Chapter 2
Where to Start

Learning Objectives

- Discuss how a hypothesis differs from a prediction.
- Describe the different sources of ideas for research, including common sense, observation, theories, past research, and practical problems.
- Identify the two functions of a theory.
- Summarize the fundamentals of conducting library research in psychology, including the use of *PsycINFO*.
- Summarize the information included in the abstract, introduction, method, results, and discussion sections of research articles.

Brief Chapter Outline

I. Research Questions, Hypotheses, and Predictions
II. Who we Study: A Note on Terminology
III. Sources of Ideas
    A. Common Sense
    B. Observations of the World around Us
    C. Theories
    D. Past Research
    E. Practical Problems
IV. Exploring Past Research
    A. The Nature of Journals
    B. Online Scholarly Research Databases: PsychINFO
    C. Conducting a PsychINFO Search
    D. Science Citation Index and Social Sciences Citation Index
    E. Other Electronic Search Resources
    F. Internet Searches
        Google Scholar
        Evaluating Web Information
V. Anatomy of a Research Article
    A. Abstract
    B. Introduction
    C. Method

D. Results
E. Discussion
VI. Literature Reviews

Extended Chapter Outline

Please note that much of this information is quoted from the text.

I. Research Questions, Hypotheses, and Predictions

Researchers use **research questions** to identify and describe the broad topic that they are investigating, and then conduct research in order to answer their research questions. A **hypothesis** is a tentative idea or question that is waiting for evidence to support or refute it. Once the hypothesis is proposed, data must be gathered and evaluated in terms of whether the evidence is consistent or inconsistent with the hypothesis.

Where a research question is broad, and a hypothesis is more specific, a **prediction** is a guess at the outcome of a hypothesis. If a prediction is confirmed by the results of the study, the hypothesis is supported. If the prediction is not confirmed, the researcher will either reject the hypothesis or conduct further research using different methods to study the hypothesis. It is important to note that when the results of a study confirm a prediction, the hypothesis is only supported, not proven.

II. Who we Study: A Note on Terminology

The *Publication Manual of the American Psychological Association* (APA, 2010) allows the use of either *participants* or *subjects* when describing humans who take part in psychological research.

III. Sources of Ideas

A. Common Sense

One source of ideas that can be tested is the body of knowledge called common sense—the things we all believe to be true. Do “opposites attract” or do “birds of a feather flock together”? Asking questions such as these can lead to research programs studying attraction.

B. Observations of the World around Us

Observations of personal and social events can provide many ideas for research. The

curiosity sparked by one's observations and experiences can lead one to ask questions about all sorts of phenomena.

C. Theories

A **theory** consists of a systematic body of ideas about a particular topic or phenomenon. Theories *organize and explain* a variety of specific facts or descriptions of behavior. Theories *generate new knowledge* by focusing people's thinking so that they notice new aspects of behavior—theories guide people's observations of the world. Theories are usually modified as new research defines the scope of the theory.

D. Past Research

Becoming familiar with a body of research on a topic is perhaps the best way to generate ideas for new research. Because the results of research are published, researchers can use the body of past literature on a topic to continually refine and expand people's knowledge.

E. Practical Problems

Research is also stimulated by practical problems that can have immediate applications.

IV. Exploring Past Research

Before conducting any research project, an investigator must have a thorough knowledge of previous research findings. Even if the researcher formulates the basic idea, a review of past studies will help the researcher clarify the idea and design the study.

A. The Nature of Journals

In journals, researchers publish the results of their investigations. After a research project has been completed, the study is written as a report, which then may be submitted to the editor of an appropriate journal. The editor solicits reviews from other scientists in the same field and then decides whether the report is to be accepted for publication.

B. Online Scholarly Research Databases: *PsychINFO*

The American Psychological Association began the monthly publication of *Psychological Abstracts*, or *Psych Abstracts*, in 1927. The abstracts are brief summaries of articles in psychology and related disciplines indexed by topic area. Today, the abstracts are maintained in a computer database called ***PsychINFO***, which is accessed via the Internet and is updated weekly.

C. Conducting a *PsychINFO* Search

The exact look and feel of the system users will use to search *PsychINFO* will depend on the library website. Users' most important task is to specify the search terms that they want the database to use.

D. Science Citation Index and Social Sciences Citation Index

Two related search resources are the ***Science Citation Index*** (SCI) and the ***Social Sciences Citation Index*** (SSCI). These are usually accessed together using the ***Web of Science*** computer database. Both allow users to search through citation information such as the name of the author or article title. The SCI includes disciplines such as biology, chemistry, biomedicine, and pharmacology, whereas the SSCI includes social and behavioral sciences such as sociology and criminal justice.

E. Other Electronic Search Resources

The American Psychological Association maintains several databases in addition to *PsychINFO*. These include *PsycARTICLES*, consisting of full-text scholarly articles, and *PsycBOOKS*, a database of full-text books and book chapters. Other major databases include *Sociological Abstracts*, *PubMed*, and *ERIC* (*Educational Resources Information Center*).

F. Internet Searches

The most widely available information resource is the wealth of material that is available on the Internet and located using search services such as Google.

Google Scholar

Google Scholar is a specialized scholarly search engine that can be accessed via any web browser at http://scholar.google.com. When users do a search using Google Scholar, they find articles, theses, books, abstracts, and court opinions from a wide range of sources, including academic publishers, professional societies, online repositories, universities, and other websites.

Evaluating Web Information

Students' own library and a variety of websites have information on evaluating the quality of information found on the Internet. Some of the most important things to look for are:

- Is the site associated with a major educational institution or research organization?
- Is information provided on the people who are responsible for the site?
- Is the information current?
- Do links from the site lead to legitimate organizations?

V. Anatomy of a Research Article

A. Abstract

The **abstract** is a summary of the research report and typically runs no more than 120 words in length. It includes information about the hypothesis, the procedure, and the broad pattern of results.

B. Introduction

In the **Introduction section,** the researcher outlines the problem that has been investigated. Past research and theories relevant to the problem are described in detail.

C. Method

The **Method section** is divided into subsections, with the number of subsections determined by the author and dependent on the complexity of the research design. Sometimes, the first subsection presents an overview of the design to prepare the reader for the material that follows. The next subsection describes the characteristics of the participants. The next subsection details the procedure used in the study. Other subsections may be necessary to describe in detail any equipment or testing materials that were used.

D. Results

In the **Results section**, the researcher presents the findings, usually in three ways:

- First, there is a description in narrative form.
- Second, the results are described in statistical language.
- Third, the material is often depicted in tables and graphs.

E. Discussion

In the **Discussion section**, the researcher reviews the research from various perspectives. Do the results support the hypothesis? If the hypothesis has not been supported, the author should suggest potential reasons. What might have been wrong with the methodology, the hypothesis, or both? The researcher may also discuss how the results compare with past

research results on the topic.

VI. Literature Reviews

Articles that summarize the research in a particular area are also useful; these are known as **literature reviews**. For example, the journal *Psychological Bulletin* publishes reviews of the literature in various topic areas in psychology.

Innovative Instruction

Sample Answers for Activities

1. Think of at least five "commonsense" sayings about behavior (e.g., "Spare the rod, spoil the child"; "Like father, like son"; "Absence makes the heart grow fonder"). For each, develop a hypothesis that is suggested by the saying and a prediction that follows from the hypothesis. (Based on Gardener, 1988.)

   A proverb or commonsense saying is "opposites attract"—the general hypothesis is that people with very different personality traits are more attracted to one another than are people with similar characteristics. A specific prediction might be that dating couples in which one person is highly dominant and the other low on dominance will be more attracted to one another than couples in which both people are similar in dominance. A list of such proverbs may be found at this website: *http://www.corsinet.com/braincandy/proverb.html.*

2. Choose one of the hypotheses formulated in Activity Question 1 and develop a strategy for finding research on the topic using the computer database in your library.

   Students' answers will vary based on the selected hypothesis. Some students might create a list of key terms that they would use to find research studies. After that, students could perform a general search in the library's computer database using the proverb alone. Then, students could go through the search results and select articles that they think are related to the topic.

3. Theories serve two purposes: (1) to organize and explain observable events and (2) to generate new knowledge by guiding our way of looking at these events. Identify a consistent behavior pattern in yourself or somebody close to you (e.g., you consistently get into an argument with your sister on Friday nights). Generate two possible theories (explanations) for this occurrence (e.g., because you work long hours on Friday, you're usually stressed and exhausted when you get home; because your sister has a chemistry quiz every Friday afternoon and she's not doing well in the course, she is very irritable on Fridays). How

would you gather evidence to determine which explanation might be correct? How might each explanation lead to different approaches to changing the behavior pattern, either to decrease or increase its occurrence?

Students' answers will vary. Depending on the observable event that the student selects the method that he or she would use to explain this event would vary. It would be helpful to make a list of observations that would help one while he or she tries to explain it.

Activity: Psychological Abstracts

Have students choose a topic and then search for past literature using *Psychological Abstracts* or *PsycINFO*. They should write down or print information on the author, title, date of publication, and so forth on each article. Finally, they should try to track down one of the articles. This is a good time to point out how important it is to follow your library's procedures for photocopying articles and returning journals to the shelves; otherwise, it can be frustrating to search for articles that are missing. A possible handout for this exercise is included as Handout 1 in Part II of the instructor's manual.

Activity: Library Databases: Getting Information

For this activity, modify the following handout to fit a specific university library system. Instructors may also want to modify the introductions to fit with detailed instructions that fit with that system. Instructors can also modify the questions to pertain to your area as well.

Library Activity

To complete this assignment, you must use the _____ (this could be ERIC, PsychINFO, LUIS, APA Psych Articles, etc.) through _____ university system.

1. How many database entries are there with the keyword (key concept) *attachment*? _____

2. How many peer-reviewed journal articles have been published by someone with exactly the same last name as yours? _____

3. How many journal articles by *Philip Zimbardo* appear in the database? _____

4. How many journal articles by *David Buss* appear in the database? _____

5. How many database entries are there that have the word *persuasion* in the title? _____

6. How many database entries are there with the subject *schizophrenia* that were published in 2004? _____

7. Since March, 2009, how many journal articles are there with the keyword *depression*? _____

8. How many database entries have both *schizophrenia* and *depression* as keywords? _____

9. How many database entries have *depression* as a keyword but not *schizophrenia* as a keyword? _____

10. How many database entries have *discrimination* as a keyword and the word *social* in the journal title? _____

Adapted from A. Janowsky, University of Central Florida (2009)

Additional Discussion Topics

Discussion: Ref Works

Check with the university's library system and find out about its subscriptions to a system like ref works (or similar programs) that allow students to place the reference to an article they are selecting in a file that will self-generate APA format references for them. This is a handy tool that will allow students to keep track of articles they find relevant to their search and also allow them to generate a reference page that follows the APA format.

Discussion: Search Topics

If the classroom has a computer then open the university library catalogue and have students generate search terms. Use common psychological terms like "attachment" or "cheating" to generate thousands of hits, instructors can then help students narrow results by refining the search

terms.

Suggested Readings

Articles in the Handbook for Teaching Statistics and Research Methods (2nd ed.)

Ault, R. What goes where? An activity to teach the organization of journal articles. Pp. 230.

Cameron, L. & Hart, J. Assessment of PsycLit competence, attitudes, and instructional methods. Pp. 157-161.

Joswick, K. Getting the most from PsycLit: Recommendations for searching. Pp. 162-166.

Marmie, W. R. Using an everyday memory task to introduce the method and results sections of a scientific paper. Pp. 196-198.

Merriam, J., LaBaugh, R. T., & Butterfield, N. E. Library instruction for psychology majors: Minimum training guidelines. Pp. 154-156.

Poe, R. E. A strategy for improving literature reviews in psychology courses. Pp. 167-168.

Also recommended:

Connor-Greene, P. A. & Greene, D. J. (2002). Science or snake oil? Teaching critical evaluation of "research" reports on the internet. *Teaching of Psychology, 29,* 321–324.