



THIRD EDITION

Student Study Guide With IBM® SPSS® Workbook for

Research Methods, Statistics, and, Applications

Kathrynn A. Adams
Eva K. McGuire



**Student Study Guide
With IBM® SPSS® Workbook
for Research Methods,
Statistics, and Applications**

Third Edition

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PREFACE

The *Student Study Guide and IBM® SPSS® Workbook* is a companion for the textbook *Research Methods, Statistics, and Applications*. Students can use the study guide and workbook as a self-guided tool to reinforce and apply concepts from the textbook, or it can be used as an in-class or in-lab workbook, or both. Professors also may wish to assign exercises from the study guide and workbook as homework.

In the textbook, we included in-chapter practice and applications. The study guide and workbook provides students with additional opportunities to review, practice, and apply essential knowledge and skills related to research methods and statistics.

Whereas many study guides repeat information from the textbook, we designed the study guide and workbook to supplement, rather than supplant, the textbook, and therefore we keep chapter summaries very brief. Additionally, the study guide and workbook goes beyond the textbook by including step-by-step directions for using the data analysis program, IBM® SPSS®, interpreting output, and writing up results.

Many study guides focus on recognition and recall of material, and we acknowledge that gaining basic knowledge is an essential initial step in the learning process. We provide students with recognition activities via multiple-choice quizzes at the beginning of each study guide chapter, with the answers appearing immediately afterward so that students can easily check their understanding of basic concepts. Additionally, we include review exercises to encourage deeper processing by having students recall, rather than merely recognize, key terms.

A unique feature of this study guide and workbook is that it encourages students to build on their foundational knowledge. The majority of the exercises require students to think critically and actively engage with the material. These application exercises require more effort and involvement than recognition or recall tasks. Such exercises encourage students to make meaningful connections and are more likely to have enduring effects on their understanding and retention of research processes. Additionally, most chapters of the study guide include a “Your Research” exercise so that students can apply key terms and concepts to their own research projects.

Chapters in the *Student Study Guide and IBM® SPSS® Workbook* contain the following sections:

- Learning Objectives
- Chapter Summary
- Chapter Quiz
- Chapter Exercises
- Your Research

Learning Objectives are listed at the beginning of each chapter in both the textbook and the study guide and workbook. The learning objectives are designed to help students reorient to the textbook chapter. Moreover, a reminder of the learning objectives encourages students to consider what they have learned and what areas require additional review.

The **Chapter Summary** provides students with a very brief overview of the material covered in the textbook chapter. Like the learning objectives, the summary is designed to reorient the students to the textbook chapter.

The **Chapter Quiz** includes 10 multiple-choice questions. It is designed to be a review of key concepts. Answers are provided directly following the quiz to ensure that students adequately understand key concepts before going on to the chapter exercises, which require deeper processing and application.

The **Chapter Exercises** match the organization of the textbook chapters and are designed to help students achieve the learning objectives. The exercises designated as “Review” require students to recall key terms and concepts. The exercises designated as “Application” go beyond simple definitions and require students to apply key terms and concepts. These application exercises lend themselves particularly well to in-class or in-lab activities and discussion, especially when students are required to complete the fill-in-the blank sections prior to class or lab.

Students: Instructors have access to the answer keys.

Instructors: You can download the complete answer keys via the Instructor’s Resource page on the textbook website and then share with your students as you see fit. There are also answer keys for only the odd-numbered answers. Some professors find it useful to provide all or half the answers to students ahead of time so that they may check their own work. Other professors assign study guide exercises as graded or ungraded homework assignments or use the exercises in class and do not wish the students to have advance access to the answers. We have found assigning exercises from the study guide as ungraded homework (checked simply as complete or incomplete) helps to ensure students come to class prepared and with good questions about the material. We then share the answers during or after class.

In the **Your Research** section, students apply key concepts and skills from the chapter to a research topic of their choice. We have found that encouraging students to think about and develop their own area of research promotes deeper understanding and integration of the material. The exercises in this section may be used as homework assignments, and they are especially useful in classes that require a semester- or year-long research project. Having students consider how different concepts apply to a topic of their choice can also be useful in the absence of such a requirement. The questions about the research project are worded to apply to a great range of topics that might be selected by students or professors. In addition, the format allows students to compare their responses when working as a group on a research project.

The **IBM® SPSS® Workbook** provides step-by-step directions for data analysis and interpretation. There are practice exercises to help students gain competence using the program, interpreting output, and writing up results. As with the chapter exercises, instructors have online access to the answer keys. The workbook is designed for students brand new to SPSS. We also hope that it will be a useful resource that students can keep and refer to should they use the program in future coursework, graduate programs, or careers.

New to this edition: For the third edition, the IBM® SPSS® Workbook is a separate section divided into five parts. We believe this will make finding the directions for specific analyses easier, and students can easily refer back to the workbook throughout their academic careers and beyond. The workbook organization matches the guidelines on selecting statistical analyses and includes similar flowcharts found in the final chapter of the textbook, “Putting it all Together”. We also provide directions to an alternative data analysis program, jamovi, on the Instructor Resource site.

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THINKING LIKE A RESEARCHER

LEARNING OBJECTIVES

- Explain the connection between thinking critically and thinking like a researcher.
- Describe the scientific approach, including the challenges and benefits of taking a scientific approach.
- Outline and synthesize the steps of the research process.
- Identify and apply ethical principles and standards.
- Formulate a big picture of the nature of science and how science progresses.

CHAPTER SUMMARY

Students in the social and behavioral sciences are often curious about personal and social phenomena, and learning about research methods and statistics will give you the tools necessary to engage your curiosity on a deeper level. Critical thinking is key to research, and researchers put critical thinking to action throughout the entire process of carrying out a research study. Additionally, researchers think by taking a scientific approach. You are encouraged to consider why the scientific approach is important and to consider the scientific method as a process rather than a list of steps that must be followed in order. A complete overview of the research process from start to finish is included in this chapter. The goal is to introduce you to key concepts in the context of the overall scientific process, and later chapters detail the steps and concepts in more depth.

The next part of the chapter focuses on ethics. The chapter provides a brief history of ethical violations that led to the development of current ethics codes. Key ethical principles and standards are discussed, and you are encouraged to consider how ethical standards help to uphold broader ethical principles. The chapter ends with a discussion of proof and progress in science, debunking the notion that any single study leads to proof and, instead, encouraging you to consider how multiple studies move the field forward.

CHAPTER 1 QUIZ

Test your knowledge of the key terms from the chapter.

1. Which of the following might be a variable in a study?
 - a. male
 - b. participants
 - c. gender
 - d. method

2. Circle the two key characteristics of a testable hypothesis:
 - a. It is based on past research or theory
 - b. It is unique and completely original
 - c. It can be proven
 - d. It can be disproven
3. If you were to test if the flavor of ice cream impacts motivation, flavor of ice cream is the
 - a. independent variable
 - b. dependent variable
 - c. quasi-experiment
 - d. hypothesis
4. What is the dependent variable from question 3?
 - a. ice cream
 - b. motivation
 - c. participants
 - d. flavor
5. Which of the following research designs is best able to demonstrate causation?
 - a. descriptive research
 - b. correlational research
 - c. quasi-experimental research
 - d. experimental research
6. The Institutional Review Board helps ensure that a study
 - a. meets the requirement for a class
 - b. is well written
 - c. shows causation
 - d. adheres to ethical principles and standards
7. _____ represents the ideals, whereas _____ are the specific rules designed to uphold those ideals.
 - a. Ethical principles; ethical standards
 - b. Ethical standards; ethical principles
 - c. Ethics codes; ethic review boards
 - d. Ethic review boards; ethic codes
8. In the 1960s, Stanley Milgram conducted several studies on obedience in which an experimenter ordered participants to administer increasingly powerful shocks to a “learner.”

The participants learned afterward that the “learner” was a confederate who was working with the experimenter and was never actually shocked. In other words, Milgram included _____ but not _____ in his study.

 - a. informed consent; debriefing
 - b. debriefing; informed consent
 - c. confidentiality; informed consent
 - d. confidentiality; debriefing

9. When the participants in Milgram's obedience studies asked to stop, the experimenter ordered them to continue. This violates the ethical standard of
 - a. confidentiality
 - b. the right to withdraw
 - c. informed consent
 - d. noncoercive incentives
10. Which of the following must be a part of all research studies?
 - a. informed consent
 - b. debriefing
 - c. confidentiality
 - d. anonymity

Quiz 1 Answer Key

1. c 2. a, d 3. a, d 4. b 5. d 6. d 7. a 8. b 9. b 10. c

CHAPTER 1 EXERCISES

Achieve the learning objectives of the chapter by reviewing and applying key concepts.

Exercise 1.1: Critical Thinking

Learning Objective: Explain the connection between thinking critically and thinking like a researcher.

Review

1. List the similarities between thinking critically and thinking like a researcher

2. How is thinking like a researcher a unique type of critical thinking?

Application: Think critically about the information you have received about this research methods course and consider how you might gather new evidence to evaluate such information.

1. Identify one thing you heard about this class: _____

2. Who or what was the source of this information? _____

3. What biases might this source have? _____

4. What additional evidence would help you evaluate the information, and how might you go about gathering this evidence?

Exercise 1.2: The Scientific Approach

Learning Objective: Describe the scientific approach, including the challenges and benefits of taking a scientific approach.

Review

Which of the following are associated with the scientific approach?

- | | | |
|---------------|-------------------|-----------------------------|
| a. complexity | b. advice | c. improved decision making |
| d. comfort | e. knowledge base | f. gut reaction |
| g. method | h. belief | i. minimizing bias |

Application

1. Recall a time that you made a decision or responded to a friend or family member based on personal beliefs or personal experiences rather than taking a scientific approach. Briefly outline that situation.

2. How might you have instead taken a scientific approach? What would be the benefits and challenges to taking a scientific approach in this situation?

Exercise 1.3: The Research Process (Aka the Scientific Method)

Learning Objective: Outline and integrate the steps of the research process.

Review

1. The steps in the scientific method are

Step 1: _____

Step 2: _____

Step 3: _____

- Step 4: _____
- Step 5: _____
- Step 6: _____
- Step 7: _____

2. Replace the crossed out words to summarize how the steps are synthesized within the scientific method:

The steps are NOT...	The steps ARE...
about proof	about _____
linear	_____
isolated	_____

Application A: Choose a research design

1. Circle the questions that can be examined with an experiment:
 - a. Do students who participate in college sports study more or less than students who do not participate in college sports?
 - b. Can political campaigns raise more money using negative campaign ads?
 - c. Are attractive people perceived as more or less intelligent than not-so-attractive people?
 - d. How do individuals perceive their local police department?
 - e. Does exposure to violence increase risk of heart disease?
 - f. Do people high in the personality trait narcissism take more “selfies” than those low in this trait?
 - g. Is humanity becoming more or less violent?
 - h. Can daily statements of gratitude improve one’s well-being?
2. For those questions you identified in question 1 that *could* be examined with an experiment, identify the independent and dependent variable.

3. For those questions you identified in question 1 that could *not* be examined with an experiment, identify the most appropriate type of research to help answer the question.

Application B: Communicate Without plagiarizing

The following excerpt was taken directly from Cash and Whittingham (2010, p. 180):

We found that Nonjudge, the ability to refrain from judging one’s own cognitions, emotions, and bodily sensations, predicted lower levels of depression, anxiety, and stress. Furthermore, Act-aware, the ability to maintain awareness of daily activities, predicted lower levels of depression.

Imagine that three students summarized this excerpt. Consider whether each student plagiarized Cash and Whittingham (2010) and explain your answer.

Student 1

Cash and Whittingham (2010) found that Nonjudge, the ability to refrain from judging one’s own cognitions, emotions, and bodily sensations, predicted lower levels of depression, anxiety, and stress. Furthermore, Act-aware, the ability to maintain awareness of daily activities, predicted lower levels of depression.

_____ plagiarism or _____ not plagiarism
because _____.

Student 2

Cash and Whittingham (2010) found that participants who were most aware during their daily activities reported few symptoms of depression and those who were most accepting of their own thoughts, feelings, and sensations reported fewer symptoms of both depression and anxiety.

_____ plagiarism or _____ not plagiarism
because _____.

Student 3

“Nonjudge, the ability to refrain from judging one’s own cognitions, emotions, and bodily sensations,” and “Act-aware, the ability to maintain awareness of daily activities,” are linked to improved mood.

_____ plagiarism or _____ not plagiarism
because _____.

Exercise 1.4: Thinking Critically About Ethics

Learning Objective: Identify and apply the ethical principles and standards of your discipline.

1. In the Stanford prison experiment (Zimbardo, 1972), some participants assigned to be guards acted cruelly toward the participants assigned to be prisoners. Some of those assigned to be prisoners became depressed and withdrawn. Identify and explain one ethical principle this experiment violated (there are multiple answers).

2. A researcher wants to observe interactions in a social media group. The group members are anonymous, and the group is open, in that anyone can log on and view conversations. Imagine you are a member of the Institutional Review Board. List three questions that you think are most important to ask and identify why each is important, based on ethical principles and standards.

3. A researcher wants to investigate the relationship between depression and exposure to neighborhood violence, which includes hearing gunshots, witnessing verbal abuse, witnessing a physical assault, or witnessing a murder. The researcher plans on recruiting adult participants at various community meetings and then asking them to complete a questionnaire. Imagine you are a member of the Institutional Review Board. List three questions that you think are most important to ask and identify why each is important, based on ethical principles and standards.

Exercise 1.5: The Big Picture: Proof and Progress in Science

Learning Objective: Formulate a big picture of the nature of science and how science progresses.

1. A study found that mindfulness training was effective in reducing stress. Does this prove that mindfulness is an effective stress-reduction strategy? Explain.

2. Research consistently demonstrates the effectiveness of mindfulness in reducing stress. What might we conclude?

3. What might be some of the next steps we take to examine the relationship between mindfulness training and stress?

4. If someone asked you how science helps us understand something, how might you answer?

Check with your professor for answers to the chapter exercises.

Your Research

Take a Scientific Approach to Identify a Research Topic

1. Identify a topic that interests you: _____
2. Come up with a list of 7–10 questions on this topic. Try to build these questions from textbooks, research articles, or previous coursework, but you can also include a few questions based on observations or experiences.
 - a. _____
 - b. _____
 - c. _____
 - d. _____
 - e. _____
 - f. _____
 - g. _____
 - h. _____
 - i. _____
 - j. _____
3. Now evaluate your list and cross out or modify any that
 - are biased, in that you think you already know the answer.
 - are not testable (you cannot disprove them).
 - necessitate equipment or a population to which you do not have easy access.
 - do not fit the criteria, if any, laid out by your professor (e.g., your professor may require you to do an experiment, and not all questions can be experimental).
4. What questions remain? These might serve as a good starting point. Keep in mind that your research question will change as you read more research in this area.

2

BUILD A SOLID FOUNDATION FOR YOUR STUDY BASED ON PAST RESEARCH

LEARNING OBJECTIVES

- Distinguish types of sources by author, purpose, content, and utility.
- Apply strategies for identifying and finding past research.
- Evaluate primary research articles.
- Format citations and references in APA style.
- Formulate a big picture of how to build on past research.

CHAPTER SUMMARY

Chapter 2 focuses on finding and evaluating past research on a topic. The chapter is designed to help you discern different sources, including the difference between primary and secondary sources, the difference between scholarly and popular sources, and the various types of scholarly work that you might find in an academic journal (i.e., primary research articles, literature reviews, and commentaries) as well as other scholarly sources (conference papers and posters, unpublished manuscripts, books, theses and dissertations, etc.). You also learn the various ways to search for relevant research.

How to read and evaluate primary research articles is another major focus of this chapter. The key sections of a primary research article are outlined, and their purpose discussed. An article on the topic of academic achievement is used to illustrate the different parts of a research article, and finding and referring to this article will greatly enhance your understanding of key concepts. Specific guidelines for citing and referencing sources are provided. The chapter ends with a discussion of building on past research and some specific strategies for doing so.