

Thinking like a Researcher

Hindsight Bias - belief an outcome was foreseeable but after it has occurred

Findings that were controversial now seem obvious once we know about them

- Cigarettes cause cancer
- Seperation causes attraction

Overconfidence - over-judgement of one's ability

Perceiving order in random events - coin flip

hot hand - on a streak
gambler's fallacy

Scientific Attitude

- Curiosity
- Skepticism
- Humility
- Critical Thinking

How to ask and answer: Observe

everyday/single tragic events

→ Bystander effect

Refine
Analyze data

Test

Theory

- Explanation derived from observation

Predict outcome based on theory

Experimental Methods

Correlation Methods

Descriptive Methods

Descriptive Methods "Describe situations"

- Case studies - indepth study of small group/individual
- Naturalistic Observation - observing behavior in natural habitat
- Survey - gather information through self-report

Experimental Methods "Explore cause and effect with variables"

Independent - what is being manipulated

Dependent - what is expected to change in response

Confounding - variables that cannot be controlled which may affect the experiment temperature, gender

Advantages - allows us to establish cause and effect

Disadvantages - lots of time, effort, money

- artificial

- cannot change confounding variables

Correlation Methods "Observe naturally occurring relationships between variables"

Correlation coefficient - statistical index of -1 to 1 between 2 variables

Correlation and Causation

Directionality problem may occur

A could cause B

B could cause A

Unknown C could cause A and B

- When 2 variables appear to be linked but there may be another variable

COMPARING RESEARCH METHODS

Research Method	Basic Purpose	How Conducted	What Is Manipulated	Weaknesses
Descriptive	To observe and record behavior	Do case studies, surveys, or naturalistic observations	Nothing	No control of variables; single cases may be misleading
Correlational	To detect naturally occurring relationships; to assess how well one variable predicts another	Compute statistical association, sometimes among survey responses	Nothing	Does not specify cause and effect
Experimental	To explore cause and effect	Manipulate one or more factors; use random assignment	The independent variable(s)	Sometimes not feasible; results may not generalize to other contexts; not ethical to manipulate certain variables