

Chapter 2---Falsifiability: How to Foil Little Green Men in the Head

1. Scientists try to describe the world as it really is as opposed to what our prior beliefs dictate it should be.
2. Scientists prefer to deal with solvable problems. So, they objectively and systematically create a research project designed to minimize error and maximize the reliability and validity. The purpose of the theory is to explain, organize observations and predict behaviors and/or events. The hypotheses are derived from the theory and are testable. If the hypothesis is confirmed by an experiment then the theory receives some degree of corroboration. By contrast, if the hypothesis is falsified by an experiment then the theory must be altered or replaced.
3. Falsifiability criterion is important in research. This principle states, "For a theory to be useful it must yield specific predictions. The theory must include things that will happen and things that will not happen. However, when the predictions are shown to be incorrect and there is something wrong with the theory it may need to be modified, or a new theory advanced. If a theory does not rule out any possible observations, then the theory can never be changed, and we are frozen into our current way of thinking without the possibility of progress.
4. One example draws from the works of Sigmund Freud. Critics argue that he failed to make any specific predictions and a failure to satisfy the falsifiability criterion. Consequently, for decades Freudian followers diagnosed patients with Tourette's syndrome and offered treatment in an unacceptable ways.
5. Scientists in seeking the truth welcome opposing opinions from their colleagues. Dr. Stanovich asserts that, "By the process of continually adjusting theory when data do not accord with it, scientists collectively arrive at theories that better reflect the nature of the world" (Stanovich, 28).
6. The 'Take Home Point' is that theories need to be tested and if necessary falsified by the existing evidence. In the scientific community, "highly specific predictions are preferred" with the ultimate goal of getting close to the truth. In stark contrast to guesses, hunches, myths or superstitions, advanced by laypeople or pseudoscientific theorists who build upon unreliable falsehoods. Again, testable theories are necessary for solvable problems and these theories must meet the falsifiable criterion.