

Explaining Behavior: Scientific Approaches to Explanation & Understanding

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Methods for Establishing Beliefs

- ☞ **C. S. Peirce (1877)**
- ☞ **Tenacity**
- ☞ **Authority**
- ☞ **Rational (*a priori* method)**
- ☞ **Science**

What Constitutes a Scientific Explanation?

- ☞ **Empirical**
- ☞ **Rational**
- ☞ **Testable**
- ☞ **Parsimonious**
- ☞ **General**
- ☞ **Tentative**
- ☞ **Rigorously Evaluated**

Value of a Scientific Attitude

A scientific attitude and skill in scientific thinking are characteristics of critical thinkers.

☞ Problem solving

- ♦ *Development of training programs or treatment plans*

☞ Evaluation of proposed solutions to problems

- ♦ *Program evaluation*

☞ Evaluation of research products

- ♦ *Mozart effect*
- ♦ *Adoption of a new method to use in a clinical practice*

Potential Sources of Error in Scientific Explanations

☞ Faulty Inferences

- ♦ *Logical errors in reasoning about data*
- ♦ *Acceptance of faulty assumptions for logical reasoning*
- ♦ *Failure to consider alternative explanations*
- ♦ *Confirmation bias - Failure to seek out evidence that disconfirms a potential explanation*

☞ Pseudoexplanations

- ♦ *Circular explanations or tautologies*
- ♦ *Accepting a label for a phenomenon as an explanation*

Types of Research

☞ Basic Research

☞ Applied Research
