

Proposition & Hypothesis

The terms "proposition" and "hypothesis" both refer to the formulation of a possible answer to a specific scientific question. In particular, a proposition deals with the connection between two existing concepts. The main difference between the two is that a hypothesis must be testable and measurable, while a proposition deals with pure concepts for which no laboratory test is currently available.

Hypotheses and the Scientific Method

Forming a hypothesis is the initial step in developing a theory under the scientific method. It is an educated guess based on research and working knowledge. For a hypothesis to be considered valid, it must make a prediction that scientists can test using a repeatable experiment. If a hypothesis cannot be falsified through experimentation, it cannot be considered part of a valid scientific theory.

Scientific Propositions

A proposition is similar to a hypothesis, but its main purpose is to suggest a link between two concepts in a situation where the link cannot be verified by experiment. As a result, it relies heavily on prior research, reasonable assumptions and existing correlative evidence. A scientist can use a proposition to spur further research on a question or pose one in hopes that further evidence or experimental methods

will be discovered that will make it a testable hypothesis.

Valid Uses for Propositions

Propositions can serve an important role in the scientific process. By suggesting a link between two concepts, a scientific proposition can suggest promising areas of inquiry for researchers. In areas of study where valid hypotheses can rarely be made, a proposition may serve as a common assumption that can support further speculation. This can occur in extremely complex systems, such as those dealt with by sociology and economics, where an experimental test would be prohibitively expensive or difficult. Propositions are also valuable in areas of study in which little hard evidence remains, such as archeological and paleontological studies in which only fragments of evidence have been discovered.

Drawbacks of Propositions

Because a proposition does not rely on testable data, it is more difficult to disprove in a scientific context. It only needs to be convincing and internally consistent to appear valid. Propositions that satisfy both of these conditions have nevertheless been found to be wrong or inaccurate when new testable data becomes available. Belief in propositions that have been commonly accepted for long periods of time may be extremely difficult to overcome, even if other researchers put more likely propositions forward.