

CHAPTER 2

RESEARCH IDEAS AND HYPOTHESES

CHAPTER OUTLINE

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Common Sources of Research Topics

Personal Interests and Curiosities

Casual Observation

Reports of Others' Observations

Practical Problems or Questions

Behavioral Theories

Pick a Topic in Which You Are Interested

Do Your Homework

Keep an Open Mind

Focus, Focus, Focus

Take One Step at a Time

2.2 SEARCHING THE EXISTING RESEARCH LITERATURE IN A TOPIC AREA

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Do Your Homework

Keep an Open Mind

Focus, Focus, Focus

Take One Step at a Time

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Using PsycINFO

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Find Suggestions for Future Research

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2.4 USING A RESEARCH IDEA TO FORM A HYPOTHESIS AND CREATE A RESEARCH STUDY

Characteristics of a Good Hypothesis

Logical

Testable

Refutable

Positive
Using a Hypothesis to Create a Research Study

KEY WORDS

applied research
basic research

primary source
secondary source

testable hypothesis
refutable hypothesis

LEARNING OBJECTIVES

1. Identify possible sources and use them to find a topic area for research.

All research begins with an idea. General ideas for research can come from many different sources. Unfortunately, beginning students often believe that getting an idea is very difficult, when, in fact, starting points for research are all around us. All that is really necessary is that you see the world around you from an actively curious perspective.

2. Define *applied research* and *basic research* and identify examples of each.

Research that is directed toward solving practical problems is often classified as applied research; in contrast, studies that are intended to solve theoretical issues are classified as basic research. Although these different kinds of research begin with different goals, they are both legitimate sources of research ideas and, occasionally, they can overlap. For example, a school board may initiate an applied study to determine whether there is a significant increase in student performance if class size is reduced from 30 students to 25 students. However, the results of the study may have implications for a new theory of learning. In the same way, a scientist who is conducting basic research to test a theory of learning may discover results that can be applied in the classroom.

3. Define *primary* and *secondary sources*, identify examples of each, and explain the role that each plays in a literature search.

A primary source is a firsthand report in which the authors describe their own observations. Typically, a primary source is a research report, published in a scientific journal or periodical, in which the authors describe their own research study, including why the research was done, how the study was conducted, what results were found, and how those results were interpreted. Some examples of primary sources include (1) empirical journal articles, (2) theses and dissertations, and (3) conference presentations of research results. In contrast, a secondary source is a secondhand report in which the authors discuss someone else's observations. Some examples of secondary sources include (1) books and textbooks in which the author describes and summarizes past research, (2) review articles or meta-analyses, (3)

the introductory section of research reports, in which previous research is presented as a foundation for the current study, and (4) newspaper and magazine articles that report on previous research.

4. Describe the process of conducting a literature search, including using an online database such as PsycINFO, and conduct a search to locate current published research related to a specific topic.

Although thousands of research articles in psychology are published every year, many tools are available to help you search through the publications to find the few that are directly relevant to your research topic. Most of these tools now exist as computer databases. A typical database contains about one million publications, or records, that are all cross-referenced by subject words and author names. You enter a subject word (or author name) as a search term, and the database searches through all of its records and provides a list of the publications that are related to that subject (or author).

5. Describe the differences between a full-text database and one that is not full-text, and explain the advantages and disadvantages of each in a literature search.

Some databases are full-text, which means that each record is a complete, word-for-word copy of the original publication. Other databases provide only a brief summary of each publication. Typically, the summary includes the title, the authors, the name of the journal or book in which the publication appears, a list of the subject words that describe the publication, and an abstract. Because a full-text database requires more space to store each item, it often contains fewer items than other databases. As a result, a database that is not full-text tends to provide more complete coverage of a topic area and, therefore, increases the likelihood that you will find publications related to your research topic.

6. Identify the basic sections of an APA-style research article, know what to expect in each section, and summarize and critically evaluate the content of each section for an existing article.

Every research article contains an introduction, a method section, a results section, a discussion section, and a reference list at the end of the paper. The introduction introduces the reader to the research topic, research question, and hypotheses. The method section gives a detailed account of the exact methods and procedures used in the study. The results section gives the reader a summary of the statistics used in the study, and whether or not they were significant. The discussion section puts the results in context, discusses the implications of the results, makes suggestions for future research in this area, and addresses any limitations of the study. The reference section is a list of all references used in the article and can be a handy tool for locating more research on a given topic.

7. Explain how an idea for a new research study can be obtained from an existing research publication and use existing research publication(s) to find a new research idea.

If you read critically and question each section of a research report, then you may discover a modification or an extension that will convert the current study into a new research idea. In

general, research is not static. Instead, it is constantly developing and growing as new studies spring from past results. New research ideas usually come from recognizing the direction in which an area of research is moving and then going with the flow.

8. Describe the characteristics of a good hypothesis and identify examples of good and bad hypotheses.

A good hypothesis is logical, testable, refutable, and positive.

Good hypothesis: For a specific group of students, higher levels of academic success will be related to higher levels of self-esteem.

Bad hypothesis: If people could fly, there would be substantially fewer cases of depression.

OTHER LECTURE SUGGESTIONS

1. Although the process of searching the literature using a database like PsycINFO appears very similar to the process of searching the Web (with which students are very familiar), students need to be warned against using the Web to find scientific references. On the Web, unlike with PsycINFO, there are no guarantees about the quality of the information and they will have to weed through so much junk that searching this way will not be worth it.
2. At many institutions, the reference librarians are happy to conduct workshops that teach students how to use the available databases. It can be useful to schedule a class period in the library early in the course so that all your students are familiar with the library databases and have some level of competence working with them.
3. Often students will think that they are doing something “wrong” when they type in a key word into a database and they get no hits. It is reassuring for students to hear that there are many reasons for an apparent inadequate literature—some of which they can do something about and some of which they cannot and need to move on. First, some of the potentially most interesting topics in psychology appear to have been little investigated. You may have stumbled on an area that no one has thought to investigate. On the one hand, you can be proud of yourself for this discovery; on the other, it will be impossible to develop a research project—move on. Second, the topic may not lend itself to scientific investigation—move on. Third, it may only appear that there is no material on your topic because you are not using the correct terms to search for information—use the Thesaurus and other articles to discover the correct search words. And fourth, it could appear that there is no material on your topic because you are not searching in the correct database—check the content of the database and utilize reference librarians.
4. Students commonly and erroneously equate primary source with a journal article and secondary source with a book. Emphasize that although lots of journal articles are primary sources, the key is that the article is an empirical, reporting of a study, article. There are other journal articles as well, review, theoretical, and meta-analyses. Similarly, not all books are secondary sources. An edited volume, where each chapter is written by the researcher(s) who

conducted the research, is a primary source.

5. It is very common for students to get frustrated during the literature review process. They will commonly perceive that they are wasting a lot of time as they take time to find items, only later to discover that they are not what they need. Reassuring students that a big part of the literature review process is a weeding-out process, is a helpful reminder. They are not doing anything wrong necessarily if they keep hitting upon dead ends. This is all part of narrowing down a topic area and finding an idea for a new research study.
6. In addition to the exercises and other activities presented at the end of the chapter, the following can be used as an in-class activity for this chapter.

Using PsycINFO as your database, do an “Advanced Search” restricting your “publication type” to peer-reviewed journal, and restricting your “methodology” to empirical study. Then find the following: (Note: The following list can be modified and updated regularly and we suggest that you use author names and publications taken from the faculty in your own department.)

- (a) What are the authors and title of the first article that appears with the subject word “parenting”?
- (b) Now narrow your search to mothers. What is the name and volume number of the journal for the first article that appears?
- (c) Using the subject words “adult” and “reading impairment,” list the first author and name of the journal article from July 2000.
- (d) What is the name of the journal for Dr. Susan Shonk’s 2001 publication?
- (e) What is the title of Dr. John Chelonis’ 2004 first authored publication?
- (f) According to the abstract, what were the findings of Dr. Marcie Desrochers’ 2001 experiment?
- (g) According to the abstract, what was the purpose of Dr. Stacy Birch’s 2004 experiments?
- (h) Access the full text for the article found in item (g). What is the eighth reference in the list of references at the end of the article? Provide the complete reference in APA-format (see Table 16.1 for reference).
- (a)

NOTES ON END-OF-CHAPTER EXERCISES

1. In addition to the key words, you should be able to define each of the following terms:

Literature search: This mass of published information is referred to as the literature. Your job is to search the literature to find a handful of items that are directly relevant to your research idea.

Subject words: Make a list of the correct terms, or subject words, used to identify and describe the variables in the study and the characteristics of the participants. Researchers often develop a specific set of terms to describe a topic area and it is much easier to locate related research articles if you use the correct terms.

Database: A typical database contains about one million publications, or records, that are all cross-referenced by subject words and author names.

Abstract: The abstract is a brief summary of the publication, usually about 100 words.

PsycINFO: PsycINFO is the American Psychological Association's (APA) definitive resource for abstracts of scholarly journal articles, book chapters, books, and dissertations. It is the largest resource devoted to peer-reviewed literature in behavioral science and mental health, and contains over three million citations and summaries dating as far back as the 1600s, with one of the highest DOI matching rates in the publishing industry.

PsycARTICLES: PsycARTICLES from the American Psychological Association (APA) is a definitive source of full-text, peer-reviewed scholarly and scientific articles in psychology. It contains more than 163,000 articles from more than 80 journals published by the APA, its imprint the Educational Publishing Foundation (EPF), and from allied organizations including the Canadian Psychological Association and the Hogrefe Publishing Group. It includes all journal articles, book reviews, letters to the editor, and errata from each journal.

Title: A concise statement of the content of a paper that identifies the main variables being investigated.

Introduction: The first major section of a research report, which presents a logical development of the research question including a review of the relevant background literature, a statement of the research question or hypothesis, and a brief description of the methods used to answer the question or test the hypothesis.

Method section: The section of a research report that describes how the study was conducted, including information about the subjects or participants and the procedures used.

Results section: The section of a research report that presents a summary of the data and the statistical analysis.

Discussion section: The portion of a research report that restates the hypothesis, summarizes the results, and presents a discussion of the interpretation, implications, and possible applications of the results.

Reference section: The section of a research report that lists complete references for all

sources of information cited in the report, organized alphabetically by the last name of the first author.

2. (LO1) Make a list of five general topic areas that interest you. For each, identify the source of ideas you used to come up with that topic.

Student responses to this question will vary considerably. This is a great exercise to get them excited and thinking about research, especially if a literature review or research proposal is a major portion of their assessment for your course.

3. (LO2) Based on the following descriptions of studies, determine whether each of the studies can be classified as basic or applied research.

(a) A researcher conducts a study to determine whether there is a significant increase in job satisfaction if employees can work from home one day a week.

This study can be classified as applied research since it seeks to provide a solution to the problem of low job satisfaction.

(b) A researcher initiates a study to determine whether students are more likely to complete assigned readings prior to class, if they are given an in-class quiz on the material.

This study can be classified as applied research since it seeks to provide a solution to the problem of students not completing reading assignments.

(c) A researcher develops a study to examine personality traits as a predictor of career success.

This study can be classified as basic research since it addresses a theoretical issue.

(d) A researcher conducts a study to determine whether parenting type is an explanation for the development of anxiety in children.

This study can be classified as basic research since it addresses a theoretical issue.

4. (LO3) Define *primary* and *secondary sources* and explain how each plays a role in the process of finding a research idea.

A primary source is a firsthand report of observations or research results written by the individual(s) who actually conducted the research and made the observations. A secondary source is a description or summary of another person's work, written by someone who did not participate in the research or observations discussed. Both primary and secondary sources play important roles in the literature search process. Secondary sources can provide concise summaries of past research. However, you should be aware that secondary sources are always incomplete and can be biased or simply inaccurate.

5. (LO4) Using PsycINFO (or a similar database), find five articles on the topic of preschool daycare and social anxiety. Print out a copy of the Record List page.

Student responses to this exercise will again vary, but this is a great assignment to give them to start them on the literature search process.

6. (LO4) Using PsycINFO (or a similar database), find research articles on how background music influences mood. Print out the Detailed Record (including the abstract) for one research article on this topic.

Student responses to this exercise will again vary, but this is a great assignment to give them to start them on the literature search process.

7. (LO4) Search in a current newspaper or on a news website and find one news story that is based on the results of a recent research study. Summarize the research result according to the story. Do you have any reason to doubt that this information is accurate?

8. (LO5) How does a full-text database differ from other databases?

Some databases are full-text, which means that each record is a complete, word-for-word copy of the original publication. Other databases provide only a brief summary of each publication. Typically, the summary includes the title, the authors, the name of the journal or book in which the publication appears, a list of the subject words that describe the publication, and an abstract. Because a full-text database requires more space to store each item, it often contains fewer items than other databases. As a result, a database that is not full-text tends to provide more complete coverage of a topic area and, therefore, increases the likelihood that you will find publications related to your research topic.

9. (LO6) List the five sections typically found in a research article, and describe briefly what each should contain.

The introduction discusses previous research that forms the foundation for the current research study and presents a clear statement of the problem being investigated.

The method section presents details concerning the participants and the procedures used in the study.

The results section presents the details of the statistical analysis and usually is not important for generating a new research idea.

The discussion typically begins by summarizing the results of the study, stating the conclusions, and noting any potential applications.

The reference list for the article includes the author name(s), the year of publication, the title, and the source of the article.

10. (LO7) Describe the three ways identified in the text to find or develop a new research idea from existing research report(s).

Find Suggestions for Future Research: The easiest way to find new research ideas is to look for them as explicit statements in the journal articles you already have. Near the end of the discussion section of most research reports is a set of suggestions for future research. Combine or Contrast Existing Results: Occasionally, it is possible to find a new research idea by combining two (or more) existing results. The Components of a Research Article—Critical Reading: Most ideas for new research studies begin with careful reading of past studies.

11. (LO8) Is the following hypothesis testable, refutable, and positive? Explain your answer.

Hypothesis: People who pray regularly are less likely to be injured in an accident.

This hypothesis is testable since it is possible to measure all of the variables involved. It is refutable because it is possible to obtain research results that are contrary to the hypothesis (e.g., the results could indicate that people who pray regularly are equally likely or even more likely to be injured in an accident). This hypothesis is positive because it makes a statement about the existence of a relationship between praying and injuries.

12. (LO8) Determine whether each of the following hypotheses is testable and refutable. If not, explain why.

(a) Young children can see good or evil auras surrounding the people they meet.

This hypothesis is not testable because good and evil auras cannot be observed and measured by researchers.

(b) A list of three-syllable words is more difficult to memorize than a list of one-syllable words.

This hypothesis is testable and refutable.

(c) The incidence of paranoia is higher among people who claim to be abducted by aliens than in the general population.

This hypothesis is testable and refutable.

(d) If atomic weapons were never invented, then there would be less anxiety in the world.

This hypothesis is not testable because a world in which atomic weapons had never been invented cannot be observed.

WEB RESOURCES

Literature Review Guidelines from the APA:

<http://www.apa.org/pubs/journals/gen/literature-review-guidelines.aspx>

APA Sample Paper from the Online Writing Lab at Purdue University:

<https://owl.english.purdue.edu/owl/resource/670/07/>

Trending Psychology Research Topics from the APA:

<http://www.apa.org/topics/>

Ideas for Research Papers from the University of Michigan–Flint

<http://libguides.umflint.edu/topics>

Scrivener is a writing studio software program that makes organizing, composing, and researching a streamlined process:

<http://www.literatureandlatte.com/scrivener.php>