Assignment: Research Experiment

Instructor Guide

UNIT:
PSYCHOLOGICAL RESEARCH
Standards that Apply to this Assignment
National Standards for High School Psychology Curricula
August 2005

Standard Area IA: Introduction and Research Methods
Content Standards

After concluding this unit, students understand:

IA-1. Contemporary perspectives used by psychologists to understand behavior and mental processes in context
IA-2. Major subfields and career opportunities that comprise psychology
IA-3. Research strategies used by psychologists to explore behavior and mental processes
IA-4. Purpose and basic concepts of statistics
IA-5. Ethical issues in research with human and other animals that are important to psychologists
IA-6. Development of psychology as an empirical science
Assignment Objectives

The goal of this project is to provide students with:

- Experience in performing an experiment
- Application of concepts learned in this class
- Greater depth of knowledge in one topic area
- Diversification of instruction for different learning styles and learning needs
- Increase in literacy through readings and writing
- Skills needed for the 21st Century Learner
Introductory Comments

Since this is a very large project, ideas to consider:

- Introducing it at the beginning of the semester
- Dividing the assignment into sections with different due dates
- Allowing for partners to work collaboratively during class time
- Using the assignment as the final exam, with the presentations becoming the culmination of work
Begin by brainstorming ideas

Offer many ideas based on previous research experiments.

- Create a handout with lists of ideas.
- Create a collection of Powerpoints from previous students available on a shared network
- Provide examples of completed projects in binders for review
- Reorganize the class topics to provide background in popular experiment areas: memory, gender, social influence
These ideas sound good to me:

I have narrowed the ideas down to:

My research topic is: _________________________________
Ideas from previous students

Memory

- Will people remember pictures or words better?
- Do distractions affect the short-term memory?
- Does caffeine have an affect on memory?
- Can memory be influenced by diet?
- How does smell affect a person’s memory?
- Does certain music influence memory?
- Do you remember more if you study before sleep?
- Is eyewitness memory accurate?
Other ideas

Social Influence

- Does peer pressure affect someone’s decision-making?
- Does the amount of people in a room affect whether or not someone will aid a person in trouble?
- Do people help disabled people more than nondisabled people?
- Which gender is more honest?
- Is Ache’s experiment on conformity still accurate?

Gender:

- Which gender multitasks better?
- Which gender has better ability to see 3D illusions?
- How do dreams differ for genders?
- Which gender is more creative?
- Which gender is more likely to stop and ask directions?
- Does gender impact on moral decisions?
- Which gender is more fearful?
WILL CHILDREN REMEMBER DREAMS BETTER WHEN GIVEN A PLACEBO?
Provide Support as Students Write Background Research Paper

- Review APA style of reference
- If possible, work together in research library for a class
- Demonstrate using Internet resources (i.e. www.badgerlink.net) in class
- Provide links to resources on instructor course website
- Use research worksheets for students to gather and review information (included)
- Provide an example of an outline (included)
Introduction to Psychology

Name___________________________________________________________

Resources Worksheet for Research Paper

Referencing information. Write in APA style:

___________________________________________________________________

___________________________________________________________________

Summarize in brief notes information that would relate to your paper:
INTRODUCTION TO PSYCHOLOGY

Outline Worksheet - example

A. Introduction
   a. Thesis statement: Your potential research question
      
      Is there a gender difference in the ability to identify a subject in a crime?
      Discuss potential brain differences that cause genders to perceive environment differently, hunting vs gathering

B. Topic: Physical differences
   a. Brain differences
      Size, structure, use, hypothalamus differences

   b. How these differences impact on each gender’s lives
      Aggression, verbal abilities, senses,

   c. Other physical differences
      Hormones, genetic traits

C. Topic: Cognitive differences
   a. Similarities – differences are diminishing

   b. Visual spatial differences, math differences

   c. Memory – recent experiments
Research Design Ideas

- Use volunteer student’s ideas to model developing research design for whole class.
- Students work in teams and review each other’s work.
- Require design to be reviewed by instructor to catch design flaws.
Research Design

Research question: ____________________________________________________________

Hypothesis: (If...then)__________________________________________________________

Dependent Variable(s)_________________________________________________________

How will you measure it?________________________________________________________

Independent Variable(s)_______________________________________________________

How will you manipulate it?_____________________________________________________  

___ This is an experiment with separate control and experimental groups. 
Describe the control group:______________________________________________________

Describe the experimental group______________________________________________

What materials will you need for your experiment? 
___ typed instructions for subjects ___ typed answer sheets 
___ activity/worksheets ___ typed data collection sheet

Do you need help recruiting subjects? ___ yes ___ no  If yes, how many? ____

Describe on the back, exactly how you plan to run this experiment. Use bullet sentences.
Comments: Conducting Experiment

- As students begin conducting experiments, it’s a great “class opener” for students to discuss experiences.

- It also motivates and prepares other students to run their experiments.

- Students in the class can be used as subjects in some experiments!

- There are constant needs to adjust experiments in the “real world.” This is a great opportunity to compare to real researchers and their need to modify as they run experiments.
Comments: Conducting experiments

- Students can usually only find a small number of subjects – they get concerned – that’s okay

- Subjects cause many problems – students are never down-graded for subject problems! Experiments are adjusted

- If students make mistakes, catch their mistake and discuss it in their paper – they gain points!
Final Presentations

- Many times this can be changed to a **Research Symposium** where students just discuss their experiments, very casually with coffee and treats!

- Other times, formal presentations culminate the experiment as a semester final exam.
Formal Presentation:

Grading will be based on the following:

(10 points) **Summarize background information** Students who present later, must have new information. Repeating previous information from other presentations won’t be informative.

(10 points) **Experiment description**
- Clearly stating the research question.
- Describe how you conducted your experiment. Be very detailed here so the class can understand exactly what you did.
- State hypothesis.
- Name the dependent and independent variables.
- Describe the control and experimental groups or if it is a correlation study, describe the groups you are comparing.

(10 points) **Describe in detail the conclusions** you can draw from this study.
- Show a graph of the data.
- Describe any extraneous variables or problems that might have interfered with your experiment.
- What would you suggestion next year’s class do differently?

(5 points) Did you learn anything from doing this?
- Final comments?

(10 points) **Include a visual presentation**
*Full points includes:* a videotape of a re-enactment of the experiment, video presentation of parts of the actual experiment, power point presentation, and other very creative ideas.

*Partial credit includes:* overhead transparencies or basic class demonstration.

(5 points) One feedback form
Feedback on Presentations

1. Basically summarize their experiment.

2. What did YOU learn from their experiment?

3. Name something they did well in their experiment.

4. Name something they could have done differently to improve this experiment.
The following is an example of a student presentation:
Which gender is more likely to conform?
Gender:

- Boys have overall better vision
- Boys are pressured to act more gender appropriate than girls
- Girls are more emotional

Conformity:

- 3 types-compliance, identification, internalization
- Asch’s experiments
- Shy people and people with low self esteem are more likely to conform
Hypothesis: If the subject is female, then they will conform more.

Dependent Variable: Conformity

Independent Variable: Gender

Correlation Study: comparing gender
Experiment Description

- Experiment based on Asch’s study
- Get subject from library
- Get four fake subjects from class
- Take them to empty room
- Deceive by telling subjects it’s a perception test
- Show them transparencies with shapes
- Ask them to choose the shape that matches sample
- Fake subject unanimously choose wrong size
- Ask subject to respond last
Circle Test
Line Test

A  B  C  D
Star Test
Conclusions

Boys conform more than girls
Hypothesis was wrong
Extraneous Variables

* Showed some transparencies differently
* May have explained directions differently
* Tests may have been too obvious

Suggestions

* Test more people
* Read typed instructions
What I Learned

*Experiments take a lot of time to setup and run, but it's a fun way to learn!

*Shouldn't believe all research
THE END