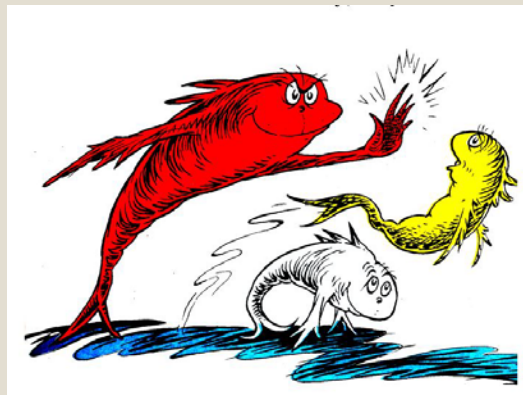
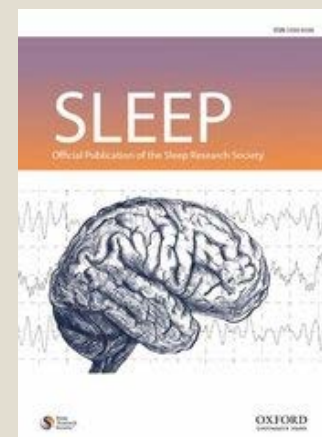
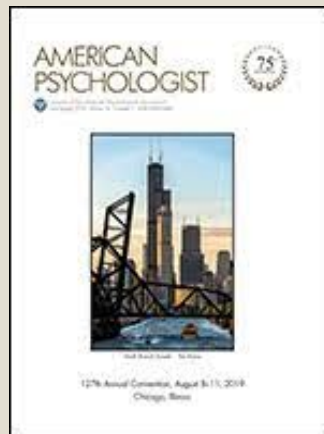
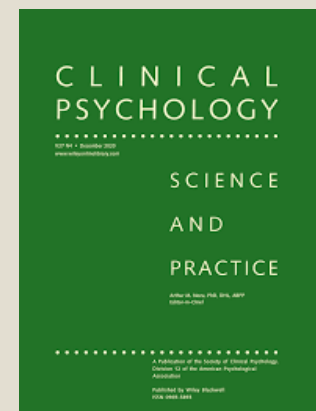
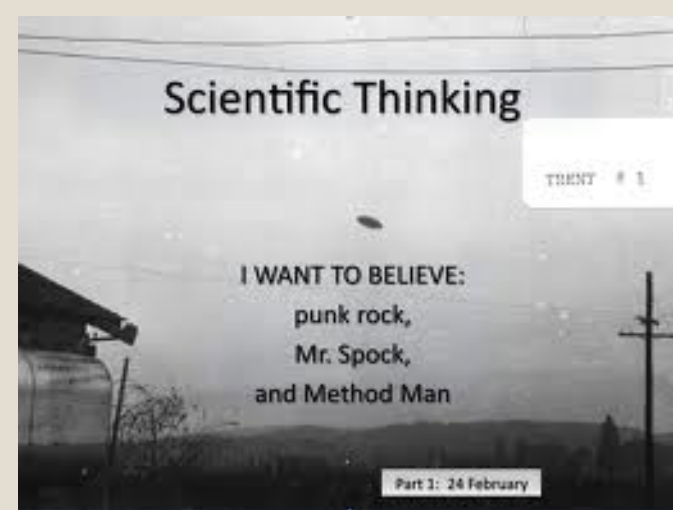


# Methods in Psychology



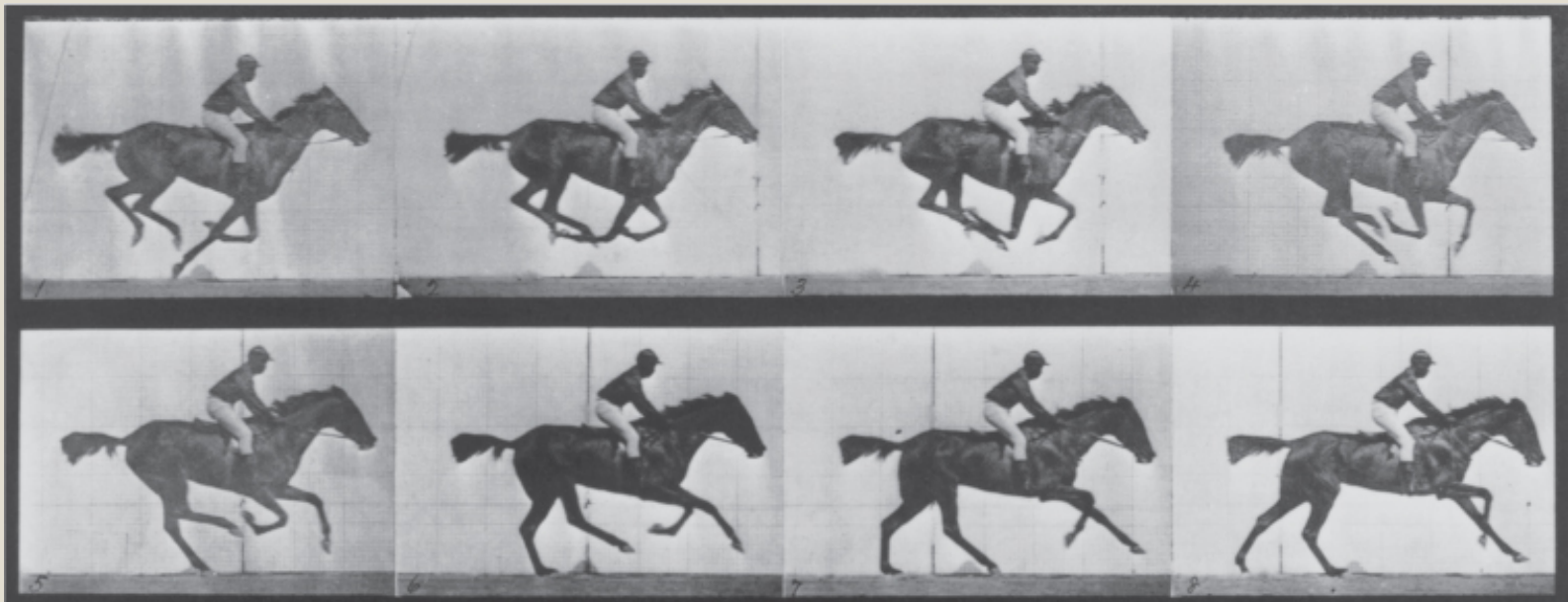
# How to Know Stuff

- **Scientific method:** a set of principles about the appropriate relationship between ideas and evidence
- **Theory:** a hypothetical explanation of a natural phenomena
  - Rule of parsimony
- **Hypothesis:** a falsifiable prediction made by a theory
- <https://psychology.pitt.edu/undergraduate/experiential-and-enhanced-learning/directed-research/directed-research-opportunities>

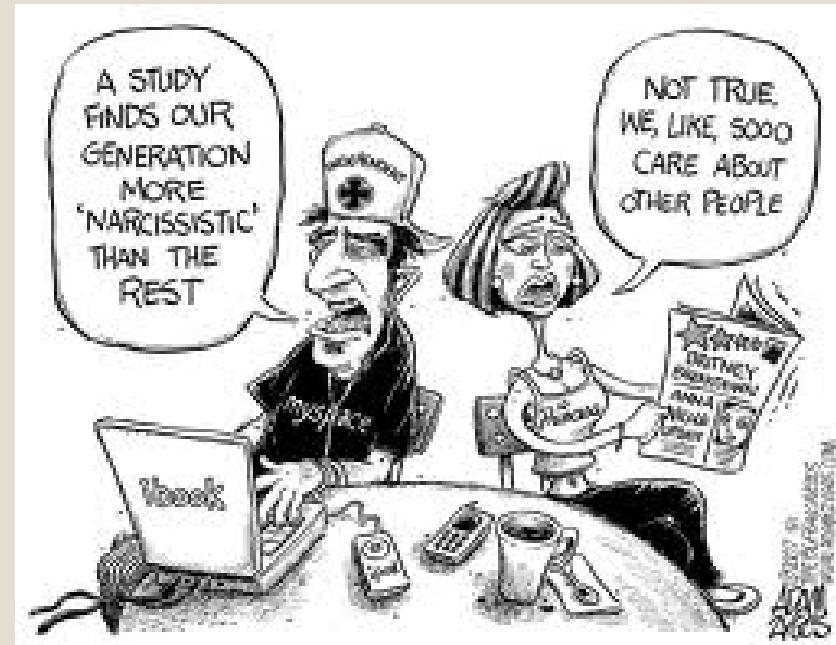
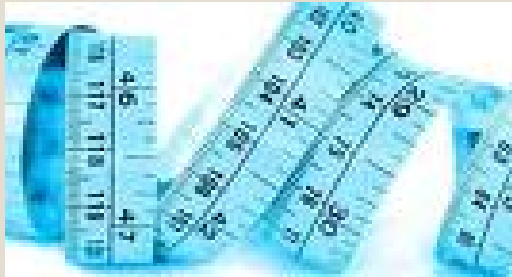


# The Art of Looking

- **Empirical method:** a set of rules and techniques for observation
- Must use methods of observation and methods of explanation.
  - **Objective and Subjective**



# Observation: Measurement



- **Operational definition:** a specific, precise procedure by which a variable is defined and measured.
- *Define and Detect*
  - "In this study, sleep is defined as the total sleep time per night based on PSG data."

# A Good Measure

- **Measure:** a device that can detect the condition to which an operational definition refers (for example, an EMG)
  - **Validity:** the extent to which a measurement and a property are conceptually related
  - **Reliability:** the tendency for a measure to produce the same measurement whenever it is used to measure the same thing: consistency
  - **Power:** the ability of a measure to detect the concrete conditions specified in the operational definition



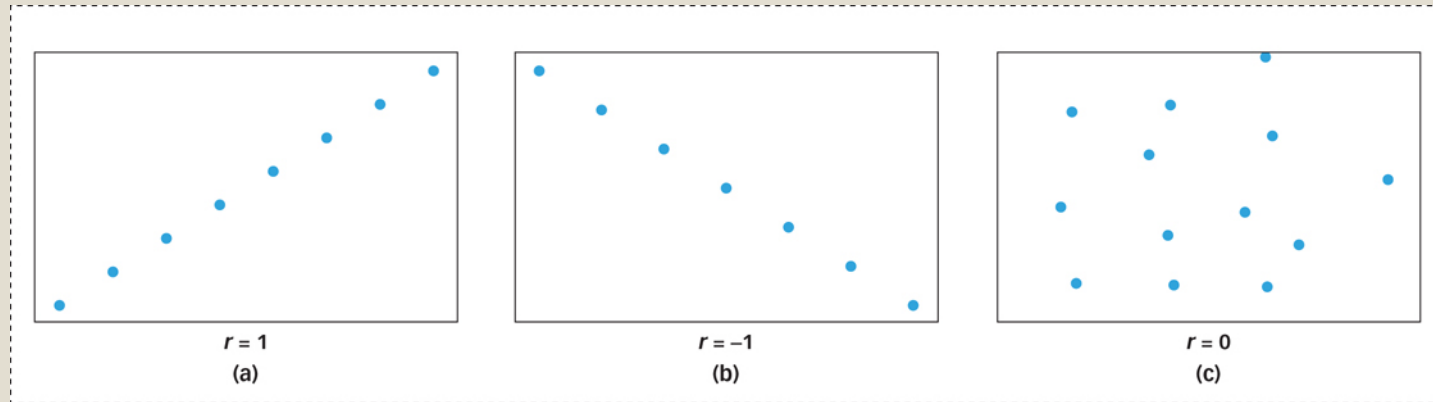


# Demand Characteristics and Observer Bias

- Demand characteristics: those aspects of an observational setting that cause people to behave as they think they should
- Naturalistic observation: a technique for gathering scientific information by unobtrusively observing people in their natural environments
- Observer bias: expectations can influence observations and influence perceptions of reality
  - **Double-blind**: an observation whose true purpose is hidden from both the observer and the person being observed



# Three Kinds of Correlations



- **Correlation:** two variables are said to be correlated when variations in the value of one variable are synchronized with variations in the value of the other
  - **Positive correlation:** both variables increase or decrease together. 'more-more' or 'less-less'
  - **Negative correlation:** as one variable increases, the other decreases. 'more-less' or 'less-more'

# Causation

- **Natural correlations:** a correlation observed in the world around us
- **Third variable problem:** the fact that a causal relationship between two variables cannot be inferred from the naturally occurring correlation between them because of the ever-present possibility of third variable correlation

