E-Content

Research Methods

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Hypothesis

According to **_Kerlinger_**, 'A hypothesis is a conjectural statement of the relationship between two or more variables' (1986).

From the above definitions it is apparent that a hypothesis has certain characteristics:

It is a tentative proposition.

Its validity is unknown.

In most cases, it specifies a relationship between two or more variables.

Functions of Hypothesis

The formulation of a hypothesis provides a study with focus.

It tells what specific aspects of a research problem to investigate.

It tells what data to collect and what not to collect.

As it provides a focus, the construction of a hypothesis enhances objectivity in a study.

A hypothesis may enable one to add to the formulation of theory. It enables one to conclude specifically what is true or what is false.

The characteristics of a hypothesis

A hypothesis should be simple, specific and conceptually clear.

e.g. "The average age of the male students in this class is higher than that of the female students".

The above hypothesis is clear, specific and easy to test. It tells what should be attempted to compare (average age of this class), which population groups are being compared (female and male students), and what has to be established (higher average age of the male students).

e.g. "Suicide rates vary inversely with social cohesion". (Black & Champion 1976: 126)

This hypothesis is clear and specific, but a lot more difficult to test. There are three aspects of this hypothesis: 'suicide rates'; 'vary inversely', which stipulates the direction of the relationship; and 'social cohesion'.

To find out the suicide rates and to establish whether the relationship is inverse or otherwise are comparatively easy, but to ascertain social cohesion is a lot more difficult. What determines social cohesion? How can it be measured? This problem makes it more difficult to test this hypothesis.

The characteristics of a hypothesis

A hypothesis should be capable of verification.

> Methods and techniques must be available for data collection and analysis.

A hypothesis should be related to the existing body of knowledge.

> A hypothesis should emerge from the existing body of knowledge, and that it adds to it, as this is an important function of research. This can only be achieved if the hypothesis has its roots in the existing body of knowledge.

A hypothesis should be operationalisable.

> it can be expressed in terms that can be measured. If it cannot be measured, it cannot be tested and, hence, no conclusions can be drawn.

A hypothesis should state the relationship between variables.

Types of Hypothesis

Null Hypothesis:

The hypothesis in which no relationships exists between two or more variable. It is symbolized as **H0**.

Research Hypothesis/Alternate Hypothesis:

Or the Alternate hypothesis proposes relationships between two or more variables and is symbolized as **H1**.

Directional Hypothesis:

It is **One Tailed**. It assumes that by manipulating the IV, the DV will change in specific direction. Change can be predicted in positive or negative direction.

Non-Directional Hypothesis:

It is **Two Tailed**. It assumes that by manipulating the IV, there will be a change in the DV. But it cant be predicted that whether this change will be positive or negative.

Hypothesis Testing

A test of Hypothesis is a statistical procedure that uses sample data to evaluate a hypothesis about a population.

The general goal of a hypothesis test is to rule out chance (sampling error) as a plausible explanation for the results from a research study.

It comprises three phases:

(1) constructing a hypothesis;

(2) gathering appropriate evidence; and

(3) analyzing evidence to draw conclusions as to its validity.

Errors in Testing a Hypothesis

Incorrect conclusions about the validity of a hypothesis may be drawn if:
the study design selected is faulty;
the sampling procedure adopted is faulty;
the method of data collection is inaccurate;
the statistical procedures applied are inappropriate; or
the conclusions drawn are incorrect.
the analysis is wrong;

Hence, in drawing conclusions about a hypothesis, two types of error can occur:

Rejection of a null hypothesis when it is true. This is known as a **Type I error**.

Acceptance of a null hypothesis when it is false. This is known as a **Type II error**.

References:

https://methods.sagepub.com/reference/encyclopedia-of-survey-research-methods/n472.xml#:~:text=A%20research%20hypothesis%20is%20a,variable%20or%20relationships%20between%20variables.

https://www.simplypsychology.org/what-is-a-hypotheses.html

Thank You