

Ideal Hypothesis



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A research hypothesis is the statement created by researchers when they conjecture upon the result of a research or experiment. It is one of the trickiest parts of designing and writing up any research paper. A good hypothesis is the outcome of research & refinement and has a few key characteristics that make it supportive, understandable and which could be verified.

A polished hypothesis is a tentative rationalization for an observation, scientific problem or experience that can be tested by further investigation. Every true experimental design must have this statement at the core of its structure as the ultimate aim of any experiment.

The hypothesis is usually a result of a process of inductive reasoning where observations lead to the formation of a theory. Then a large battery of deductive methods is used to arrive at a hypothesis which could be tested, falsified and realistic.

The precursor to a hypothesis is a research problem; usually framed as a question. The question might ask what is happening and why. Let us consider a topical subject for instance we might wonder why the stocks of cod fish in the North Atlantic are declining. The question might be 'In North Atlantic, why are the numbers of Cod fishes declining?'

This question is too broad as a statement and is not testable by any logical scientific means. It is simply an uncertain question arising from literature reviews and intuition. Many people would think that instinct is unscientific but many of the greatest scientific leaps were a result of 'hunches'!

The research hypothesis is a paring down of the problem into something that is falsifiable and could be tested. In the abovementioned example, a researcher might cogitate that the decline in the fish stocks is due to prolonged over fishing. Scientists must generate a rational and testable proposition around which they can build the experiment.

This might be a question or a statement or a statement with 'if/or'. For example:

- In the North Atlantic, if over-fishing a cause in declination in the stocks of Cod fish?
- If over-fishing in North Atlantic is affecting the stocks of cod.
- If reducing the amount of trawlers will result in increase the cod stocks?

These are all suitable statements and they all give the researcher a focus for creating an experimental project. The 'if' statement should measure the effect of the influence that one variable has upon another; but the alternative is also acceptable. An ideal research hypothesis should contain a prediction.

A hypothesis must take into account the present facts & practices and be realistic. A theory must be certifiable by analytical and statistical methods, to allow an authentication or prevarication. In fact, a hypothesis is never proved and it is a better practice to use the terms 'supported' or 'verified'. This means that the research showed that the evidence supported the hypothesis and further research is built upon that.

So how do we write a hypothesis? First we identify a problem by stating a general hypothesis in a simple statement. Then we classify the direction of the relationship or the difference and identify the major variables. Once the major variables have been identified, the hypothesis is stated.

A research hypothesis, which is time tested, in due course becomes a theory like Einstein's General Theory of Relativity. Still, as with Newton's Laws, they can still be falsified or adapted.

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