1. Research methods
   1. Scientific Method
      1. Theory
         1. An organized set of principles that describes, predicts, and explains some phenomenon
      2. Hypothesis
         1. A specific, testable prediction, derived from a theory
   2. Research Settings
      1. Laboratory vs. field settings
         1. Laboratory
            1. You can control every aspect of it
            2. Problem

Because the events are simulated in a lab aren’t natural

We all behave differently in the laboratory than in the real world

Example:

Sleep study

You can control the temp of the room, what time the lights are turned on, the firmness on a mattress

The issue is you’ll have electrodes on your brain, a strange bed, and a video camera on you.

* + - 1. Field Settings
         1. You can’t control what happens to your subject

Example

You’re conducting a sleep study

You let them sleep in their own home

You can’t guarantee they follow through

* + - 1. What is more important? Control or realism? See below
         1. There’s no right or wrong answer
    1. Control vs realism
       1. If you need more control do it in a lab
       2. If you need more realistic behaviors do it in the real world
  1. Research conclusions
     1. Description
        1. You can describe the phenomenon or behavior
     2. Prediction
        1. You can predict the occurrence of some behavior
        2. You might predict the value of a certain variable
     3. Explanation
        1. You can explain the cause of something
        2. Why is something occurring
  2. Research methods
     1. **Naturalistic observation**
        1. Recording behavior in its natural context
        2. Positives
           1. Behavior can be measured objectively
           2. More natural than lab
        3. Negatives
           1. Inner states can only be *inferred* from behavior, not actually seen
           2. Observer bias

To resolve this you would use two observers

* + - * 1. Reactance

If you know your behavior is being watched you might behave differently

It is best if the subjects do not know they are being observed

* + - * 1. Time consuming
    1. **Case Studies**
       1. In depth look at a single individual
       2. Positives
          1. Rich description of behavior
          2. Ideas of future study
       3. Negatives
          1. Difficult to generalize beyond single case
          2. Very time consuming
       4. Example
          1. Phineas Gage

He was a young man in his mid 20s who was working on the rail roads

A rod was sent through his skull and left his skull

He was able to speak, etc

He became mean after the incident

The prefrontal cortex is the part of the brain that is responsible for your ability to lead a mature emotional life. Those who have damage to their prefrontal cortex may know what’s right or wrong but will not follow through necessarily with what is right.

* + 1. **Surveys**
       1. Large scale measurement of many respondents
       2. Random sampling is important for generalization to a larger population
       3. Positives
          1. Lots of information at relatively low cost
       4. Negatives
          1. Dishonesty
          2. Response bias

Only certain people will respond to the survey

Exit polls for presidential elections

Example:

2004 Presidential election

Those who responded to the polls were young people who were very for John Kerry. The polls showed John Kerry was going to win but in the end Bush won.

* + 1. Correlation Research
       1. Used to investigate the relationship between variables
       2. *Correlation coefficients* indicate magnitude and direction a relationship
       3. Problems of causality and third variables limit conclusion based on correlations
          1. Correlation is not causation
          2. Example

There is a positive relationship between ice cream and skinny-dipping.

The third variable would be weather, not the ice cream.

* + - 1. Positives
         1. Description and prediction are possible
      2. Negatives
         1. No causality
         2. Cannot explain the relationship
      3. Between -1 and 1
      4. Positive correlation
         1. Weight and height
      5. Negative correlation
         1. Alcohol consumption and grades

The more you drink the lower your grades are

* + - * 1. Cell phone use in class vs grades

The more you spend time texting the worse you will do

* + - 1. No correlation
         1. Length of hair and GPA

There is no correlation between your length of hair and your GPA.

* + - 1. You look at absolute value, whether it’s -0.85 or .85 it’s still very strong