Glossary of Research Terminology

**This is a working document that will be updated throughout the week. Add any questions to the Google doc or to the "Define this term" poster at the back of the classroom.*

Arousal: a state of physiological activation or responsiveness; a state of excitement or energy expenditure related to an emotion.

Attachment: an emotional bond between two individuals; attachment is part of developing a sense of security; in a secure attachment, one individual feels calm in the other person's presence; typically considered as the bond between parent and child, but can also apply to partnerships.

Central tendency: a statistical measure that describes the middle point of a set of data; mean, median, and mode are examples of central tendency.

CITI Training: Collaborative Institutional Training Initiative Training; this organization has an online program for becoming certified in ethics relating to research with human subjects; nearly all IRBs (see below) will require any researcher doing research with human subjects to have completed training available through this organization before being approved to do research; other programs are available for ethics certification (not just the CITI training program).

Confidence interval: a statistically determined range of values that has a set probability (usually 95%) of containing the true value in the population; wider confidence intervals encompass more values and have a higher probability of containing the true population value; narrower confidence intervals have a lower likelihood of containing the true population value and do not span as many values.

Confound: an alternate explanation for an outcome; a variable that changes systematically along with an independent or predictor variable, such that it is not possible to tell whether the independent variable or the confounding variable is influencing the change in the dependent variable.

Control: holding a variable constant; ensuring that all participants are the same on a particular variable; control can be done through the experimental design (e.g., controlling for age by only recruiting 18-year-old participants) or statistically.

Correlation: the degree of relationship between two variables; usually describes a linear relationship; can be quantified in the correlation coefficient (r); does not depend on the scale on which the variables are measured.

Covariance: a measure of the degree of the relationship between two variables that is bound by the scale on which the variables are measured; covariance is required to determine the correlation between the same variables.

Covariate: a variable that has a relationship with a measured outcome variable; often statistically controlled for (held constant) in research to remove the influence of the covariate in the relationship between a different variable and the dependent variable.

Density distribution: a probability function that gives, for any particular value, the likelihood that value will be randomly selected; the normal distribution (see below) is a type of density distribution.

Dependent variable: an outcome variable; a variable that is measured to determine whether it has been changed as a result of a change in another variable; when certain criteria are met, can be considered the "effect" variable.

Descriptive research: an empirical investigation in which the goal is to explore conditions as they currently exist; not meant to explain the relationship between variables.

Disconfirmatory hypothesis:

Effect size: the magnitude of the difference on a dependent variable between categories within an independent variable; indicates the strength of the relationship between two variables.

Empiricism: an epistemological perspective that knowledge of facts can only be obtained through observation and experience.

Experimental: an empirical investigation in which one variable is manipulated to examine its effect on another variable while holding all other variables constant; when random assignment procedures are used to place participants into categories of the manipulated variable, experimental studies may be able to provide some information about cause and effect.

Heuristic: a strategy for solving a problem that provides an efficient means of finding the answer; does not guarantee a correct outcome.

Independent variable: a predictor variable; a variable that can be changed to examine its impact on another variable; when certain criteria are met, can be considered the "cause" variable.

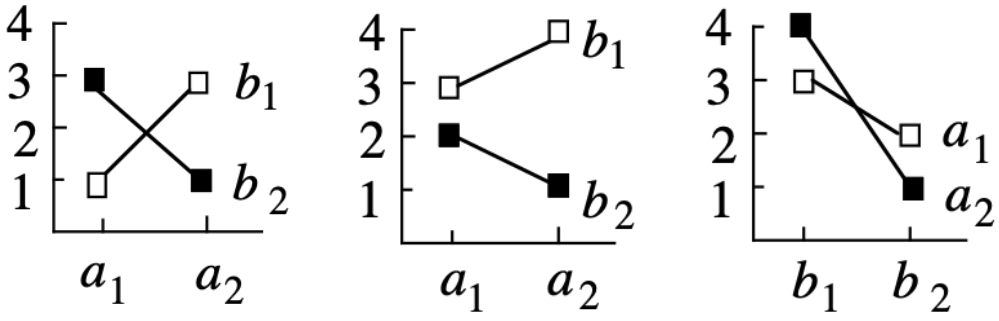
Institutional Review Board (IRB): an ethics review board that oversees and approves any research done with human participants.

See Belmont Report:
https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/index.html

Baylor University's IRB website provides a practical introduction:
https://resources.research.baylor.edu/research-offices/research-compliance

Interaction: interaction effect; the joint effect of two or more variables on a single dependent variable that is different from the sum of the effects of the variables; an interaction occurs when the effect of one variable depends on another variable; one variable in an interaction may be considered a moderating variable; when graphed, an interaction may appear as two lines that cross (X) or demonstrate a fan (< or >) shape.

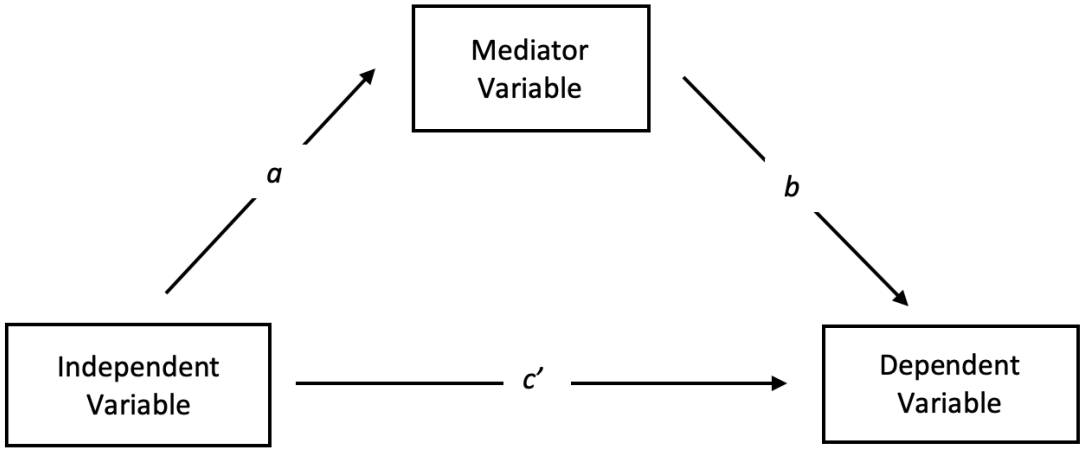
Examples: These are some examples of what a statistical interaction might look like. The boxes represent average scores on the dependent variable among people who were in . The conditions (groups) within each independent variable are



Mean: the balancing point of a distribution; the arithmetic average.

Median: the middle score of a set of data.

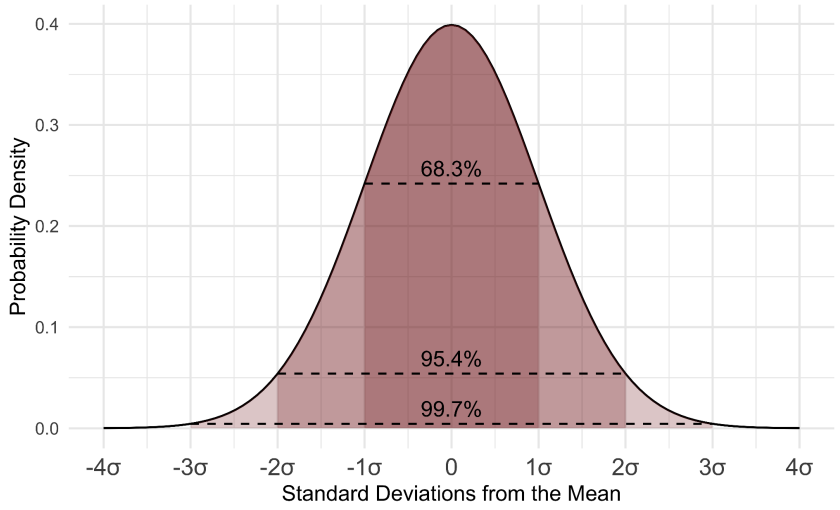
Mediator: mediating variable; an intermediary variable that accounts for the relationship between two other variables; one variable affects the mediator variable, and the mediator variable in turn affects the outcome variable; what is a mediating variable depends on the specific research question under study.



Mode: the most common score in a dataset.

Moderator: moderating variable; a variable that changes the nature of the relationship between two other variables; for instance, if there is a positive relationship between prayer and health for Protestant Christians, but there is a negative relationship between prayer and health for Catholic Christians, denomination (Protestant vs. Catholic) would be a moderating variable.

Normal distribution: a bell curve; a linear function that creates an inverse-U shape where scores cluster in the middle and trail off towards the end; approximately 68% of scores lie within +/- 1 standard deviation of the mean of a normal distribution.



Oversampling: When recruiting a sample of participants, including a larger proportion of individuals from underrepresented backgrounds to be part of the sample than are in the population.

Open Science Framework: a framework for publicly stating the hypotheses, research design, and analysis plan prior to data collection (i.e., preregistration); also serves as a repository for providing data and analysis code after the study has been conducted; both analysis plans and data are available for public search and researchers would be free to replicate any study registered. Link to OSF online.

Pilot study: a study conducted with a small sample to test whether a research procedure is effective or to examine whether a hypothesis is tentatively supported; pilot studies are often conducted to collect data that can be used in future grant proposals.

Prime; priming: Presenting a brief exposure to a concept (e.g., cross, church) where the individual is not aware of their exposure to the concept; priming a concept outside of the participant's conscious awareness may have small impacts on their future behaviors or attitudes.

Power (statistical): the likelihood of identifying a statistically significant difference if in the real world one actually exists; related to the effect size and the sample size, wherein larger samples are needed to detect the presence of smaller effect; a power analysis can be conducted to identify the number of participants needed in a sample to detect an effect (if one actually exists).

Preregistration: the process of publicly stating the hypotheses, research design, and analysis plan prior to data collection.

Quasi-experimental: research that occurs when participants cannot be assigned to levels of the independent variable, and as a result, has limited ability to control for confounding variables.

Random assignment: all participants have an equal likelihood of being placed into any of the independent variable groups; using an unbiased procedure to place participants into

experimental groups; random assignment is crucial for being able to infer causality in experimental designs.

Rationale:

Replication: the process of repeating a study using the same methods and procedures outlined in the original study to see if the same results are obtained.

Sanctification (psychological): Associating people or activities with spiritual or sacred characteristics (Greenway, 2018).

Significance (statistical): the degree to which a research outcome cannot be due to chance (APA); if in the real world there is truly no relationship between the variables under study, there is a very small chance we would have identified a relationship between these variables in the sample.

Standard deviation: the average distance that scores deviate from the mean, scaled to be within the original units of the measure; a large standard deviation indicates that scores are widely dispersed from the mean; a small standard deviation indicates that scores are clustered around the mean.

Theory of mind: the understanding that another person has independent thought and those thoughts influence their behaviors.

Trait: Personality traits are characteristic and enduring ways of thinking, feeling, behaving. The Big Five or Five-Factor Model is a widely accepted model of personality that includes traits of Extraversion(Introversion), Emotional Stability (Neuroticism), Agreeableness, Conscientiousness, and Openness to Experience/Culture/Intellect. The lexical hypothesis is that important individual differences are coded as trait-terms (adjectives) in some or all languages.

Valence: the subjective value of some entity (e.g., person, object, event, etc.) to a particular individual.