Research Methods

Experimental Research
Descriptive Methods
Correlational Research
Biological Research

Step 3 - Research Design

ψ What type of study would best test your hypothesis?
ψ What participants will you use?
ψ What will be the procedure of your study?

Experimental Method

ψ This is the
ψ A study in which the investigator _________
ψ _________while measuring at least one other variable.
Step 3-Designing a Study

Variables are a condition or characteristic that is subject to change either within situations or individuals.

There are two types of variables in every study:

- Factor that is ______________________________
  Dependent variable:

Independent Variable is the variable is directly and purposefully manipulated by the experimenter.

Dependent Variable is the behavior that is ______________________________

So, what will happen if...?
The goal of any experiment is to
_____________________________________
(\textbf{depends on}) the independent variable.

Identify the Variable
Independent and Dependent?

ψ Developmental psychologists want to know if exposing children to differing amounts of public television improves their reading skills.

Did you get it?

ψ In this study, the amount of public television is the ____________________________

ψ The researchers were looking to observe a change in reading skills, which makes it the ____________________________
A clinical psychologist is interested in how heart rate is affected by viewing a violent film as opposed to a nonviolent film.

The Independent Variable is this study is the ____________________________

______________________________

______________________________

______________________________

______________________________

The Independent Variable is the behavior observed which makes it the Dependent Variable.

Cognitive psychologists are interested in what types of diagrams are easiest for people to remember.
What are the Variables?

Ψ The _____________________________
   Independent Variable

Ψ What behavior were the researchers observing? ________________________,
   which is the Dependent Variable

OK, Last One...

Ψ An industrial/organizational psychologist tests to see if wearing name tags makes
   employees happier with their work

What are the variables?

Ψ _______________________________
   are the Independent Variable

Ψ And the observed behavior was
   _____________________________,
   which is the Dependent Variable
Who will you study?

Participants in a study are individuals in an experiment whose behaviors are observed.

All have something in common which is based on what the researcher is testing.

Participants are randomly assigned to one of two groups:

1. The Control Group:
   - This group does not receive the independent variable
   - It does not receive the treatment

2. The Experimental Group:
   - This group “receives” the independent variable

Types of Research

Descriptive Methods involve

- Naturalistic Observation
- Case Study
- Surveys
This research method is used to observe and record behavior without producing an explanation.

Naturalistic Observation

A systematic observation what many

Ask questions...

Surveys are another method of gathering data from a wide selection of people

Unfortunately most surveys rely on self report and
Case Study

A thorough ____________________________

- These are well-suited to observe unusual behaviors or conditions, but their generalizability is limited.

Phineas Gage (1848)...

Yes he LIVED!

Most of the front part of the left side of his brain was destroyed. Afterwards he experienced serious personality changes and his friends reported that he was “no longer Phineas.”

Correlational Studies

A procedure in which investigators measure the ____________________________

- Without manipulating or controlling either of them

Correlation: A measure of the ____________________________
Correlational coefficient

Correlation indicates the ____________________________
It allows for prediction of one variable based on the other variable.

Example - A researcher may examine whether a toddler’s aggressiveness is related to the number of hours spent in day care.

The strength of the relationship is measured by a correlation coefficient which ranges from ____________

-1: perfect positive correlation (perfect relationship)
0: no correlation (no relationship)
-1: perfect negative correlation (perfect relationship)

In a positive correlation, ____________________________________________—that is, as one factor increases, the other factor decreases.

In a negative correlation, the two factors ____________________________________________—that is, as one factor increases, the other factor decreases.

Sometimes there is no relationship between two variables—a
Name that Correlation!

1. As a child's age increases so does her height
2. The more time a person spends on a treadmill the less they weigh
3. The amount of time a college student studies and their height in inches

“Correlation is not causation!”

Just because there is a correlation between

What happens after the study is completed and the data is examined?

It is time to draw a conclusion

“Was I right?”
Was my prediction correct?

Researchers draw conclusions about the results of the study. Did the information support or oppose their hypothesis?

Don't forget...this information MUST be replicated to be accepted as valid.

What happens to the information yielded in study?

If the information produced in a study supports the original hypothesis it is published in the scientific community in peer-reviewed journals.

This information is what we read about in textbooks and articles.

Ethics in Research

Could the results of a study be BIASED?
A good scientific experiment also protects against potential sources of error from both the researcher and the participants. This can result in flawed data and invalid results in the study.

Participants must be informed:

- One rule states human participants must give the researcher their __________________________ before a study.
- Participants must be advised about the purpose and __________________________

Ethics in Research:

- Participants cannot be coerced into doing something psychologically or physically harmful, or that violates standards of decency.
- At the end of the study, participants must go through __________________________
Why do researchers have these rules?

History of controversial psychological experiments that would now be considered UNETHICAL.

Examples:
- Phillip Zimbardo - The Stanford Prison Study
- Stanley Milgram - The Perils of Obedience

Next Class...

Biopsychology
- How is the nervous system organized?
- How do “brain chemicals” influence our behavior?