

Lab Manual *for* PSYCHOLOGICAL RESEARCH

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Introduction for Instructors

The *Lab Manual for Psychological Research* is designed to allow instructors to choose from assignments that give students practice with knowledge and skills learned in a research methods course. The manual contains three major components: (a) exercises that connect to specific concepts in the course, (b) exercises geared toward the development of a research project, and (c) APA style exercises that become progressively more complex. The intent is to provide exercises on various aspects of a methods course that instructors may choose to assign to students. Assignments that instructors choose not to include as required can provide students with study aids for the concepts covered.

Exercises in the first component cover major course concepts such as design types and observation techniques, literature reviews and library research, reading journal articles, identifying variables, ethical guidelines, subject sampling, and descriptive and inferential statistics. Learning checks are included that could serve as quizzes for topics covered in this section of the manual.

In the second component, a research development project is included that can be assigned to groups or individuals and completed throughout the course as students learn the steps in designing research studies. This component includes assignments related to choosing a research topic, conducting a literature review, developing a method, analyzing and interpreting results, and presentation of the project as an oral or poster presentation. These assignments progress through the topics in the course and thus can be assigned at different points in the course after different topics have been covered that allow students to continue in their development of the project.

The third component includes APA style exercises that begin with simple APA guidelines and progress to evaluation of short articles for APA style violations.

Finally, the manual includes explanations of and exercises on plagiarism to help students understand what is and isn't plagiarism and how to avoid it in their writing. These exercises have been included with the section on ethics.

Acknowledgments

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PART I

Research Methods Exercises

Exercises in the first component cover major course concepts such as design types and observation techniques, literature reviews and library research, reading journal articles, identifying variables, ethical guidelines, subject sampling, and descriptive and inferential statistics.

- Knowledge Exercise: What Do We Know and How Do We Know It?
- Naturalistic Observation Group Exercise
- Science in the News
- How to Read Journal Articles
- Reading Journal Articles Exercise
- Lab Assignment: Library Exercise
- Learning Check: Basics of Psychological Research
- Independent and Dependent Variables
- Identifying Variables From Abstracts
- Learning Check: Experimental Designs
- Ethics Exercise
- Learning Check: Ethics
- Descriptive Statistics Exercise
- Inferential Statistics Exercise
- Learning Check: Statistics
- Survey Research Exercise
- Bias and Control Exercise
- Factorial Designs Exercises
- Learning Check: Specialized Designs

Knowledge Exercise: What Do We Know and How Do We Know It?

1. Write down four things that you know. Then, for each, write down how you know these things. Categorize your ways of knowing (i.e., intuition, authority, or observation).

A.

B.

C.

D.

2. Think of a piece of knowledge that you acquired using one of these methods:

Intuition:

Authority:

Observation:

Naturalistic Observation Group Exercise

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Research Questions

1. Do people walking alone walk faster than people walking in groups of two or more?
2. Which campus building has more traffic (i.e., people going in and out) between classes?
3. Do more males or females hang out on the quad between classes?
4. Which entrance to the student center is used most often between classes (e.g., 1st-floor west entrance or 2nd-floor east entrance)?

Research Procedures

1. As a group, discuss your research question and decide on a reasonable predicted answer to your research question. Be sure to record *why* you think this is the answer you will obtain.
2. As a group, discuss ways to use naturalistic observation of people on campus to answer your research question. Be sure to decide on the following:
 - a. How long you will observe your subjects (no longer than 20 min)?
 - b. How you will observe the subjects *unobtrusively*?
 - c. What will you observe/measure?
 - d. How will your observations answer your research question (i.e., what observations do you expect if your prediction is correct)?
 - e. Identify your independent/subject variable and your dependent variable(s).
3. Conduct your study and collect your observations.
4. Discuss what you found in your observations and how you would answer your research question based on those observations.
5. Prepare and present to the class:
 - a. Your research question and prediction (including why you made that prediction)
 - b. Your variables (identify if you have an independent or subject variable and your dependent variable)
 - c. Your method (how you obtained your observations)
 - d. The answer to your research question from your observations
 - e. Any limitations you found using this method to answer your question
6. Briefly discuss what worked well and what didn't work well with your naturalistic observation. If you had to do it all over again, what would you do differently? Why?

Science in the News

Find an article in the newspaper that reports the results of some research (hint: check the science section). For that article, try to identify as many “scientific method details” about the research as you can.

For example: What was the hypothesis for the research? What methodology was used (e.g., experimental, correlational, case study, etc.)? How were the participants obtained? What were the conclusions of the research? What were the limitations of the study?

How convinced are you by the study’s results? What questions about the research do you have? What other details were left out that you wish had been reported?

How to Read Journal Articles

Published journal articles in psychology have a particular format that allows the reader to find the information they're looking for and to make the study report clearer to the reader. Most articles follow APA (American Psychological Association) style guidelines, organizing the paper into the following major sections:

- Abstract
- Introduction
- Method
- Results
- Discussion
- References

We'll discuss each of the sections to familiarize you with the information you can expect to find in a section.

Abstract

An abstract is a concise summary of the study that includes the purpose, method, main results, and conclusions of the study. The abstract must be short (under 120 words for APA style), because the abstract will be entered into the PsycINFO database to provide researchers with enough information to decide if the article is relevant for their interest. The abstract is usually the first (and possibly the only) portion of the article that a reader will encounter. It is printed at the top of the first page of the article.

Introduction

The introduction contains a lot of important information about the background and motivation for the study. A well-written introduction will begin by introducing the general topic of the study (i.e., the research question) and defining any specialized terms. The author(s) will then review what is already known about the research question by discussing past studies conducted in the area, the results found, and the relevance of each study to the current study described in the article. The author(s) will also describe the purpose/motivation for the current study, explaining why it was done and how the design used allowed him or her to answer the research question. In most cases, hypotheses will also be stated according to the specific results that were expected for the study.

A well-written introduction will make a clear argument for why the study is important. A reader should be able to find the argument for the study's purpose and the support provided by the author(s) in the form of a research question that has not yet been fully addressed by past studies in the topic area.

Method

The method section is a detailed description of the design and methodology of the study. It is divided into four main subsections: participants, design, materials or apparatus, and procedure. Some articles may combine some of these subsections into a single section (e.g., design and materials as one section). The goal of the method section is to allow someone to replicate the important elements of the study if they wish to do so.

Participants. This section describes the important characteristics of the subjects in the study. The information should include the number of subjects, important demographic information,

number of subjects per condition, where subjects were sampled from, and compensation provided for the subjects.

Design. If a separate design section is included, it will describe the variables that were manipulated and/or measured in the study. If the study is an experiment, level of the independent variables will be described and how the variables were manipulated will also be included (e.g., within-subjects, between-subjects, etc.).

Materials or Apparatus. The materials or apparatus section will describe the relevant materials or apparatus used for the study. Examples include specialized apparatus used for the study, computers used to present stimuli or collect responses, stimuli presented to the subjects and how they were developed, questionnaires given to subjects and relevant information about them, and so on. Sometimes the actual items used will be presented in an appendix that is referred to in the materials section.

Procedure. The procedure section should provide a chronological ordering of what the subjects experienced during the study, including instructions for the tasks, what they saw or read, timing of presentation or task completion, what task they performed, what responses were collected from them, different conditions of the study and how subjects were assigned to the conditions, and so on.

Results

The results section will include an objective report of the results found in the study. This section should include a description of the data collected and the statistical tests used to analyze the data. Summary information about the data will also be included either within the text or in tables/graphs referred to in the results section. Statistical test results and values will also be included in the text.

Discussion

The discussion section should review hypotheses (if they were stated in the Introduction) and discuss the results in reference to the original research question. It should be clear from the discussion section what answer to the research question was provided by the study. A comparison with results of past studies will also be included, and possible explanations for discrepant or unexpected results should be provided by the author(s). The author(s) may also suggest directions for future studies in the topic area.

References

Every past study cited in the paper should be included in the references section of the article in alphabetical order according to the first (or only) author's last name. If you are researching studies in a particular area, the references section can be useful in providing leads to other relevant articles in a particular topic area. Each reference will include authors' last names and initials in the order of authorship on the paper (this order is important—it usually indicates the order of contribution to the published article), the year the article was published, the title of the article, the journal it was published in, and the volume and page numbers of the journal.

Multiple Study/Experiment Articles

Many articles published in psychology contain more than one study or experiment. For those articles, you are likely to see a separate method and results section for each article, but just one introduction and one general discussion section that each tie the whole article together.

Reading Journal Articles Exercise

This exercise accompanies a reading of the following article:

Assefi, S. L., & Garry, M. (2003). Absolut™ memory distortions: Alcohol placebos influence the misinformation effect. *Psychological Science*, *14*, 77–80.

Please answer the following questions about the Assefi and Garry article (you must read through the article before you begin this assignment; the reference to the article is provided above and can be found in PsycINFO). For each question, indicate which section of the article (e.g., introduction, method, etc.) the information was in.

1. What is the research question?
2. How did the authors answer the research question? (Hint: You should be able to answer this question by reading the introduction of the paper.)
3. Do the authors make a hypothesis? If so, what is it?
4. What type of research method did the authors use?
5. Do you think the data collection method used in the study qualifies as naturalistic observation? Why or why not?
6. What was measured in the study and *how* was it measured? (Hint: Two things were measured; see the headings in the results and discussion section.)

7. How was the influence of alcohol examined in this study? (Hint: Read the method section carefully.)

8. What was the difference between the “control items” and the “misled items”?

9. What do the results shown in Figure 1 tell you about how social factors affect memory performance?

10. How did the “told alcohol” condition affect the subjects’ confidence in their memories?

11. Based on the results, what answer did the authors get to their research question?

12. What is the main piece of information learned by this study?

13. Based on what was learned, what real-world application does this study have?

5. You've probably heard a number of "sayings" or clichés that people use in American society. Many clichés that people use are statements about typical human behavior. In other words, they are actually informal hypotheses about human behavior. For example, the saying "Opposites attract" is really a hypothesis about what people are attracted to. In other words, a more formal hypothesis from this saying might be "People are more attracted to people who are dissimilar to them than to people who are similar to them."

Now, try this on your own. Choose one of the clichés listed below and restate it as a formal hypothesis. Then conduct a brief literature search to see if there is any empirical evidence to support this hypothesis.

Clichés

Absence makes the heart grow fonder.
Actions speak louder than words.
Blood is thicker than water.
Easier said than done.
Like father, like son.
Hell has no fury like a woman scorned.

One bad apple spoils the bunch.
Out of sight, out of mind.
Two heads are better than one.
You can't teach an old dog new tricks.
Every cloud has a silver lining.

- a. State the formal hypothesis for your cliché.