustrated as under.

Errors in Testing of Hypothesis:

Type I and Type II errors: in the context of testing of hypotheses, there are basically two types of errors we can make. We may reject H_0 when H_0 is true and we may accept H_0 when in fact H_0 is not true. The former is known as Type I error and the latter as Type II error.

In other words, Type I error means rejection of hypothesis which should have been accepted and Type II error means accepting the hypothesis which should have been rejected. Type I error is denoted by α (alpha) known as α error, also called the level of significance of test; and Type II error is denoted by β (beta) known as β error. In a tabular form the said two errors can be presented as follows:

The probability of Type I error is usually determined in advance and is understood as the level of significance of testing the hypothesis. If type I error is fixed at 5 per cent, it means that there are about 5 chances in 100 that we will reject H_0 when H_0 is true.

Table	Decision	
	Accept H_0	reject H_0

¹¹ S. K. Verma and M. Afzal Wani (eds), *Legal Research and Methodology* 67 (Indian Law Institute, 2001)

¹² Colin Robson, *Real World Research* 156 (Blackwell Publishing, 2002)

¹³ C.R. Kothari, *Research Methodology: Methods and Techniques* 221 (Wishwa Prakashan, New Delhi, 1990)

Ho (true)	Correct decision	type I error
Ho(false)	Type II error	correct decision

We can control Type I error just by fixing it at a lower level. For instance, if we fix it at 1 percent, we will say that the maximum probability of committing Type I error would only be 0.01. But with a fixed sample size, n , when we try to reduce Type I error, the probability of committing Type II error increases. Both types of errors cannot be reduced simultaneously. There is a trade-off between two types of errors which means that the probability of making one type of error can only be reduced if we are willing to increase the probability of making the other type of error. To deal with this trade-off in business situations, decision-makers decide the appropriate level of Type I error by examining the costs or penalties attached to both types of errors.

Conclusion:-

Based on this analysis, it can be firmly concluded that the hypothesis holds utmost importance in research work. It serves as a key catalyst in stimulating the researcher's innovative ideas. When framing a hypothesis, it is crucial that the investigator remains uncertain about the test's outcome or subject it to ongoing investigation. Only in such scenarios does the experiment, test, or study hold the potential to increase the likelihood of validating the hypothesis. If the researcher already possesses knowledge of the outcome, it becomes a mere consequence, and such factors should have been duly considered during the formulation of the hypothesis. In the 21st century, the significance of an evolutionary hypothesis with a specific outcome cannot be overstated. To ensure proper evaluation, the hypothesis must be articulated in operational terms with clear specifics. Crafting a robust hypothesis necessitates substantial effort and diligence.