1/15 (Thursday) PSYCHOLOGY

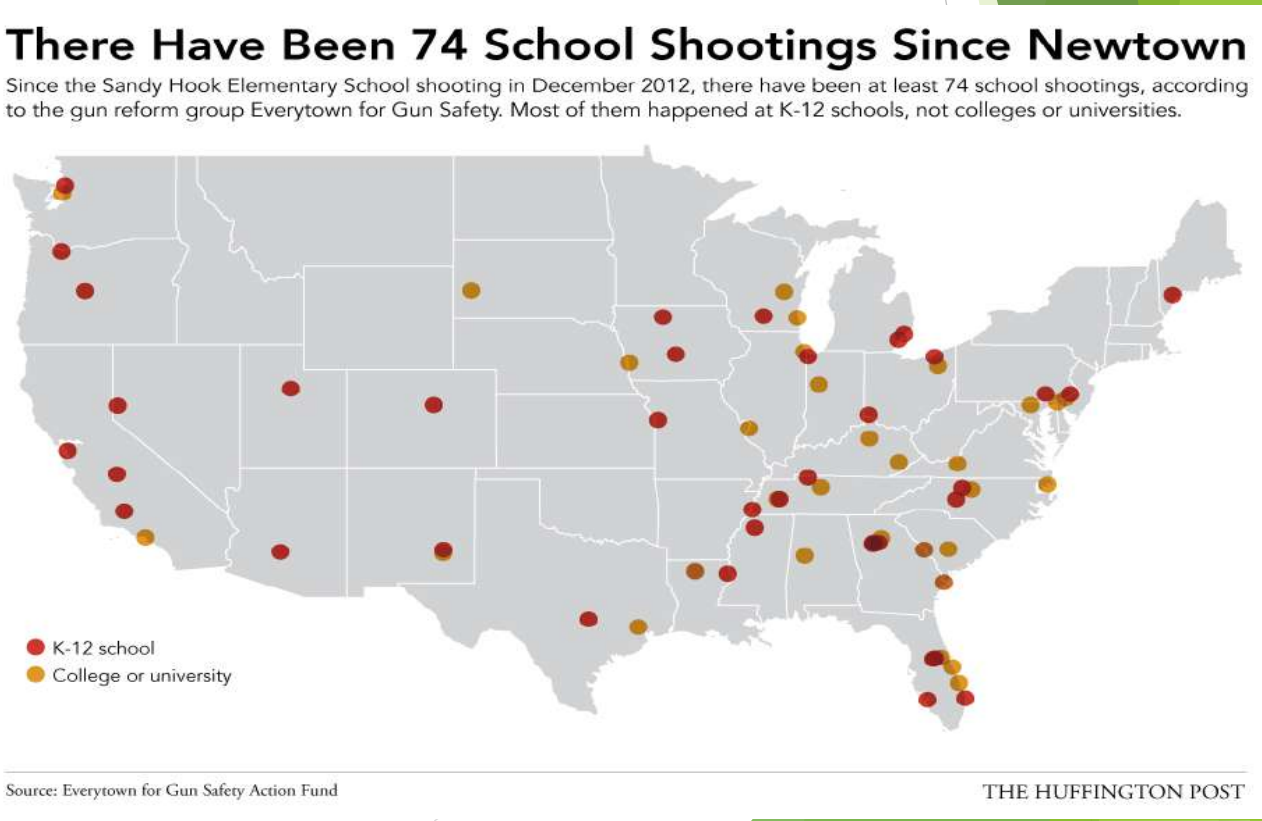
- Turn in your celebrity analysis!
- If you got stuck, do some research today/READ! (p24)
- Move to 413
- Research Methods PPT online/worksheet

1/16 FRIDAY PSYCHOLOGY

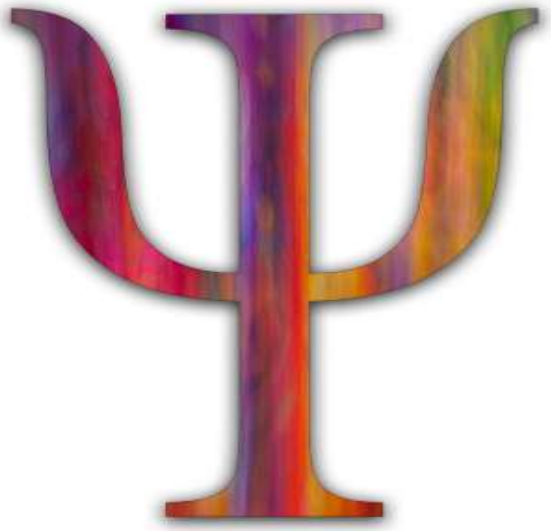
- Research Methods chit-chat
- Finish Worksheet on methods
- Begin reading Birth Order Article
  - Work on this over the weekend
  - On the back:
    - Summarize in 5 sentences each bolded section (5 total)
    - Ex: Intro- 5 sentences
    - Ex: Humans aren't alone- 5 sentences
    - Then write down each research type this article mentions

1/20 Tuesday

- Birth Order Sheet HMW turn in
- Kip Kinkel Video
- Assignment on website (labeled Kip Kinkel)



1/21 (wed)



- Agenda:
  - Finish Kip Documentary
  - 1st: Review assignment online
  - 2nd: School Incidents Compare/Contrast assignment

1/22 Thursday

- Turn in/Submit Kip Kinkel Assignment (by 12:51)
- DO NOW:
  - GO TO:
  - http://tinyurl.com/psyapproacheskip
  - In pairs: Match each of these factors to a perspective (in pairs or alone ONLY…)
  - One paper for pair needed
  - Key aspects
- DO NEXT
  - Begin research for Assignment #2 (online): Public Incidents Research
  - Due Monday!!

1/23 Friday

- FINISH Key aspects:
  - http://tinyurl.com/psyapproacheskip
  - Match each of these factors to a perspective
  - Make sure to give short submission WHY
- Begin research for Assignment #2 (online): Public Incidents Research
- Due Monday!!

Chapter One: Instructions, History, and Research Methods

Module Two: Research Strategies

Why is Research so Important?

- I know you guys want answers to the interesting questions…
- But you can't answer questions without research!

- Scientific Method
  - Technique using tools such as observation, experimentation, and statistical analysis to learn about the world
  - Through its use, psychology is thereby considered a science.

- Let’s study this module by asking a research question:

- Does listening to music through headphones affect studying?

Research and Research Methodology

- Method of **asking questions** then **drawing logical supported conclusions**
- Researchers need to be able to determine if conclusions are reasonable or not (critical thinking).

Common Sense

- Conclusions based solely on personal experience and sensible logic
- Can lead to incorrect conclusions

TABLE 2.1 THE LIMITS OF COMMON SENSE

Common sense leaves us unsure of the truth, but research helps us apply principles appropriately in different situations.

COMMON SENSE SAYS . . .		
Opposites attract.	**and**	Birds of a feather flock together.
Out of sight, out of mind.	**and**	Absence makes the heart grow fonder.
Nothing ventured, nothing gained.	**and**	A penny saved is a penny earned.

Observation and Bias

Observation and Bias

- Observation:
- Simplest scientific technique
- Gathering of information by simply watching subjects
- Can lead to bias
  - You might see what you want to see.

- Bias
- Situation in which a factor unfairly increases the likelihood of a researcher reaching a particular conclusion
- Bias should be minimized as much as possible in research

Researcher Bias

- The tendency to notice evidence which supports one particular point of view or hypothesis
- Objectivity tends to reduce bias.

Confirmation Bias

- Both the administrator and a student tend to notice examples that support their points of view.

Critical Thinking

- Thinking that does not blindly accept arguments or conclusions but questions their validity

Participant Bias

- Tendency of research subjects to respond in certain ways because they know they are being observed
  - The subjects might try to behave in ways they believe the researcher wants them to behave
- Can be reduced by naturalistic observation

Naturalistic Observation

- Under which circumstances do you think the principal's observations are more accurate?
  - Naturalistic observation requires that the behavior not be unduly influenced by the observer.
  - Can you see that this might sometimes produce ethical concerns?

- Method of observation where subjects are observed in their "natural" environment
- Subjects are not aware they are being watched
- Could use hidden cameras or two way mirrors

Different ways to research…

- **Case Study**
- In depth study of one individual with the hopes of determining universal principles
- This technique is very open to bias
- Difficulty of applying data from one person to everyone

1/26 (MONDAY)

AGENDA:

- Turn in Incidents Research Chart
- EXPERIMENTAL DESIGN INFO (take notes on this paper)

BUT 1st WRITE THIS DOWN:

- **HYPOTHESIS:**
- **A hypothesis is an educated guess about how things work.**
- **Most of the time a hypothesis is written like this: "If _____[I do this] _____, then _____[this]_____ will happen." (Fill in the blanks with the appropriate information from your own experiment.)**
- **Your hypothesis should be something that you can actually test, what's called a testable hypothesis. In other words, you need to be able to measure both "what you do" and "what will happen."**

WRITE ME DOWN!

- VARIABLE: something that can be changed, such as a characteristic or value.
  - Variables are generally used in psychology experiments to determine if changes to one thing result in changes to another.
- **EXPERIEMENT EX: LACK OF SLEEP AFFECT TEST PERFORMANCE**
- INDEPENDENT VARIABLE: the variable that is controlled and manipulated by the experimenter.
  - For example, in an experiment on the impact of sleep deprivation on test performance, sleep deprivation would be the independent variable.
  - DEPENDENT VARIABLE: the variable that is measured by the experimenter.
    - The scores on the test performance measure would be the dependent variable.

HYPOTHESIS in PSY:

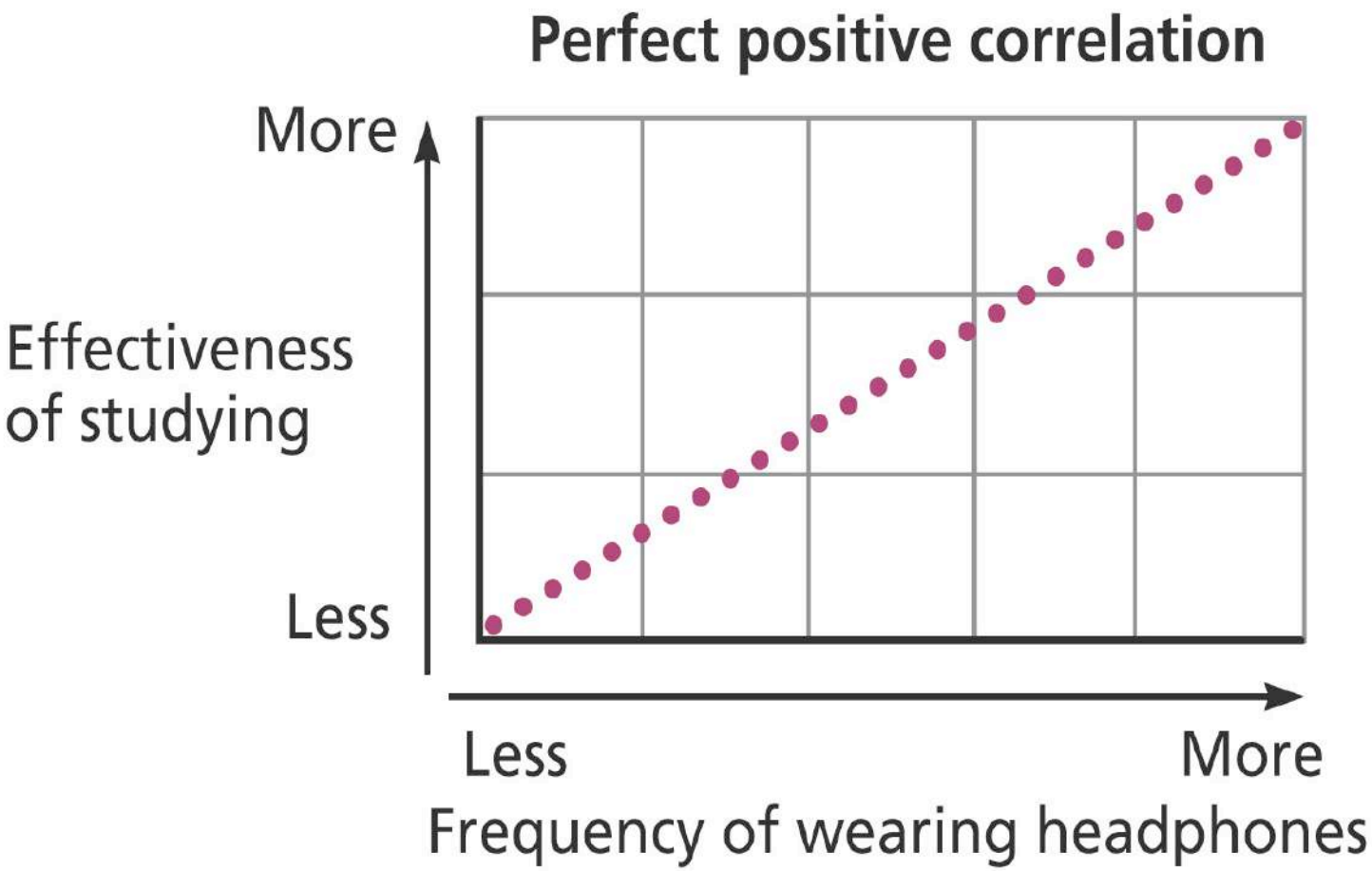
- A tentative and testable explanation of the relationship between two (or more) events or variables;
- often stated as a prediction that a certain outcome will result from specific conditions.

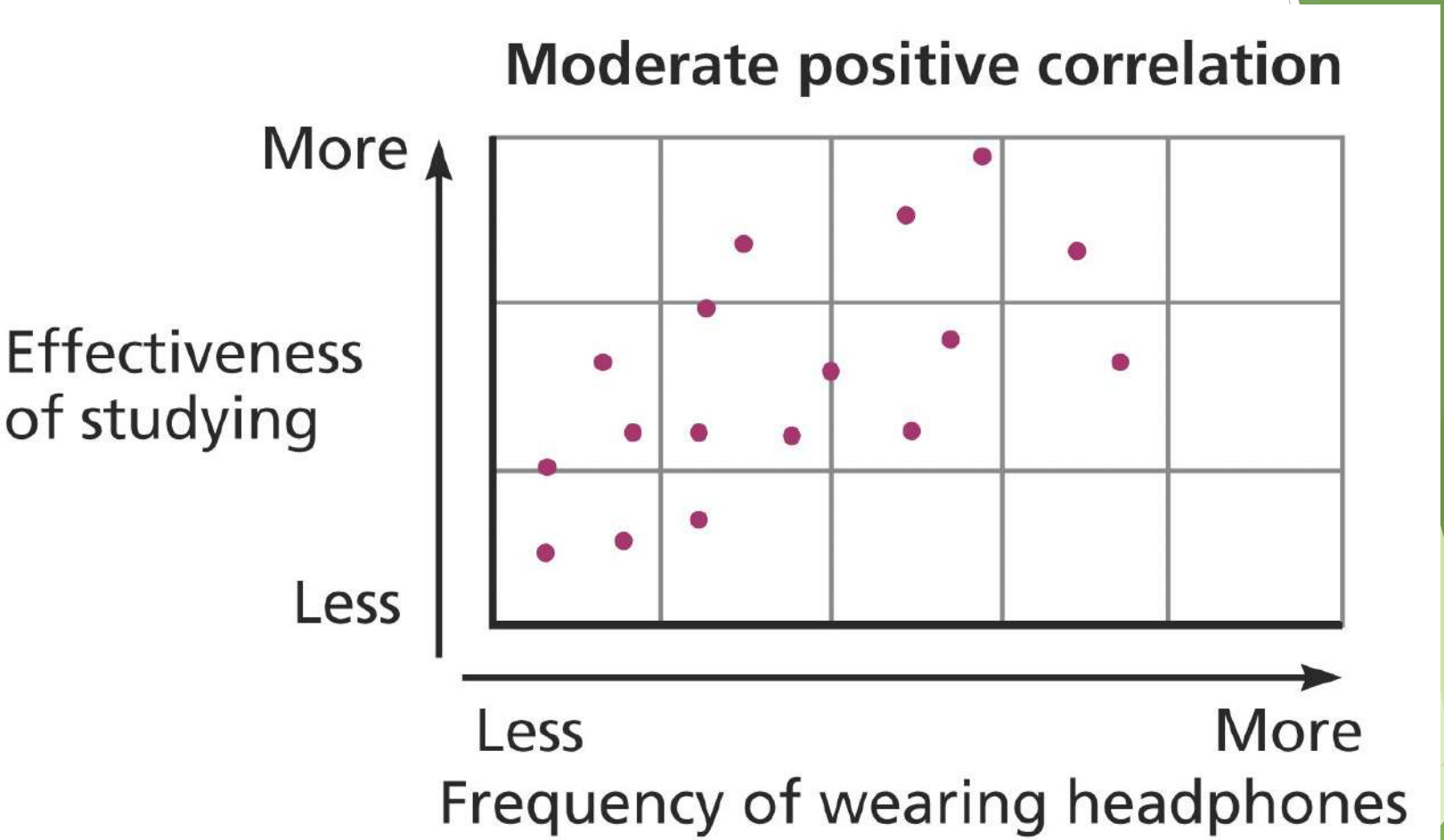
Correlational Study

- Research study designed to determine the degree to which two variables are related to one another

Positive Correlation

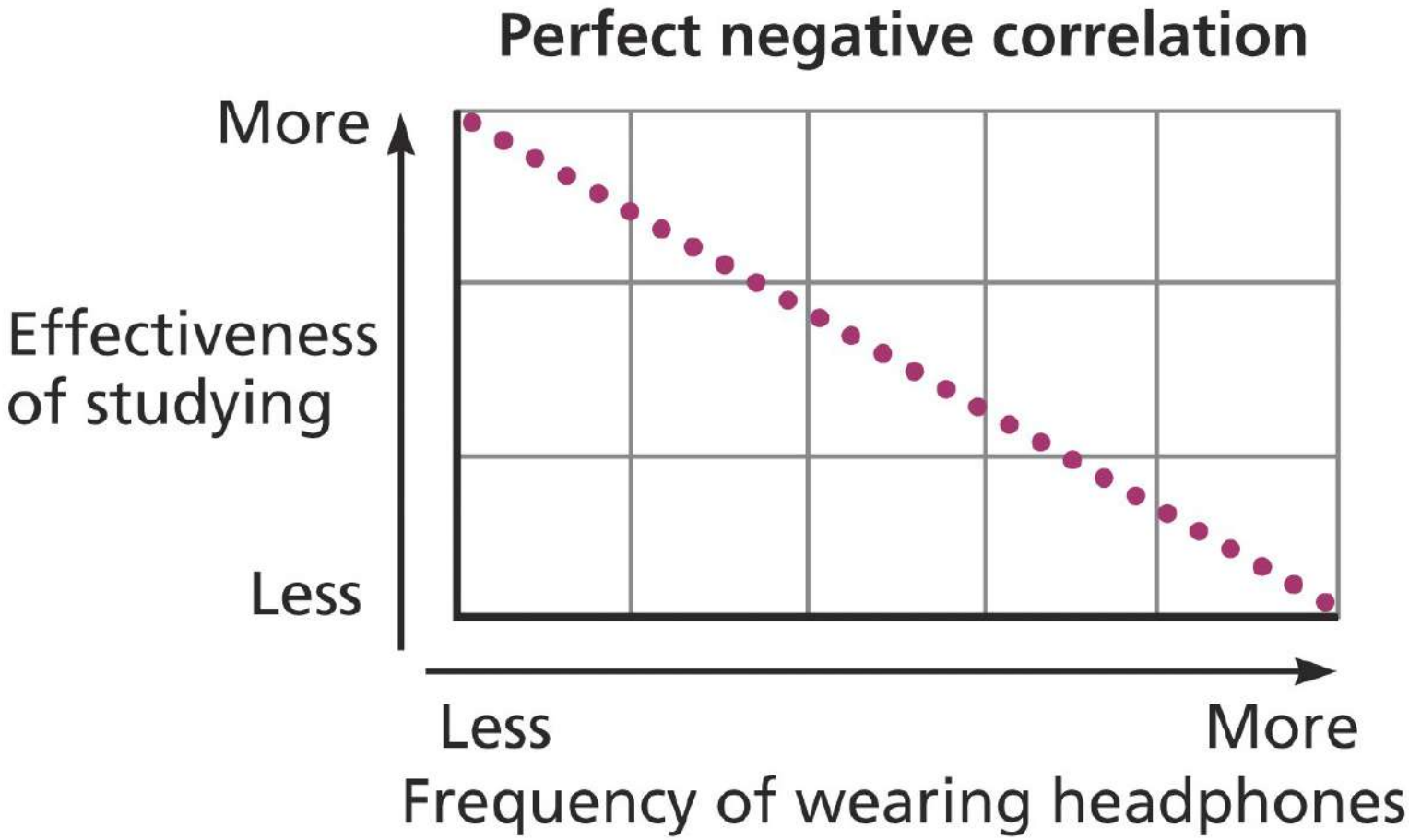
- As the value of one variable increases (or decreases) so does the value of the other variable.
- Ex:
  - When effectiveness of studying increases when students wear headphones and decreases when students do not wear headphones.
- A perfect positive correlation is +1.0.
- The closer the correlation is to +1.0, the stronger the relationship.

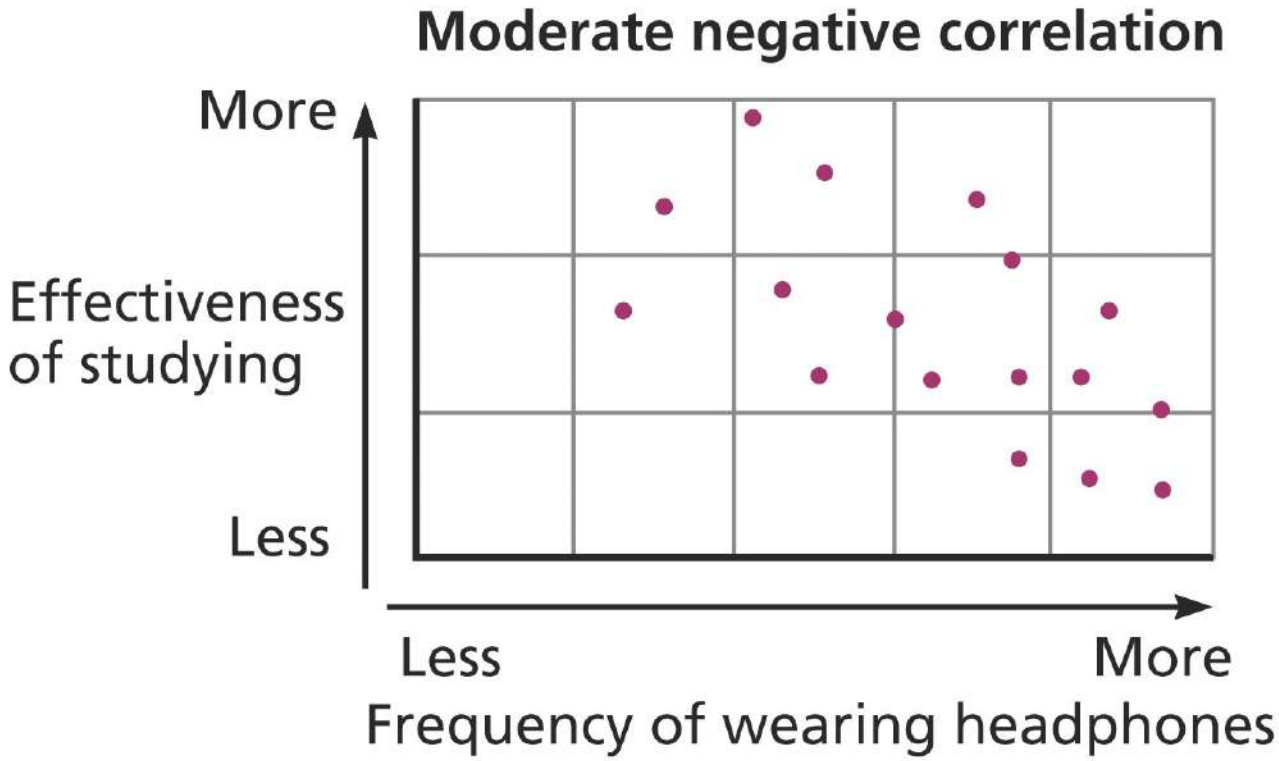

Perfect positive correlation
More
Effectiveness of studying
Less
Less
More
Frequency of wearing headphones


Moderate positive correlation
More
Effectiveness of studying
Less
Less
More
Frequency of wearing headphones

Negative Correlation

- As the value of one variable increases, the value of the other variable decreases.
- Ex:
  - If studying effectiveness decreases when students wear headphones, and increase when they do not wear headphones.
- A perfect negative correlation is -1.0.
- The closer the correlation is to -1.0, the stronger the relationship.


Perfect negative correlation
More
Effectiveness of studying
Less
Less
More
Frequency of wearing headphones


Moderate negative correlation
More
Effectiveness of studying
Less
Less
More
Frequency of wearing headphones

Zero Correlation

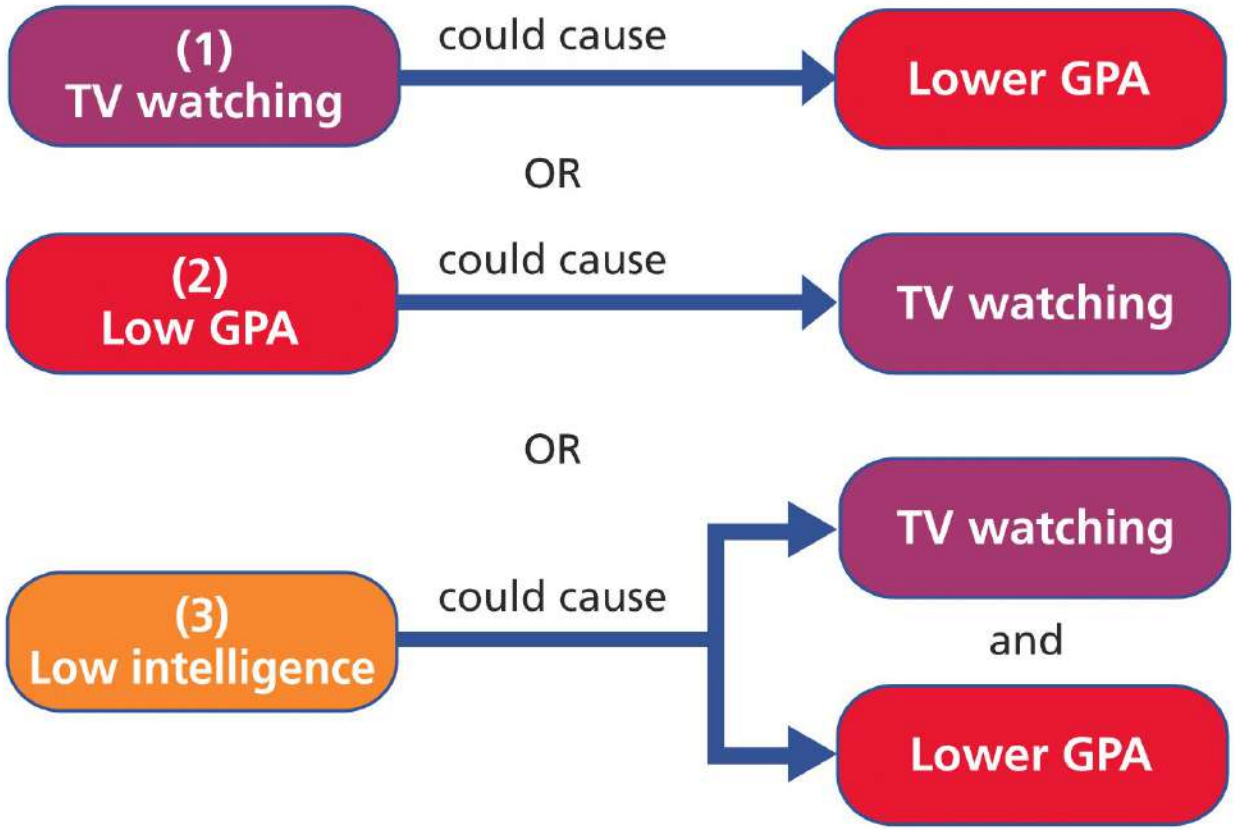
- There is no relationship whatsoever between the two variables.

Correlational Study

- Important NOT to imply a cause and effect relationship between the variables
- Correlational study does not determine **why** the two variables are related--just that they are related.
- Correlational studies are helpful in making predictions.

Correlation is not causation!

The discovery of a negative correlation b/t TV watching and grade point average would not provide us with any informat



Research Strategies!

Survey Method

- Research method that relies on self-reports; uses surveys, questionnaires, interviews.
  - Allow researchers to collect large amounts of data efficiently through the use of questionnaires and interviews.
- Usually a very efficient and inexpensive method.
- Can have biased answers.
  - Mock election example.

Population

- The total large group being studied from which a sample is drawn for a study

Random Sample

- A sample that represents a population fairly:
  - Each member of the population has an equal chance of being included.
  - If a sample is not random it is said to be biased.

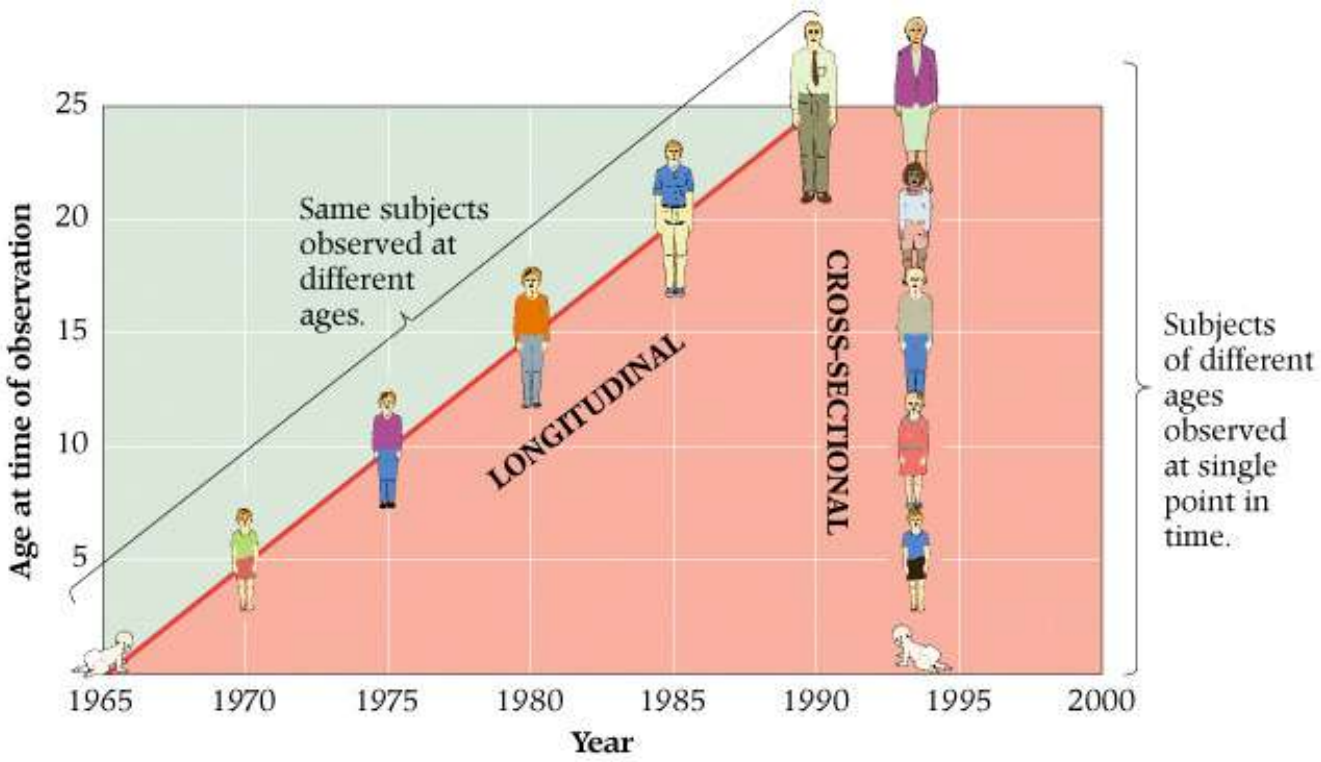
Longitudinal Studies

- **Developmental Psychologists**
  - Psychologists who study how individuals change throughout their lifetime
- Longitudinal studies
  - Developmental study where researchers study the same group of individuals for many years
  - Expensive and hard to conduct
    - Thus are very rare
      - Ex: Imagine having to keep track of a group of study hall students throughout their lifetimes to determine the long-term effects of wearing or not wearing headphones!

Cross-Sectional Studies

- Developmental study where researchers simultaneously study a number of subjects from different age groups and then compare the results
- Cheaper, easier than longitudinal studies, but group differences may be due to factors other than development.

Cross-Sectional & Longitudinal Studies



Experiments: Hypotheses and Operational Definitions

Experiments

- Sometimes psychologists combine different ways to get research:
  - Use naturalistic observation to do a case study, or do studies to establish correlations.

- But when doing cause-and-effect, you need EXPERIMENTATION!!!
  - Only method that allows drawing conclusions about cause and effect relationships.
  - Require researchers to control the variables in the study.

Hypothesis

- A testable prediction of the outcome of the experiment or research

Operational Definition

- A specification of the exact procedures used to make a variable specific and measurable for research purposes
- In evaluating others' research, first determine if you agree with the researchers' operational definitions.

IndependentDependent VariablesVariables

- The experimental variable which causes something to happen
- The "cause variable"
- The variable manipulated by the experimenter
- The variable which should change the dependent variable

- The experimental variable which is affected by the independent variable
- The "effect variable"
- The outcome of the experiment
- The variable being measured

Experimental Group

- The subjects in an experiment who are exposed to the treatment (independent variable)
- Also called the experimental condition
- The group being studied and compared to the control group

Control Group

- Are not exposed to the independent variable
- Results are compared to those of the experimental group
- Also called the control condition

CONTROL GROUP VS EXPERIEMENTAL GROUP

- The control group, is exposed to all of the circumstances of the experiment but does not get whatever is being tested or changed in the experiment.
- At the same time, the experimental group gets all of the circumstances of the experiment PLUS the one variable being tested by the experiment.

Confounding Variables

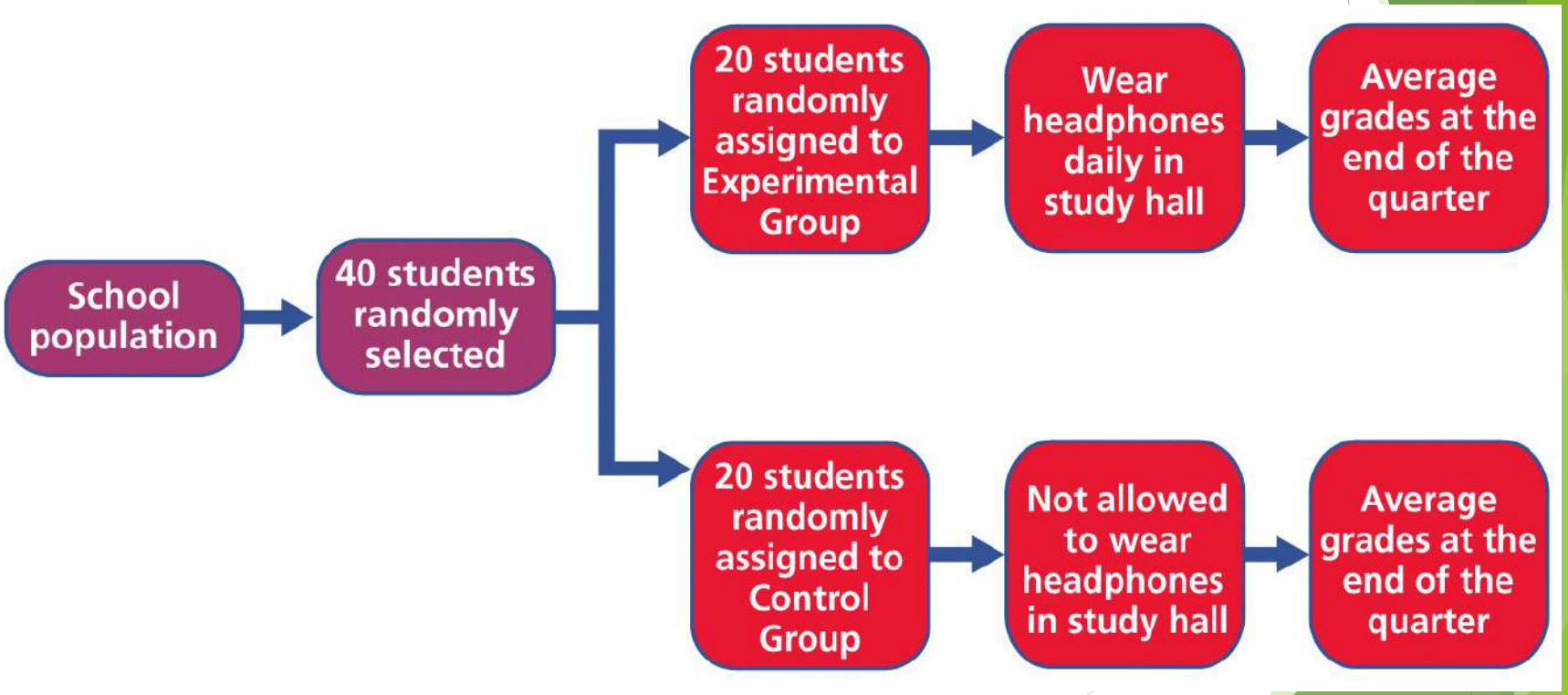
- Variables, other than the independent variable, which could inadvertently influence the dependent variable
- These variables should be controlled for in order to draw a true, cause-effect relationship in the experiment.
- Many confounding variables can be eliminated through random assignment.

Random Assignment

- Assigning participants to the control and experimental groups by chance
- Each participant should have an equal chance of being assigned into either group.

Experimental Design:

Hypothesis: Students assigned to wear headphones in study hall will have higher average grades at the end of the quarter than students banned from wearing headphones.

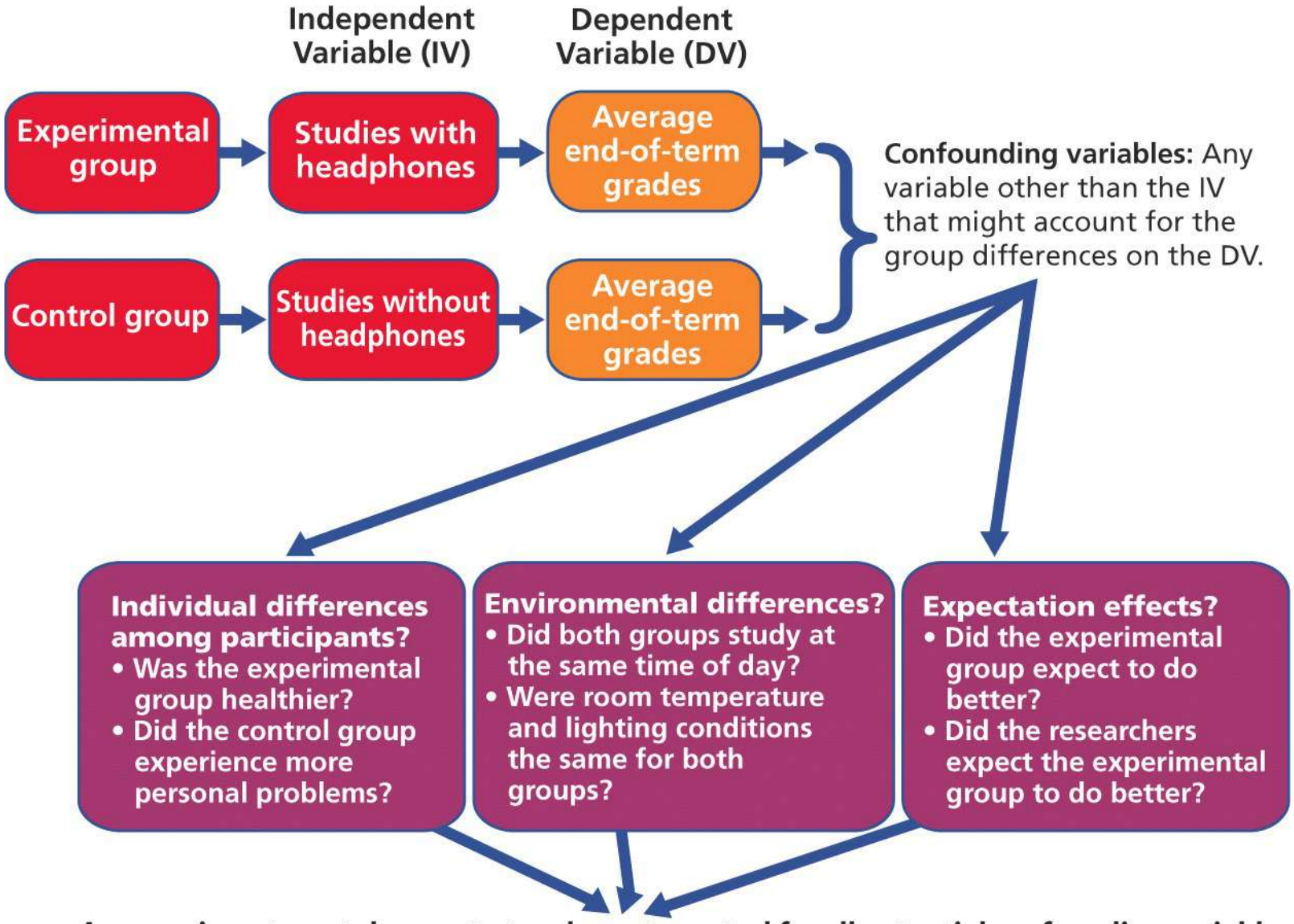


Confounding Variables: Environmental Differences

- Any differences in the experiment's conditions--between the experimental and control groups
- Differences include temperature, lighting, noise levels, distractions, etc.
- Ideally, there should be a minimum of environmental differences between the two groups.

Confounding Variables: Expectation Effects

- Any changes in an experiment's results due to the subject anticipating certain outcomes to the experiment


Independent Variable (IV)
Dependent Variable (DV)
Experimental group
Studies with headphones
Average end-of-term grades
Control group
Studies without headphones
Average end-of-term grades
Confounding variables: Any variable other than the IV that might account for the group differences on the DV.
Individual differences among participants?
• Was the experimental group healthier?
• Did the control group experience more personal problems?
Environmental differences?
• Did both groups study at the same time of day?
• Were room temperature and lighting conditions the same for both groups?
Expectation effects?
• Did the experimental group expect to do better?
• Did the researchers expect the experimental group to do better?
An experiment must demonstrate adequate control for all potential confounding variables to allow the conclusion of a cause and effect relationship between the IV and the DV.

BlindDouble Blind ProcedureProcedure

- An experimental procedure where the research participants are ignorant (blind) to the expected outcome of the experiment
- Sometimes called single blind procedure

- An experimental procedure where both the research participants and those collecting the data are ignorant (blind) to the expected outcome of the experiment

Placebo

- A non-active substance or condition administered instead of a drug or active agent
- Given to the control group

TABLE 2.2 EXPERIMENTS STEP BY STEP

1. Develop the *hypothesis*.
2. Create *operational definitions* for the *independent and dependent variables*.
3. *Randomly select* a sample of participants from the population.
4. *Randomly assign* the participants to the *experimental and control groups*.
5. Expose the experimental group, but not the control group, to the IV. If necessary, use a *placebo* with the control group to balance expectations.
6. Control for other *confounding variables* by using a *double-blind procedure* and treating both groups the same except for exposure to the IV.
7. Learn the impact of the IV by measuring the DV for both groups.
8. Use *statistical analysis* to discover whether the difference in the DV between the two groups is likely to have been caused by the manipulation of the IV.

Experimentation: Replication!!!

- Repeating the experiment to determine if similar results are found
- If so, the research is considered reliable.

Ethics: Human Research

#1: Informed Consent

- Participants must be informed, in advance, about:
  - the general nature of the research, and
  - any potential risk.
  - Participants must have the right to refuse participation or withdraw at any time.

#2: Right to be protected from harm and/or discomfort

- Studies involving harm or discomfort may be conducted only under certain circumstances, and only with the informed consent of the participants.

#3: Right of Confidentiality

- Individual data about research participants should never be discussed or released.

#4: Right of Debriefing

- Participants have a right to receive a complete explanation of the research at the end of the study.
- This is extremely important if the research involves deception.

Ethics: Animal Research

Reasons for Animal Research

- Interest in animal behavior as a topic of study
- Data from animal studies may apply to humans.
- Easier to do some type of studies (genetics) due to the shorter life span of animals
- Easier to exercise more control over experiments with animals as compared to humans
- Procedures that are not ethical to perform on humans may be considered acceptable when performed on animals

Care of Animals used in Research

- Animals used in research must:
  - Have clean housing with adequate ventilation
  - Have appropriate food
  - Be well cared for

Yes!!!!!!!!!!

You are finally done!!!!!