PART I

PREPARING FOR DATA ANALYSIS

Chapter 1 Introduction: The Theory and Practice of Social Research

Chapter 2 The Logic of Measurement

Chapter 3 Description of Data Sets: The General Social Survey

In the opening chapters, we introduce you to computerized data analysis, the logic of social science research, and the data you will be using throughout this text.

In Chapter 1, we begin by looking at how and why social scientists use computers and computer programs. Then, we introduce you to the two main pillars of social research: logic and observation. We will demonstrate how theory—the *logic* component—informs our investigations, makes sense out of our *observations*, and sometimes offers predictions about what we will find. We will also touch on another important aspect of research: the collection and analysis of data, such as those collected in a survey.

In Chapter 2, we delve more deeply into one central component of scientific inquiry: measurement. We look at some of the criteria for measurement quality and start examining the kinds of measurements represented by the data at hand.

In Chapter 3, we introduce you to the data you will be using throughout the text. The data come from the 2018 General Social Survey (GSS). The GSS reflects the attitudes of a representative sample of American adults on a variety of issues, from religion, politics, abortion, and child-rearing to the mass media, sex, law enforcement, and immigration.

INTRODUCTION

The Theory and Practice of Social Research

Social research is the detective work involved in answering big questions. Whereas a conventional detective tries to find out who committed a specific crime, a social researcher looks for the causes of crime in general. The logic of social scientific investigation extends beyond crime to include all aspects of social life, such as careers, marriage and family, voting, health, prejudice, environment, and poverty. In fact, anything that is likely to concern you as an individual is the subject of social science research.

OVERVIEW

The purpose of this book is to lead you through a series of investigative adventures in social research. We can't predict exactly where these adventures will lead because you are going to be the detective. Our purpose is to show you some simple tools (and some truly amazing ones) that you can use in social investigations.

We'll also provide you with a body of data, collected in a national survey, that is so rich you will have the opportunity to undertake investigations that no one else has ever pursued.

If you have access to a computer that uses a recent Microsoft Windows or Mac OS configuration and IBM SPSS Statistics (or the even the older temporarily branded PASW, Predictive Analytics Software), this book and the website associated with it (https://edge.sagepub.com/babbie11e) contain everything you need for a wide range of social investigations.[1] The website is designed specifically for exploring data by way of a fascinating computer game. Instead of fighting off alien attacks or escaping from dank dungeons, you'll be pitting your abilities and imagination against real life, but you'll be looking at a side of life that you may not now be aware of.

This tool is also well designed to aid in the creation of college term papers, and throughout this book, we suggest ways to present the data you discover in the context of a typical term paper in the social sciences. Whereas most students are limited in their term papers to reporting what other investigators have learned about society, you will be able to offer your own insights and discoveries.

Finally, the data set included on the website is being analyzed by professional social scientists today. Moreover, the analytical tools that we've provided for you are as powerful as those used by many professional researchers. Frankly, there's no reason you can't use these materials for original research worthy of publication in a research journal. All it takes is curiosity, imagination, practice, and a healthy obsession with knowing the answers to things. In our experience, what sets professional researchers apart from others is that they have much greater curiosity about the world around them and, in fact, are passionately driven to understand it. They bring a powerful imagination to bear on this task, and they are willing to put in the time necessary for effective investigation.

WHY USE A DATABASE?

As do physical scientists, social scientists use observations of the empirical world to develop and evaluate theories. Much of the social scientist's work involves ascertaining whether logically derived relationships expressed in social theories correspond to empirically observed relationships among social data. For instance, a theory may suggest that Catholics are more opposed to abortion than are non-Catholics, but we don't have scientific evidence until we poll Catholics and non-Catholics and evaluate their differences on abortion. To have confidence in our findings, we must poll a large number of people for their positions on abortion and their religious preferences. And for sure, we probably would feel that any explanation of difference was incomplete until other factors, such as each respondent's gender, age, social class, and so forth, were included. We don't have to stretch our imagination very far to realize that even simple research can soon generate a large mass of data, given the number of cases and variables that we need to provide credible evidence for or against a theory.

Given the sheer number of observations commonly made by social scientists, researchers need to use a database to take into account all relevant data in their research. The full 2018 General Social Survey (GSS) data file we have included with this book, for example, contains more than 1,000 variables for 2,348 individuals. Initial analysis of the data requires that they be sorted, categorized, and recategorized before statistics may be computed for them. With more than 2.3 million data points available for use, we clearly need to use a database to complete a meaningful analysis this semester!

SPSS STATISTICS

Today, the two statistical packages most widely used by social scientists are ***SPSS Statistics*** (originally known as the Statistical Package for the Social Sciences and temporarily branded as ***PASW Statistics*** for version 18; since 2009, IBM SPSS Statistics) and ***SAS (Statistical Analysis System***).[2] We have selected SPSS Statistics for use with this textbook for three reasons. First, early versions of SPSS date back to 1968. The package is well known, and hardly any social scientists who have earned a graduate degree in the past 50 years have not had some contact with SPSS. Second, SPSS takes you through all of the basic issues of using a statistical package. This knowledge will give you a head start if you learn some other package later. Finally, recent versions of SPSS Statistics are suitable for computers running current and recent versions of Microsoft Windows. There are also versions available for Apple Macintosh computers running current and recent versions of Mac OS.

The SPSS Statistics Base is sold as the basic package. Then, if the buyer wishes, it can be upgraded with powerful statistical accessories, all of which are beyond the scope of this book. You can think of it like a car: The base price includes basic features, and then, you can add options or like a great sound system and high-performance tires (or "packages" that include additional groups of equipment and upgrades for the car). Other upgraded software packages include SPSS Professional and—the ultimate model—SPSS Premium.

SPSS also offers two packages specifically designed for students: SPSS Statistics Student Version (offered through version 18 and from versions 22 through 27 but discontinued for version 28) and SPSS Statistics Graduate Pack. Although both versions are also available for use with Windows or Macintosh computers, they differ in terms of their capabilities. Unlike the SPSS Statistics Base system or the SPSS Statistics Graduate Pack, the ***SPSS Statistics Student Version*** is limited to a maximum of 50 variables and a maximum of 1,500 cases; this version cannot be upgraded, and at the time of publishing, we are told that the student version will no longer be produced or supported going forward. The student version has fewer statistical procedures but has most of the procedures that will ever be needed by an undergraduate social science major or a master's-level graduate student, so it is sufficient to use in tandem with this book. If you do happen to be using a student version, you will need to reduce the number of cases to 1,500 and the number of variables to 50. We will make a file available on the study website associated with this book, but please remember that your output will differ slightly from the output presented in the book, mainly because your sample sizes will be different; results may vary slightly, as well, by using only a subsample: 1,500 from over 2,300.

The SPSS Statistics Graduate Pack contains the SPSS Statistics Base system plus two advanced statistical modules. The graduate pack is commonly available at college and university bookstores. You can learn more about IBM SPSS Statistics and the various versions that are available by visiting the company's online store at https://www.ibm.com/analytics/us/en/technology/spss.[3] IBM may change the configurations or offerings of these packages or modules in the future, so be sure to check the website for the latest details.

While having a copy of SPSS Statistics on your personal computer is convenient, you may not need to purchase the software to complete the exercises in this book. Most colleges and universities offer SPSS Statistics to their students through the school's network. More recently, client/server desktop application technology has been adopted at some colleges and universities. With this technology, your school can provide you with client software (e.g., Citrix) and settings to put on your personal Windows or Macintosh computer. You will then be able to run the university's version of SPSS Statistics from its server through your computer's desktop application as though the software were directly installed on your computer. Of course, you will need to remain connected to the Internet, and a high-speed connection is required for this software to be useful. More recently, some colleges and universities have begun to offer "virtual computing labs" where you can control a computer in the "lab" from your own desktop. You can then use any software on that computer. Typically, SPSS is among the software available on lab computers, but if not, be sure to contact your institution's help desk to ask for it to be installed. Check with your school's IT (information technology) office to see if these remote capabilities are available to you. Other universities may offer temporary student licenses for enrolled students, where students are granted a temporary license to install a copy of the base software on their own personal computer without any charge.

SOCIAL RESEARCH: A PRIMER

This book addresses the techniques of social science data analysis. Thus, we're going to be spending most of our time using SPSS Statistics to analyze data and reach conclusions about the people who answered questions in the General Social Survey (GSS), as described in more detail in Chapter 3.

Data analysis, however, doesn't occur in a vacuum. Scientific inquiry is a matter of both observing and reasoning. Consequently, before focusing on SPSS Statistics, let's take a few minutes to consider some of the central components of social science research. We will begin here by looking at the role of theory in conjunction with the social research process. In the following chapter, we will turn our attention to another fundamental aspect of scientific inquiry: measurement. The goal is not to make you an expert in the social research process but to give you the background necessary to master the techniques of data analysis presented in the remainder of this book.[4]

CONCEPTS AND THEORIES: DEPRIVATION THEORY

Given the variety of topics examined in social science research, no single, established set of procedures is always followed in social scientific inquiry. Nevertheless, data analysis almost always has a bigger purpose than the simple manipulation of numbers. Our larger aim is to learn something of general value about human social behavior. This commitment lies in the realm of theory. A primary goal of social scientific research is to examine the various concepts that constitute our knowledge of the social world and then develop them into theories that help us explain, understand, and make sense of the social world.

Concepts are general ideas or understandings that form the basis of social scientific research. Some of the social scientific concepts with which you are familiar might include social class, deviance, political orientations, prejudice, and alienation. The most useful concepts describe variations among people or groups. When thinking about social class, for example, we might distinguish the upper class, middle class, and working class, while the concept of prejudice leads us to consider those who are more prejudiced and those who are less prejudiced.

A ***theory*** is a statement or set of statements describing the relationships among concepts. Theories provide explanations about the patterns we find in human social life. Developing social theories is a

matter of discovering causal relationships between concepts, and we start to develop a theory by asking questions that help us begin to investigate those causal relationships. Examples of such questions include, "Does education reduce prejudice?" "Does gender affect how much people are paid?" "Are minority group members more liberal than majority group members?" and, "Are women more religious than men?" As for the last question, American social research has consistently shown that women are more religious than men, and the key concepts in that observed pattern are religiosity and gender. Because one of the subjects we are going to examine in this textbook is religiosity, we will begin with an example of a theory deriving from the sociology of religion.

The sociologists Glock, Ringer, and Babbie[5] developed what they called the deprivation theory of church involvement. Having asked why some church members participated more in their churches than did others, the researchers' analyses led them to conclude that those who were deprived of gratification (e.g., money, prestige, power, opportunities, and freedom) in secular society would be more likely to be active in church life than would those who enjoyed the rewards of secular society. In this case, the concepts under examination are deprivation, gratification, and church involvement. Some people are more deprived of gratification than others, and some people are more religiously involved than others. The research question is to find out if the degree to which people are deprived of secular gratification is somehow related to their degree of religious involvement.

Deprivation theory offers a plausible explanation of how the concepts of deprivation and religious involvement are related. It gives us a possible explanation—a theory—to help us make sense of why some people are more religious or more active in church than others. In this form, however, the concepts are too general for us to be able to test the theory empirically. Before we can test a theory, we must take the additional step of creating hypotheses. Unlike theories, well-developed hypotheses posit relationships between variables that are specific enough to permit testing.

In short, while theory is an important starting point in social science research, the empirical relationships predicted by the theory must be tested. To do that, we shift our focus from relationships between concepts to relationships between variables and, therefore, from theories to hypotheses.

VARIABLES AND HYPOTHESES: RELIGIOSITY

Variables are empirical indicators of the concepts we are researching. Variables, as their name implies, have the ability to take on two or more values. For instance, people can be classified in terms of their gender (male or female) or religious involvement (involved or not involved). When we identify empirical indicators for our concepts, they become variables.

A ***hypothesis*** is a statement of expectation derived from a theory that proposes a relationship between two or more variables. Specifically, a hypothesis is a tentative statement that proposes that variation in one variable "causes" or leads to variation in the other variable. We put *cause* in quotes here because more than a simple association is needed to attribute cause. To be a cause, a related variable must (among other requirements) precede the dependent variable in time and not be related to some other variable that is also related to the dependent variable. A ***dependent variable*** is the variable you are trying to explain (e.g., church involvement or religiosity), while an ***independent variable*** is the variable hypothesized to "cause," lead to, or explain variation in another variable (e.g., gender). We'll explore this further in Chapter 17.

Table 1.1 illustrates the differences between theories and hypotheses. Theories specify relationships between concepts in the world of ideas, while hypotheses specify expected relationships between variables in the world of empirical experiences.

Also, please note that relationships such as the one predicted in the hypotheses in Table 1.1 are ***probabilistic***, meaning that people displaying certain characteristics will have a higher probability of exhibiting certain behaviors but are not guaranteed to exhibit those behaviors. For example, Hypothesis B says that women, as a group, will have a higher average level of religious participation than will men, as a group. This does not mean that all women are more involved in religion than any men. It does mean, however, that if we asked men and women whether they attend church every week, a higher percentage of women than of men would say yes, even though some men would say yes, and some women would say no. That is the nature of probabilistic relationships.

TABLE 1.1 ⬢ Concepts, Theories, Variables, and Hypotheses

World of Ideas	Concepts
	1. Secular deprivation
	2. Religious involvement
	Theory: The more people experience secular deprivation, the more likely they will be religiously involved.
	Variables representing dimensions of secular deprivation
	a. Age
	b. Gender
	c. Socioeconomic status
World of Experiences	**Hypotheses**
	a. As people get older, their religious participation increases.
	Independent variable: Age
	Dependent variable: Religiosity
	b. Women will have greater religious participation than will men.
	Independent variable: Gender/sex
	Dependent variable: Religiosity
	c. The lower your income, the more likely you will be to participate in religious activities.
	Independent variable: Income
	Dependent variable: Religiosity

As Table 1.2 demonstrates, each variable contains two or more ***categories***, which are defined as the specific attributes that make up a variable. For instance, the categories of the variable *gender* are *male* and *female*, while the categories of the variable *social class* may be *upper class*, *middle class*, and *working class*.

TABLE 1.2 ⬢ Variables and Categories

Variables	Categories
Gender	Female
	Male
Religious involvement	Involved
	Not involved
Party identification	Democrat
	Independent
	Republican
Social class	Upper class
	Middle class
	Working class

The categories of each variable must meet two requirements: They should be both exhaustive and mutually exclusive. By ***exhaustive***, we mean comprehensive enough that it is possible to categorize every observation using those categories. Imagine, for instance, that you are conducting a survey, and one of your variables is religious affiliation. In order to measure respondents' religion, you devise a question that asks respondents simply, "What is your religion?" Let's say you give respondents only three choices: Protestant, Catholic, and Jewish. While most Americans would identify with one of these religious traditions, the categories certainly are not exhaustive. Muslims and Hindus, among others, would not find any of these categories to be descriptive of their traditions. To correct this problem, we would have to add more traditions, an "other" category, or both so that all respondents could fit themselves into at least one category. Moreover, we'd want a "none" category for those with no religious affiliation.

Mutually exclusive means every observation must fit into only one category. For instance, if we asked people for their religious affiliation and gave them the choices of Christian, Protestant, Catholic, and Jewish, then the categories would not be mutually exclusive since Protestants and Catholics would see themselves as being in the Christian category as well.

SOCIAL RESEARCH STRATEGIES: INDUCTIVE AND DEDUCTIVE

After developing a hypothesis, a researcher may decide to design and conduct a scientific study to test whether there is a relationship, such as the one proposed between gender and church involvement. Social scientists generally approach research in one of two ways: inductively or deductively.

In the previously mentioned study by Glock, Ringer, and Babbie, the researchers employed an ***inductive research*** strategy. First, they collected data regarding people's religious involvement and gender. After they completed their observations, they examined the data and constructed a theory to explain the relationships found among the variables.

An alternative and somewhat more common approach is ***deductive research***. Unlike inductive research, which begins with data collection, deductive research begins with social theory. A specific hypothesis is then deduced from the theory and tested to discover whether there is evidence to support it. To continue our example, the deprivation theory suggests that people who lack secular gratification will be more involved in religious activities. From that, we could derive the hypothesis that persons of lower socioeconomic status will attend church more often than will those of higher socioeconomic status. We could then collect data about people's socioeconomic status and church attendance and examine the data to see whether lower-status people really do attend church more than higher-status people. This would be considered deductive research because we began with the theory and tested a hypothesis with data.

Perhaps the simplest way to distinguish between inductive and deductive research approaches is by where they begin and end. While inductive research begins with data analysis and then moves to theory, deductive research begins with theory and then proceeds to data analysis and before returning to theory again. More simply, deduction can be seen as reasoning from general understandings to specific expectations, whereas induction can be seen as reasoning from specific observations to general explanations.

You can see, then, that whether an inductive or a deductive approach is used, the social research process involves many steps or stages.

Inductive Research

1. Collect data.
2. Analyze data.
3. *Induce* a theory to account for data.

Deductive Research

1. Find or formulate a theory.
2. *Deduce* hypotheses to test theory.
3. Collect data.
4. Analyze data.
5. Evaluate hypotheses.

While, in practice, the process of social research is not nearly as linear as these steps suggest, you can see that whether a researcher employs a deductive or an inductive strategy, the goal is always the same: to develop theories that help us explain, make sense of, and understand human social behavior.

The possible topics for exploration are, as you can imagine, endless. Whereas some social researchers are interested in understanding religiosity, others are interested in issues such as spousal abuse, child abuse, violence in schools, unemployment, political party identification, poverty, alcoholism, drug addiction, health care, crime, malnutrition, overpopulation, governmental corruption, and so on. The problems and issues of concern to social scientists are as manifold and complicated as human beings themselves. Despite the diversity of these questions and concerns, what connects social scientists is the belief that if used properly, the techniques and process of social science research can help us examine and begin to understand these complicated issues. Only when we understand what causes these problems, how they come about, and why they persist will we be able to solve them.

While the primary focus of this book is on one stage of the social research process—data analysis—we hope this book will inspire you to take some time to reflect on which of the many problems in contemporary life interest you. What issues or questions are you passionate about? What social problems or issues would you like to examine, understand, and potentially address?

THEORY AND RESEARCH IN PRACTICE

Now that we have focused a little on the relationship between theory and the social research process, let's examine some of the theoretical work that informs two of the many subjects we are going to analyze together in this book: political orientations and attitudes toward abortion.

Example 1: Political Orientations

One of the more familiar variables in social science is political orientation, which typically ranges from liberal to conservative. Political orientation lies at the heart of much voting behavior, and it also relates to a number of nonpolitical variables that you are going to discover for yourself shortly.

Each concept or variable we deal with in social research may have different aspects, which we call ***dimensions***. Three commonly examined dimensions of political orientation are (1) social attitudes, (2) economic attitudes, and (3) foreign policy attitudes. Let's examine each dimension briefly.

Some specific social attitudes and related behaviors might include abortion, same-sex marriage, and capital punishment. Let's see where liberals and conservatives generally stand on these issues:

Issue	Liberals	Conservatives
Abortion	Permissive	Restrictive
Same-sex marriage	Permissive	Restrictive
Capital punishment	Opposed	In favor of

In terms of economic issues, liberals are generally more supportive than conservatives of government programs such as unemployment insurance, welfare, and Medicare and of government economic regulation such as progressive taxation (the rich being taxed at higher rates), minimum-wage laws, and regulation of industry. By the same token, liberals are likely to be more supportive of labor unions than are conservatives.

Example 2: Attitudes Toward Abortion

Abortion is a social issue that has figured importantly in religious and political debates for years. The GSS contains several variables dealing with attitudes toward abortion. Each asks whether a woman should be allowed to get an abortion for a variety of reasons. The following list shows these reasons, along with the ***abbreviated variable names*** you'll be using for them in your analyses later on.

Abbreviated Variable Name	
ABDEFECT	Because there is a strong chance of a serious defect
ABNOMORE	Because a family wants no more children
ABHLTH	Because the woman's health would be seriously endangered
ABPOOR	Because a family is too poor to afford more children
ABRAPE	Because the pregnancy resulted from rape
ABSINGLE	Because the woman is unmarried
ABANY	Because the woman wants it, for any reason

Before we begin examining answers to the abortion attitude questions, it is worth taking a moment to reflect on their logical implications. Which of these items do you suppose would receive the least support? That is, which will have the smallest percentage of respondents agreeing with it? Think about that before continuing.

Logically, we should expect the smallest percentage to support ABANY because it contains all the others. For example, those who would support abortion in the case of rape might not support it for other reasons, such as the family's poverty. Those who support ABANY, however, would have to agree with both of those more specific items, plus all the rest.

Three of the items tap into reasons that would seem to excuse the pregnant woman from responsibility:

Abbreviated Variable Name	
ABDEFECT	Because there is a strong chance of a serious defect
ABHLTH	Because the woman's health would be seriously endangered
ABRAPE	Because the pregnancy resulted from rape

We might expect the highest percentages to agree with these items. We'll come back to this issue later to find out whether our expectations are correct.

When we analyze this topic using data, we will discover useful ways of measuring overall attitudes toward abortion. Once we've done that, we'll be in a position to find out why some people are generally supportive of abortion rights and why others are generally opposed.

CONCLUSION

This book has two educational aims. First, we want to share with you the excitement of social scientific research. You are going to learn that a table of numerical data, which may seem pretty boring on the

face of it, can hold within it the answers to many questions about why people think and act the way they do. Finding those answers requires that you learn some skills of logical inquiry. Second, we will show you how to use a computer program that is popular among social scientists: SPSS Statistics. It's the tool you will use to unlock the mysteries of society, just as a biologist might use a microscope or an astronomer might use a telescope.

Before getting started using SPSS Statistics, however, it is important that you have at least an initial appreciation for social research. In this chapter, we have focused in particular on the relationship between theory and the social research process. This examination will continue throughout the book. While most of our attention will focus on the skills involved in analyzing data, we will always want to make logical sense out of what we learn from our manipulations of the numbers. Measurement is a fundamental topic that bridges theory and research, so we turn our attention to that topic next.

Main Points

- The main purpose of this text is to introduce you to the logic and practice of social scientific research by showing you some simple tools you can use to analyze real-life data.
- Social and behavioral scientists' use of computer programs has evolved over many years because of the need to analyze large amounts of data.
- SPSS Statistics is a widely used, state-of-the-art statistical software program that will take you through all of the basics of using any sophisticated statistical package.
- A theory is a general statement or set of statements that describes and explains how different concepts are related to one another.
- A hypothesis is a tentative statement of expectation derived from a theory.
- A hypothesis proposes a relationship between two or more variables (independent and dependent variables) that can be tested by researchers employing scientific methods.
- The categories of variables must be both exhaustive and mutually exclusive.
- When a social scientist proceeds from theory to hypothesis development, data collection, and data analysis, the process is called deductive research.
- When a social scientist moves from data collection to data analysis and then induces a general theory based on those observations, the process is called inductive research.
- Theoretical work informs all of the subjects we are going to analyze in this book and, indeed, all of questions and issues of relevance to social scientists.

Key Terms

Abbreviated variable names 10
Categories 7
Concepts 5
Deductive research 8
Dependent variable 6
Dimensions 9
Exhaustive 8
Hypothesis 6
Independent variable 6
Inductive research 8
Mutually exclusive 8
PASW Statistics 4
Probabilistic 6
SAS (Statistical Analysis System) 4
SPSS Statistics 4
SPSS Statistics Student Version 4
Theory 5
Variable 6

Review Questions

1. What are the two statistical packages most widely used by social scientists today?
2. Which of the versions of SPSS Statistics described is the least powerful in terms of the number of cases and variables it can handle? (Hint: It was discontinued by IBM after SPSS/PASW version 18, prior to its renaissance with version 22 and then discontinued once again after version 27.)
3. Which version of SPSS Statistics is the most powerful in this regard?
4. What version (or versions) of SPSS Statistics are you using?
5. Name two tasks for which one could use a statistical package, such as SPSS Statistics.
6. What is the primary goal of social scientific research?
7. Name two social scientific concepts.
8. What is the relationship between theories and hypotheses?
9. Complete the following statement: Theories are to concepts as hypotheses are to _____ _____.
10. Does a hypothesis propose a relationship between dimensions or variables?
11. The categories of each variable should meet what two requirements?
12. What, if anything, is the problem with the following categories of the variable *political views*: liberal and moderate? If there is a problem, how might you correct it?
13. What, if anything, is the problem with the following categories of the variable *political perspective*: liberal, Democrat, Republican, and conservative? If there is a problem, how might you correct it?
14. Construct a hypothesis based on the deprivation theory of church involvement using level of education as your independent variable.
15. List the categories of the variables you used to construct your hypothesis in response to Question 14.
16. Construct potential hypotheses to relate the following concepts, and identify the independent and dependent variable in each hypothesis. In addition, list the categories of each variable.

    Age and health

    Race and attitude toward affirmative action

    Gender and income
17. Which of the following is not a dependent variable: grade point average, church attendance, age, or number of children?
18. Which of the following is not a variable: occupation, amount of television viewing, female, or education level?
19. Consider the following hypothesis: People who earn more than $70,000 a year are more likely to vote Republican than people who earn less than $70,000 a year. Does this mean that all people who earn more than $70,000 a year vote Republican? Why, or why not?
20. Is the following statement true or false? A researcher who begins by collecting data and then develops a theory to explain their findings is engaged in deductive research.
21. A researcher formulates a hypothesis based on the "magic bullet theory" and then selects independent and dependent variables to test this hypothesis. What process is the researcher engaged in?
22. A researcher collects data on the spread of AIDS in the United States and then, based on their findings, develops a theory to explain why the rate of exposure and infection to the disease is higher among certain racial and ethnic groups than among others. In what process is the researcher engaged?

Notes

1. Earlier versions of SPSS Statistics for Windows or Macintosh may be used, but some of the instructions, procedures, and screens may be somewhat different from those in this book. For more details about specific computer and operating system requirements for various versions and configurations of SPSS, visit the IBM SPSS website: https://www.ibm.com/analytics/us/en/technology/spss.
2. While SPSS originally stood for and is still most commonly referred to as Statistical Package for the Social Sciences, SPSS Inc. recently said it had "updated

the meaning of the letters to more accurately reflect the company and its products. Today, SPSS stands for 'Statistical Product and Service Solutions.'" The PASW acronym stood for Predictive Analytics Software, and after SPSS Inc. became part of IBM in 2009, it was determined that the brand would become IBM SPSS Statistics, referred to as SPSS Statistics for short.

3. Throughout this book, we suggest various websites you may find useful. Keep in mind, however, that the World Wide Web is constantly changing. For this reason, some websites and online content referred to may no longer be available. If particular websites are no longer available, try using a search engine to find the information you need.
4. If you are thinking about designing a research study or just want to learn more about the process and practice of scientific inquiry, you may find the discussion in this book's last two chapters and accompanying appendices a useful starting point. You may also want to browse through the Reference section on the student study website at https://edge.sagepub.com/babbie11e for citations of texts that focus on the nature of social scientific inquiry, designing a research project, and other important aspects of the research process.
5. Glock, C. Y., Ringer, B. B., & Babbie, E. R. (1967). *To comfort and to challenge: A dilemma of the contemporary church*. Berkeley: University of California Press.