

# Generating A Research Hypothesis

The purpose of this page is to introduce the concept of the research hypothesis and describe how it is generated.

## Hypothesis Definition

"A hypothesis is a logical supposition, a reasonable guess, an educated conjecture. It provides a tentative explanation for a phenomenon under investigation." (Leedy and Ormrod, 2001).

An example of a formalized research hypothesis is "If skin cancer is related to ultraviolet light, then people with a high exposure to uv light will have a higher frequency of skin cancer" (<http://www.accessexcellence.org/21st/TL/filson/writhypo.html>).

However, hypotheses are not unique to research. Hypotheses are constantly generated in the human mind as we work to understand day-to-day phenomena. By formulating a series of reasonable guesses of cause and effect we are able to understand and explore the events in our surrounding environment (Leedy and Ormrod, 2001).



([http://www.merckfrosst.ca/f/research/r\\_d/clinical\\_research.html](http://www.merckfrosst.ca/f/research/r_d/clinical_research.html))

## Hypothesis Importance

A hypothesis is important because it guides the research. An investigator may refer to the hypothesis to direct his or her thought process toward the solution of the research problem or subproblems. The hypothesis helps an investigator to collect the right kinds of data needed for the investigation. Hypotheses are also important because they help an investigator to locate information needed to resolve the research problem or subproblems (Leedy and Ormrod, 2001).

## Support or Reject

A hypothesis is never proved or disproved! In fact, an investigator who sets out to prove a hypothesis would lose the impartiality of the research investigation (Leedy and Ormrod, 2001).

In research, an investigator is able to either support or reject a hypothesis. If a hypothesis is rejected, it will lead an investigator to new hypothesis to explain the phenomenon in question. If a hypothesis is continually supported, it may evolve into a theory (Leedy and Ormrod, 2001).

As a hypothesis is continually supported over time by a growing body of data, it becomes a theory. A theory is describes as "an organized body of concepts and principles intended to explain a particular phenomenon"(Leedy and Ormrod, 2001). A theory is similar to a hypothesis in that it offers a tentative explanation for a phenomenon that new data will either support or not support. Both are supported or rejected based on testing by various investigators under different conditions. An example of a well known theory is Einstein's theory of relativity (Leedy and Ormrod, 2001).

A theory that is continually validated over time by a growing body of data becomes a law. An example of a well known law is the law of gravity (Leedy and Ormrod, 2001).

## Hypothesis Generation

Often times, an investigator will formulate a hypothesis based on the problem or subproblems of the research. The hypothesis is driven by the research question (Leedy and Ormrod, 2001).

The University of Wisconsin - Eau Claire McIntyre Library website contains guidelines for developing a hypothesis according to your research approach or method.

<http://www.uwec.edu/library/Guides/hypothesis.html>

The following link for the University of Sydney's Index to The Well Knowledge Base offers helpful tips for students on how to turn a research question or problem into a hypothesis:

<http://www2.fhs.usyd.edu.au/well/knowledge/qintohyp.htm>

"Most commonly, hypotheses take three formats:

1.) a question, "Does temperature affect fermentation?"

2.) a conditional statement, "Temperature may affect fermentation."

3.) an If, then statement, "If fermentation rate is related to temperature, then increasing the temperature will increase gas production."

( <http://www.accessexcellence.org/21st/TL/filson/formathypo.html>)

## Writing a Hypothesis

The following link for Access Excellence offers helpful tips for students on how to write a hypothesis:

<http://www.accessexcellence.org/21st/TL/filson/writhypo.html>



([www.brody.com/college/tour/index.php](http://www.brody.com/college/tour/index.php))

