

Ch. 2

- The need for good research design
 - Facilitated communication
 - 1990s autism treatment
 - Based on the idea that autism was actually a motor disorder (Douglas Biklen)
 - Facilitator sits next to child and guides the child's hand over the keyboard, allowing the child to type
 - Children made great progress in communication
 - Wrote poetry, told parents "I love you"
 - Some students made allegations of sexual abuse against their parents
 - No physical evidence, just the communicators via the facilitators
 - Results showed that the words came solely from the minds of the facilitators
 - Some still practice facilitated communication
- Research Design Matters
 - Even well-educated, intelligent people can be fooled
 - Well-planned study designs can help eliminate...
 - Prefrontal lobotomy
 - Developed by Moniz
 - Patients appeared calmer and use spread
 - Relied on subjective clinical reports, not research
 - Controlled studies found it to be ineffective
- How we can be fooled
 - Heuristics—mental shortcuts that helps us streamline thinking
 - Pro—evolutionary value
 - Con—can oversimplify reality
 - If you were to drive from Reno, Nevada to San Diego, California, in what compass direction would you travel? Southwest
 - Representativeness
 - "like goes with like"
 - We ignore how common behaviors actually are in a population and commit the base rate fallacy
 - Which is more dangerous: traveling by plane or by car?
 - 40,000 in car crashes
 - 1,000 in airplane crashes
 - Availability heuristic
 - "I knew it off the top of my head"
 - Estimating the likelihood of an occurrence based on the ease with which it comes to mind
 - Cognitive biases
 - Systematic errors in thinking that can lead to confidence in false conclusions
 - Hindsight bias—"I knew it all along"
 - Overconfidence—the tendency to overestimate our abilities to make correct predictions
- The Scientific Method Toolbox
 - Allows us to test specific hypotheses derived from broader theories of how things work

- Theories are never “proven,” but hypotheses can be confirmed or disconfirmed
 - We can use a number of different types of scientific method tools to gain information
- **Naturalistic observation**
 - Watching behavior in real-world settings without interfering
 - High degree of **external validity**—extent to which findings generalize to real world
 - Low degree of **internal validity**—extent to which we can draw cause and effect inferences
- **Case studies**
 - Studying one person or a small number of people for an extended period of time
 - Common with rare types of brain damage or mental illness
 - Help provide existence proofs—demonstrations that a given psychological phenomenon can occur
 - But can be misleading or anecdotal
- **Self report measures and surveys**
 - Psychologists often need to ask people about themselves or others
 - Self-report measure—assesses characteristics such as personality or mental illness
 - Surveys—ask about a person’s opinions or abilities
- **Choosing participants**
 - Population—everybody!
 - Population of interest—who you’re interested in studying
 - Sample—portion of population of interest that is selected for a study
 - Representative sample—a group of individuals, selected from a population for study, which matches the population as much as possible (e.g., on important characteristics such as age, sex, etc.)
 - Random sample—helps to ensure the representativeness of the sample
- **Evaluating measures**
 - To trust results, measures must have:
 - Reliability—consistency of measurement
 - Validity—extent to which a measure assesses what it claims to measure
 - A test must be reliable to be valid, but a reliable test can still be completely invalid
- **Self-report measures**
 - Pros:
 - Easy to administer
 - Direct (self) assessment of person’s state/ideas
 - Inexpensive
 - Cons:
 - Accuracy is skewed for certain groups
 - Potential for dishonesty
 - Response sets—tendency to distort responses
 - Positive impression management
 - Malingering
- **Correlational designs**
 - Correlation—how strongly two variables are related
 - Correlational study—looks for relationships between variables

- 0 Correlation coefficient—direction and strength of relationship between variables
 - Ranges from -1 to 1
 - Positive—one variable increases as another increases—goes in one direction
 - Negative—one variable increases as another decreases—goes in opposite directions
- 0 Correlational designs
 - Illusory correlation—perception of a statistical association between two variables where none exists
- 0 Correlation vs. causation
 - Correlation is NOT causation
 - Three possible explanations:
 - A causes B
 - B causes A
 - C causes both A and B
 - Determining causation
 - Experimental design is necessary
 - This is because in an experiment, variables are purposefully manipulated, rather than simply measuring already existing differences
- 0 What makes a study an experiment?
 - Random assignment of participants to conditions
 - Experimental group receives manipulation
 - Control group does not receive manipulation
 - Manipulation of an independent variable
 - Dependent variable—what experimenter measures to see whether manipulation had an effect
 - Cause and effect—possible to infer with random assignment and manipulation of the independent variable
- 0 Experimental concerns
 - Confounds—any difference between the experimental control groups aside from the Independent variable
 - Makes independent variable effects uninterpretable
 - Placebo effect—improvement resulting from the mere expectation of improvement
 - To reduce, participant must remain blind, but still some effects
 - Nocebo effect—harm resulting from the expectation of harm
 - Experimenter expectancy effect—when researchers' hypotheses lead them to unintentionally bias a study outcome
 - Clever Hans—horse that could calculate complex math problems
 - Double-blind designs can decrease this
 - Demand characteristics—cues that allow participants to generate guesses regarding the researcher's hypotheses
 - Disguising the study's purpose or using "filler" items helps
- 0 Preventing harm
 - Institutional Review Board (IRB)