Stanovich Chapter 2

Falsifiability: How to Foil the Little Green Men in the Head

Falsifiability

- Scientific theories must be stated in a way that predictions derived from them can be potentially shown to be false.
  - Put another way, in saying that something should happen, a theory should also say what should *not* happen.

Theories

- A theory, in science, is an interrelated set of concepts that explains a set of data.
- A theory is used to make predictions about the results of future experiments.
  - Predictions derived from a theory must be vulnerable to falsification.
  - Be wary of theories that explain everything or fail to make predictions.

The Little Green Men and ESP

- Stanovich provides us with an example of an unfalsifiable theory in the form of little green men in your head that control your thoughts but dissapear when observed.
- While this may seem far fetched to the point of being insulting, such evidence is often used to prove the presence of ESP.

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Chapter 2 – Part 2

Quality vs. Quantity of Confirmation

- Use falsifiablility criterion to evaluate the evidence
  - A high number of confirmations OR
  - Better, more specific confirmations

Change and Mistakes

- Psychology is looking for conceptual Change
  - May challenge beliefs
- Making Mistakes is not a Total Loss
  - Stanovich calls it "liberating"
- Readjusting to make new theories

Finding Truth

- Rare that the first idea is the right one
- Hypotheses are tested and kept or discarded
- New theories keep old, and build on them
- Scientists look to the "fringe" of what is known

Take-Home Message

- Solvable Problems need Testable Theories that can be Falsified

- Science uses terms like mistake, error, or falsified
- These terms do not mean the theory is completely wrong, only that it is incomplete