**TTU**  **First year**

**Hypothesis**

A hypothesis is a tentative statement about the [relationship between two or more](https://www.verywellmind.com/correlational-research-2795774) [variables](https://www.verywellmind.com/what-is-a-variable-2795789). It is a specific, testable prediction about what you expect to happen in a study. For example, a study designed to look at the relationship between sleep deprivation and test performance might have a hypothesis that states, "This study is designed to assess the hypothesis that sleep-deprived people will perform worse on a test than individuals who are not sleep-deprived."

**1-How Is a Hypothesis Used in the Scientific Method?**

In the scientific method, whether it involves research in psychology, biology, or some other area, a hypothesis represents what the researchers think will happen in an experiment.1﻿

The scientific method involves the following steps:

1. Forming a question
2. Performing background research
3. Creating a hypothesis
4. Designing an experiment
5. Collecting data
6. Analyzing the results
7. Drawing conclusions
8. Communicating the results

The hypothesis is what the researchers predict the relationship between two or more variables, but it involves more than a guess. Most of the time, the hypothesis begins with a question which is then explored through background research. It is only at this point that researchers begin to develop a testable hypothesis.

In a study exploring the effects of a particular drug, the hypothesis might be that researchers expect the drug to have some type of effect on the symptoms of a specific illness. In psychology, the hypothesis might focus on how a certain aspect of the environment might influence a particular behavior.

Unless you are creating a study that is exploratory in nature, your hypothesis should always explain what you *expect* to happen during the course of your experiment or research.

Remember, a hypothesis does not have to be correct.1﻿ While the hypothesis predicts what the researchers expect to see, the goal of the research is to determine whether this guess is right or wrong. When conducting an experiment, researchers might explore a number of factors to determine which ones might contribute to the ultimate outcome.

**2-How Do Researchers Come up With a Hypothesis?**

In many cases, researchers might draw a hypothesis from a specific theory or build on previous research. For example, prior research has shown that stress can impact the immune system. So a researcher might for a specific hypothesis that: "People with high-stress levels will be more likely to contract a common cold after being exposed to the virus than are people who have low-stress levels."

In other instances, researchers might look at commonly held beliefs or folk wisdom. "Birds of a feather flock together" is one example of folk wisdom that a psychologist might try to investigate. The researcher might pose a specific hypothesis that "People tend to select romantic partners who are similar to them in interests and educational level."

**3-Elements of a Good Hypothesis**

When trying to come up with a good hypothesis for your own research or experiments, ask yourself the following questions:

* Is your hypothesis based on your research on a topic?
* Can your hypothesis be tested?
* Does your hypothesis include independent and dependent variables?

Before you come up with a specific hypothesis, spend some time doing background research on your topic. Once you have completed a literature review, start thinking about potential questions you still have. Pay attention to the discussion section in the [journal articles you read](https://www.verywellmind.com/how-to-read-and-understand-a-psychology-journal-article-2795709). Many authors will suggest questions that still need to be explored.

**4-How to Form a Hypothesis**

The first step of a psychological investigation is to identify an area of interest and develop a hypothesis that can then be tested. While a hypothesis is often described as a hunch or a guess, it is actually much more specific. A hypothesis can be defined as an educated guess about the relationship between two or more variables.

For example, a researcher might be interested in the relationship between study habits and [test anxiety](https://www.verywellmind.com/what-is-test-anxiety-2795368).

The researcher would propose a hypothesis about how these two variables are related, such as "Test anxiety decreases as a result of effective study habits."

In order to form a hypothesis, you should take these steps:

* Start by collecting as many observations about something as you can.
* Evaluate these observations and look for possible causes of the problem.
* Create a list of possible explanations that you might want to explore.
* After you have developed some possible hypotheses, it is important to think of ways that you could confirm or disprove each hypothesis through experimentation. This is known as falsifiability.

**5-Falsifiability**

In the scientific method**,**falsifiability is an important part of any valid hypothesis.1﻿ In order to test a claim scientifically, it must be possible that the claim could also be proven false.

Students sometimes confuse the idea of falsifiability with the idea that it means that something is false, which is not the case. What falsifiability means is that *if* something was false, then it is possible to demonstrate that it is false.

**6-The Role of Operational Definitions**

In the previous example, study habits and test anxiety are the two variables in this imaginary study. A variable is a factor or element that can be changed and manipulated in ways that are observable and measurable. However, the researcher must also define exactly what each variable is using what is known as operational definitions. These definitions explain how the variable will be manipulated and measured in the study.

In the previous example, a researcher might operationally define the variable "[test anxiety](https://www.verywellmind.com/what-causes-test-anxiety-2795366)" as the results of a self-report measure of anxiety experienced during an exam. The variable "study habits" might be defined by the amount of studying that actually occurs as measured by time.