CHAPTER TEN

Survey Design: Asking Questions

cial action; intergenerational leadership development; and nutrition, health and mental health.

—Children's Defense Fund, 2012

Toddlers quickly learn that when there is information they would like to know, one of the easiest tools at their disposal is the "question." They ask lots of questions because, unlike adults, they are unburdened with presumptions about knowing the answers. They know they don't know; therefore they are insatiable askers of questions. A disciplined researcher can learn a lot from toddlers, especially their willingness to question things that most people take for granted. Too often we ignore or dismiss that voice inside that has a question. That voice is a researcher's antennae. If we can learn to listen to it, we will never be without a research question. This chapter is about questioning—specifically it is about survey design. The chapter covers the various types of surveys and questionnaires. It also explains the common pitfalls that present themselves during the survey process, how they can affect your research, and how to avoid them.

The Joint Center for Political and Economic Studies conducted an investigation of African Americans' attitudes about social security and retirement savings. The study found that African Americans and White Americans had some similar and different attitudes about social security and retirement policies. Leigh and Wheatley (2010) surveyed 850 African Americans and 850 members of the general public; 721 Whites were surveyed. African Americans were more likely than Whites to expect social security to be their major source of income after retirement (Leigh & Wheatley, 2010). African Americans were more likely than Whites to support the social security system as it is, believe that its benefits should be means-based, and

Activity 1

- Based on the Children's Defense Fund's description of its Freedom Schools program, if you were to create an index measuring the effectiveness of the Freedom School program's summer school enrichment, what *dimensions of summer school effectiveness might you measure?*

Activity 2

- Based on the stated goals of the Freedom School program in the United States, develop six Likert-type items to assess the effectiveness of Freedom Schools. Keep in mind that your items will be completed by students between the ages of 9 and 12 who are currently enrolled in the Freedom Schools program. Your items should measure their attitudes about their Freedom School experience based on the goals of the Freedom Schools program.

Activity 3

Imagine that the following questions and others were asked of Freedom Schools students to assess the effectiveness of the program. Explain whether or not each of the following questions has face validity and content validity.

- What did you enjoy most about the readings you had in the Freedom Schools program?
- Does participating in Freedom Schools make you enjoy reading more than you did before you were in Freedom Schools?
- Does participating in Freedom Schools make you feel better about America?

think that the retirement age should not be raised. Such survey data would be important for any interest groups concerned with formulating and advocating a public policy agenda that would benefit African Americans.

But what are surveys? A **survey** is a tool for collecting data from individuals called respondents by having them respond to items (questions and statements). It is the most widely used data collection technique in the social sciences. You have likely been asked to participate in a survey at some point(s) in your life. It involves asking a relatively large sample of people questions regarding a variable over a short period of time and analyzing the results to describe a situation (Babbie, 2001). Surveys have the following characteristics:

- Surveys are best suited to large populations; thus, their strength is their generalizability or their ability to produce data that are representative of large populations that are difficult to study using other methods.
- Surveys involve presenting respondents with a series of questions related to a given topic or variable. Survey data represent peoples' answers to those questions.

Exhibit 10.1

Poll on Daily Twitter Usage

"The number of adults using Twitter every day has doubled since 2011, according to a new survey. Eight percent of adult Internet users said they log on to Twitter every day, up from the 4% who said the same last year, according to the Pew Research Center, which conducted the survey. That number was even higher for young adults. One in five Internet users ages 18 to 24 are using the website each day, and nearly one-third of all users that age are on Twitter. The reason for the increase in daily usage is likely because of the rise of smartphones, the survey suggests. "Those ages 18-24 are not just the fastest growing group when it comes to Twitter adoption over the last year," the survey reads. "They also experienced the largest increase in smartphone ownership of any demographic group over the same time period." The survey shows that 20% of smartphone users are also Twitters users while those who own basic phones are half as likely to use Twitter. The bad news for Twitter, however, is its overall adult usage did not pick up by much. Last year, 13% of adults on the Internet were using Twitter. That number went up to only 15% in the latest results. Another interesting fact from the survey is African Americans use Twitter twice as much as other ethnic groups. More than a quarter, 28%, of black Internet users are on Twitter as opposed to Hispanic, 12%, and white Internet users, 14%." (Rodrigez, 2012)

—From the *LA Times* website, May 31st, 2012

- Surveys are not well suited for research on topics that people are unaware of or unwilling to share information about (Neuman, 2009).
- Surveys are an effective tool for analyzing the attitudes and opinions of large populations that are not easily accessible.
- Surveys are best suited to descriptive, explanatory, and exploratory purposes.

Surveys are most effective when they are used to investigate topics that people are able and willing to report on. However, it is important to remember that surveys measure what people say about their thoughts, opinions, and behaviors. Surveys do not directly observe those thoughts, attitudes, and behaviors; rather, it is indirect. For example, a survey on people's dietary habits might indicate that a respondent consumes 2,000 calories per day, but we cannot conclude that this is exactly how much that person consumes. Surveys involve what people say they do, not what they do indeed (Monette, Sullivan, & DeJong, 2005). Instead, we can infer that this is how much they consume based on what they have said.

A poll is a certain kind of survey. If you follow the news (*The Washington Post*, CBS, CNN, Fox News, etc.) you will hear reports of many different poll results. Opinion polls are shorter than most surveys; they take place over a shorter period of time and cover current issues. Exhibit 10.1 explains the results of a Pew Research Center Poll on changes in Twitter usage.

The Survey Process

It is first important to determine whether or not the survey method is the most appropriate method to help you answer your research question. Neuman (2009) identifies several steps in the survey process.

The beginning of the survey process consists of identifying who the respondents will be for your study, since this will have an influence on the topic and vice versa. The researcher must also select the research population best suited to providing the information necessary to answer the research question. In step one, the researcher must also identify what he or she wants to know from the respondents or research participants. Knowing what you eventually want to be able to say is essential in the development of questions.

Once the researchers have identified the population and purpose of the study, they can begin to develop items (questions or statements) related to the topic. It is important to look for questionnaires developed by other researchers that may be helpful. The researcher should anticipate going through the process of writing and re-writing questions and statements until the items are as clear and precise as possible. It is essential to pilot the survey or to conduct a preliminary trial run of the

survey questionnaire. To do this, the researcher administers the survey to a sample population similar to the target population. What the researcher wants to know from the pilot research participants is whether or not the items (questions or statements) were clear, whether or not their answer choices were sufficient, and whether or not they interpreted the questions and statements the way the researcher intended them to. As a result of the feedback a researcher gets from the pilot survey, she may want to rephrase or reformat the survey to improve it.

The next step is actually carrying out the survey, which involves contacting the population and explaining to them how the survey must be completed. The researcher has to record all of the respondents' responses and prepare the data to be analyzed statistically. The last steps in the survey process involve analyzing the data, reporting, and presenting the results.

Practical Function of Surveys

A bank may survey its employees to assess employee job satisfaction. Coordinators of an after-school reading program for youth may be interested in measuring its effectiveness. The coordinators might do this by surveying its youth members. A hospital office may distribute an outpatient survey to assess how well it has served patients. A health education intervention program may distribute a survey to assess any changes in its participants' dietary habits. Surveys can be crucial instruments in the formation and improvement of organizations interested in becoming agents of social change or delivering critical services to different populations.

Two Means of Collecting Survey Data

Survey data are collected using two major tools: questionnaires and interviews. **Questionnaires** consist of questions meant for research participants or subjects to respond to without being read by the interviewer. Questionnaires can be distributed to respondents in person or they can be mailed. Questionnaires can also be distributed to participants via the Internet—by email, for example. **Interviews** involve an interviewer reading questions to respondents and recording respondents' answers.

Constructing Survey Items

The term *questionnaire* can be misleading in some respects because actual questionnaires often contain more than questions; they contain statements as well. In fact, instead of using the term *question*, the term **item** is used to refer to both questions and statements. **Questions** are requests for information and end with a ques-

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tion mark. **Statements** are sentences or phrases designed to gather information about a respondent. They are used when researchers want to measure the extent to which a respondent holds a particular attitude or opinion. Instead of asking a question, the researcher can develop a statement that embodies a particular attitude or belief, present it to a respondent, and ask the respondent to indicate the extent to which he or she agrees or disagrees with it. For example, McGee (1996) developed the Violent Victimization Survey to assess the extent of violent victimization and psychological trauma among students at predominantly Black high schools. The instrument (survey) contains questions, but it also contains statements. Here are some of the statements in the Violent Victimization Survey using an agreement scale (SD = strongly disagree, D = disagree, A = agree, and SA = strongly agree):

My neighborhood is a safe place to live.	SD (1)	D (2)	A (3)	SA (4)
There is a lot of violence in this school.	SD (1)	D (2)	A (3)	SA (4)
When I am in school I am scared most of the time.	SD (1)	D (2)	A (3)	SA (4)

Of course these are not questions; they are statements. However, they can also be posed in the form of questions:

Is your neighborhood a safe place to live?	Yes	No
Is there a lot of violence in this school?	Yes	No
When you are in school are you scared?	Yes	No

Ultimately, using both questions and statements diversifies a survey and keeps respondents engaged. In survey research, researchers can pose open- or closed-ended items. **Open-ended items** are statements or questions that give respondents the opportunity to provide their own answers. An example of an open-ended question can be found in Exhibit 10.2.

Exhibit 10.2

In your opinion what is the most important challenge facing the Black community?
_____
_____
_____

Exhibit 10.3

Advantages and Limitations of Open-Ended Items

Advantages

- All possible answers are permitted
- Make it possible for unanticipated findings to emerge
- Permit sufficient answers to complex issues
- Allow respondents to express themselves in their own words
- The respondents thought process is revealed
- They are useful for exploratory research

Disadvantages

- Time consuming for the researcher to administer and analyze the data
- Require more effort from the respondent
- Highly articulate and literate respondents have an advantage
- Respondents may give irrelevant or unclear answers
- Comparison is difficult

Exhibit 10.4

Advantages and Limitations of Closed-Ended Items

Advantages

- Quicker and easier for respondents to answer
- Answers are easier to code, process and statistically analyze
- Respondents are more likely to respond to sensitive questions
- Respondents' answers are clear
- Suitable for less literate and less articulate respondents
- Answers are easier to compare
- Make it easier to replicate research

Disadvantages

- Loss of spontaneity in respondents answers
- Respondents with no opinion or knowledge may provide invalid answers
- They may suggest answers that respondents would not have thought of
- Respondents desired answers may not be available
- Respondents may be forced to give simplistic answers to complex issues
- Respondents may be forced to make choices they may not have to make in the real world

Open-ended items, however, do place additional burdens on the respondent, and the researcher should be aware of that. Open-ended items in a survey also require a greater level of verbal skill on the part of research participants, who must express their attitudes and opinions. See the advantages and limitations of closed ended items in exhibit 10.3. Open-ended items can also be very tedious for the researcher who must sometimes read hundreds of different open-ended answers and analyze them, which takes quite a bit of time. They are best when used on small populations (fewer than 200 people) and with a short number of items (fewer than 20). Open-ended questions are good for exploratory studies when the researcher is pursuing a topic that there is little research on and little theoretical development about. In these kinds of studies it is best to place few restrictions on respondents' answers.

Closed-ended items are statements or questions designed to provide respondents with a fixed set of response options, often multiple choices. See the advantages and limitations of closed-ended items in exhibit 10.4. Closed-ended items are often preferred because they are uniform, which makes them easy for the researcher to analyze. However, the researcher must be sure to use closed-ended items when all the possible response options can be anticipated in advance. For example, there are a known number of response options to a question such as "What is your marital status?" Therefore, it is suitable for a closed-ended response format such as:

a. married
b. single
c. separated
d. divorced
e. widowed
f. engaged
g. annulled
h. cohabitating

The challenge of closed-ended responses is that researchers may not anticipate all of the possible responses that respondents may want to choose from. When this happens, respondents may be forced to choose an answer that is not the best reflection of their attitudes. For example, the researcher may ask the question, "In your opinion, what is the most important challenge facing the Black community?" using a closed-ended format. If this happens, the fixed response options may not include options such as "lack of educational resources" or "joblessness." In some

cases it is appropriate to pose partially open-ended items. For example, the researcher might be interested in knowing a respondent's religious affiliation and include the following item in a survey:

What is your religious affiliation?
a. Protestant Christian
b. Roman Catholic
c. Evangelical Christian
d. Jewish
e. Muslim
f. Hindu
g. Buddhist
h. Other: _____

This item is *partially* open-ended because, although we may be able to anticipate the religions that have large numbers of people affiliated with them, there are likely to be individuals who affiliate with a less-known and less-popular religion. In this case the researcher can offer an open-ended "other" option that allows a respondent to write in a less-common response to the question. This accommodates persons with less-common views instead of leaving them without a response option. Monette, Sullivan, and DeJong (2005) suggest that educated respondents may become dismayed with completely closed-ended instruments because they are overly simplistic ways of addressing complex issues. However, open-ended questions are often seen by respondents as more satisfying and make respondents more likely to complete the instrument.

It is important for a researcher to think about the type of question that is being asked. What follows is a discussion of three additional types of questions.

Factual items are those questions or statements that have a definitive answer. These questions ask respondents for objective information. Factual questions are questions such as: "Are you a vegetarian?" or "Do you eat meat?" Factual questions are also those that ask respondents about their income levels, their educational levels, or their ages. Factual questions often require dichotomous "yes/no" response formats or other closed-ended response formats.

Opinion items are questions or statements that don't have definitive answers. Opinion-based questions often ask respondents for their attitudes or their beliefs, such as their political attitudes or their religious beliefs. Opinion-based questions often require Likert-type response formats and open-ended response formats.

Vignette Questions

The **vignette question** is a technique that is used to investigate people's normative standards. The vignette approach involves presenting respondents with one or more scenarios, then asking them how they would respond if they were confronted with the circumstances in that scenario (Bryman, 2008). Brown and fellow researchers (2011) designed a study to assess "differences in the perceptions of depression of Black African and White British women that may influence lower detection and to investigate whether there are ethnic group differences in reasons for not seeking formal help" (p. 362). Participants in this study were presented with the following vignette:

You have been feeling unusually sad and miserable for the last few weeks. Even though you are tired all the time, you have trouble sleeping nearly every night. You don't feel like eating and have lost weight. You can't keep your mind on your work and put off making decisions. Even day-to-day tasks seem too much for you. This has come to the attention of your boss who is concerned about your lowered productivity. (Brown et al., 2011, p. 364)

Respondents were asked to imagine themselves as the character in the vignette, and then they were asked to answer several questions. The purpose of the study was to assess the participants' own illness perceptions. Participants were asked to respond to the situation of the vignette character. They were asked to answer questions such as: "How much do you think treatment can help these difficulties?" "How long do you think these difficulties will continue?" "How concerned are you about these difficulties?" "How well do you understand these difficulties?" Vignette questions are very helpful when researching sensitive issues because it creates a distance between the person and the question. This is because the questions are about other people (characters in the vignette) and not the respondents themselves.

Avoiding Problems in Asking Questions: The Rules of Item Construction

CLARITY: Items should have one and only one interpretation. A question such as "What is your income?" may seem simple and unambiguous. However, this question is not as clear as it could be. Respondents needs to know whether or not you are asking about their monthly, weekly, or annual income. Item ambiguity is a threat to the validity of a survey because you will get responses from respondents

who have interpreted items in different ways. Consider the question "What do you think about the president's comments about Iran?" Such a question simply provokes another question: "Which comments and when?" Ambiguous wording also leads to lack of item clarity. A question such as "Do you eat fast food regularly?" is likely to be met with another question, "What is meant by 'regularly'?" If you mean "once a day" or "once a week," use those specific terms in the question instead.

DOUBLE-BARRELED QUESTIONS: Sometimes a researcher can pose an unfair question to respondents by requiring them to provide one answer to a question with two or more parts. Double-barreled questions occur when you ask more than one question and only allow for one answer. Consider the following item, "I cry over the slightest thing and my mood changes from day to day. ○Agree or ○Disagree." Some people would agree with this statement; others would disagree. However, how will people answer whose mood changes from day to day, but they don't cry over the slightest thing? These individuals might skip the question or provide a misleading answer. The solution to the double-barreled question is simply to ask one question at a time.

RESPONDENTS MUST BE COMPETENT TO ANSWER: Respondents should not be expected to provide answers to questions about which they don't have any knowledge. You might ask respondents to identify the age at which they were first punished for misbehaving. Outside of the issue about what counts as punishment, they are not likely to accurately remember when they were first punished. As such, it would not make sense to ask respondents about the functioning of iPads if they have never used one. If you were researching a sample population that is in elementary school grades 4–5, it would not be a good idea to ask them to self-report their grade point averages (GPAs) because they are not likely to be knowledgeable about them. Instead, with parental consent, you could get their GPAs from school administrators. If you ask young children for their GPAs, they are likely to leave the question blank or take a guess, which would invalidate your data.

ITEMS MUST BE RELEVANT TO RESPONDENTS: It is important for the researcher to avoid asking respondents to provide information on issues that they haven't thought about or don't care about (Babbie, 2001). When an item is not relevant to a respondent, it helps to offer response options such as "I don't know," "undecided" or "no opinion."

NEGATION: The problem with items that use the word "not" is that respondents can easily miss that word and answer in the opposite way from the way you intended. If the word "no" is used in an item, it is important to use bold, underline or

italicize it, or use all caps in order to be sure that the word "no" is recognized. For example, when reading the statement "Congress should not approve more funds for health care and social assistance," some respondents are likely to miss the word "not." If they believe that Congress should approve the new stimulus package, they are likely to agree with this statement. If you use the word "not," be sure that the word appears in boldface, is underlined or italicized, or is printed in capital letters so that the word is recognized. For example, "Congress should **not** approve more funds for health care."

THREATENING/INSENSITIVE LANGUAGE: There is a reason why questionnaires ask people if they have been convicted of a crime instead of whether or not they are criminals, or what their income level is instead of whether they are rich or poor. It is important to avoid insensitive, threatening, and judgmental language. For example, the researcher should avoid outdated ethnic or racial terms as well as insensitive language to describe a particular sexual orientation. Such questions can lead respondents to provide misleading answers or to refuse to answer at all.

LENGTH OF ITEMS: If you are researching a complex phenomenon, it is tempting to create items that are very long. This should be avoided, and items should be short and concise. Respondents are often unwilling to do a lot of reading. Wordiness can discourage them from completing a survey. Respondents often want to answer questions quickly and may simply skim long items and answer them without a complete understanding. The researcher should be sure to provide short and clear items. Concise items are least likely to be misinterpreted.

JARGON: It is important for the researcher to avoid using sophisticated language or technical jargon. The researcher has the responsibility of keeping the language in a survey at the level of the respondents. Plumbers use puller kits, fitting brushes, and snakes; bankers speak of junk bonds, bearer bonds, and convertible bonds; psychologists speak of memetics. This kind of language should be avoided in the design of questions. You would not ask respondents, "Do you favor or oppose an increase in the *excise* of tobacco *consumption?*" Instead you would ask, "Do you favor or oppose an increase in taxes on cigarettes?" If you wanted to assess the degree of homework difficulty for a group of fifth-grade students, you would not ask them, "Do you feel *overwhelmed* with the homework you get?" "Overwhelmed" is too sophisticated a word. The researcher's objective is to be sure that participants understand the questions being asked. You wouldn't ask a student, "Do you feel alienated by the curriculum in your classes?" You would ask, "Do you feel that you can relate what you are learning to your personal life?" Simple language is always the best approach. The researcher should generally keep the wording at the eight-grade level.

BALANCE AND SYMMETRY: A researcher must maintain balance and symmetry between items and response options. Sometimes a researcher will design a survey with an imbalance of negatively or positively worded items. If a survey is attempting to assess the level of violence in people's neighborhoods, you might find that the majority of their items are negatively worded such that a respondent is asked:

- Have you witnessed someone being physically attacked in your neighborhood?
- Do you consider your neighborhood to be a "violent neighborhood"?
- Have you ever witnessed someone being robbed in your neighborhood?
- Are you afraid to be outdoors in your neighborhood?

These are primarily negatively worded items; they are not very balanced. The researcher should add more positively worded items to such questions. There should be questions such as, "Do you consider your neighborhood to be a safe neighborhood?" and "Do people in your neighborhood show concern for one another's safety?" Moreover, there should also be balance and symmetry among the response options for survey items. You should not write in a survey "Please indicate on a scale from 1 to 5 how violent you feel your neighborhood is," 1 being not violent and 5 being very violent." Instead, write "Please indicate on a scale from 1 to 5 how safe or violent you feel your neighborhood is." You should not have an item with the following response format:

1. I believe that being Black is a positive experience.
   Strongly Disagree   Disagree   Undecided   Agree

This response format is skewed or unsymmetrical because it presents the respondent with more opportunities to disagree with this statement than to agree. It suggests that the researchers are less interested in responses that indicate positive feelings about Blackness. Instead, it should offer the respondent a balanced set of response options such as:

1. I believe that being Black is a positive experience.
   Strongly Disagree   Disagree   Undecided   Agree   Strongly Agree

LEADING QUESTIONS: The researcher should always avoid leading questions. Some questions appear to be leading respondents to answer in a certain way. For example, "Would you agree with raising taxes on cigarettes even though doing so might result in a reduction in cigarette-industry donations to early childhood education?" The problem with such a question is that it appears to be leading the respondent toward disagreement. Consider the following question: "Did you vote for your fel-

low African American presidential candidate Barack Obama in the presidential election?" Although the researcher is interested in knowing how the respondent voted, the item is leading the respondent to respond by saying "yes." Dishonest researchers who want to manipulate the results of a survey use leading questions. The researcher's goal should be to construct a survey in which respondents don't know what answer the researcher would prefer and feel completely free to provide the answer that best represents how they think.

SOCIAL DESIRABILITY BIAS: This occurs when respondents attempt to give answers that present themselves in a positive light or conform to social norms. For example, if you ask people whether or not they are racist, they are likely to say "no" because being a racist is something that most people know is not socially desirable, even if they are racist. Therefore, it is important for the researcher to be sure to let the respondent know that there are no preferred answers. It is also helpful to phrase questions so that the atypical answer doesn't seem to be undesirable. According to Neuman (2009), "The National Election Survey asked about voting in the following way to reduce the social desirability bias: 'In talking to people about elections, we often find that a lot of people were not able to vote because they weren't registered, they were sick, or they just didn't have time. Which of the following best describes you?—One, I did not vote; Two, I thought about voting this time but didn't; Three, I usually vote but didn't this time; Four, I am sure I voted'" (p. 165).

Self-Administered Questionnaire Design

A questionnaire is a group of written questions to which a research subject or participant is expected to respond. Sometimes researchers hand questionnaires to respondents, in which case respondents have the opportunity to ask the researcher questions for clarification. In other instances, such as when questionnaires are distributed online through email, the respondent does not have the opportunity to ask questions for clarification. In any event, the researcher must take care to be sure that the questionnaire is self-explanatory and clear enough that the respondent doesn't need to ask for clarification. When there is no interviewer to ask questions of, the respondent needs to be able to read the questionnaire for him or herself and capture its intended meaning. Because of this, questionnaires tend to:

- have more closed-ended questions since they tend to be easier to answer;
- have easy-to-follow formats and designs to minimize confusion; and
- be shorter in length to reduce the likelihood that respondents will become exhausted.

Exhibit 10.5

Directions for African Self-Consciousness Scale

Instructions: *The following statements reflect some beliefs, opinions, and attitudes of Black people. Read each statement carefully and give your honest feeling about the beliefs and attitudes expressed. Indicate the extent to which you agree by using the following scale:*

1	2	3	4	5	6	7	8
Strongly Disagree		Disagree		Agree		Strongly Agree	

Circle the number closest to your own feelings. Note that the higher the number you choose for the statement, the more you agree with that statement; conversely, the lower the number you choose, the more you disagree with that statement. Also, there is no right or wrong answer, only the answer that best expresses your feelings about the statement. Please respond to all statements (do not omit any).

Instructions

One of the researcher's most basic responsibilities in questionnaire design is to provide clear instructions. Exhibit 10.5 illustrates a clear set of directions for the African Self-Consciousness Scale, which was designed to assess the Black personality (Baldwin & Bell, 1985). Instructions are not just for the respondent; good instructions improve the quality of data that the researcher gets back.

The directions to a questionnaire should be preceded by a sentence or two about the purpose of that instrument. For example, "The following statements reflect some beliefs, opinions, and attitudes of Black people." If respondents are expected to insert an "X," fill in a circle, or circle an answer, then they should be clearly instructed to do so. However, sometimes questionnaires require different response formats or ways of answering questions. Every time the response format changes, there needs to be a new set of instructions. If questions 1–3 require an individual to fill in the blank, and Question 4 requires the respondent to circle their answer, then there needs to be a new set of instructions after Question 3 (Exhibit 10.6).

Order of Questions

What comes when? Careful consideration needs to be given to the order of items in a questionnaire. A poorly ordered questionnaire can bias respondents' an-

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Exhibit 10.6

New Directions Each Time There Is a Change in Response Format

Please fill in the correct answers.

1. What grade are you in? ____
2. What is your age? ____
3. What is your zip code? ____

Please circle the correct answer.

4. In my home, I have a space dedicated to study?   Yes   No

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swers or reduce their response rates. Researchers should try not to ask questions early in a questionnaire that will bias subjects' responses to later items. For example, if a researcher designs a questionnaire with several factual questions about healthcare in the Black community early in a questionnaire and later asks respondents what they think is the most critical issue facing the Black community, the respondents are more likely to mention healthcare because they will want to answer in a way that they believe to be consistent. This problem can be avoided by placing opinion questions and open-ended questions early in a questionnaire and factual questions later. It is also helpful to ask intriguing or interesting questions first. Placing opinion questions first helps because people like to express their opinions. This way, once people have begun a questionnaire, they are more likely to finish it. Avoid placing demographic items first, such as questions about age, sex, and income. Such items often strike respondents as routine and mundane. If people see demographic items first, they are more likely to become bored with the instrument. It is also important to avoid beginning an instrument with sensitive questions about sexuality, drug abuse, and criminal history. Instead, sensitive items should be reserved for later in an instrument.
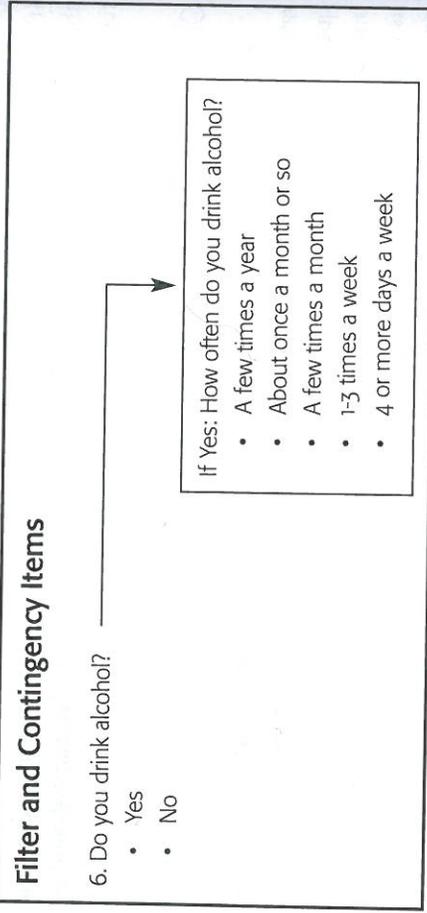
Questionnaire Format

Not surprisingly, a clear and attractive questionnaire layout increases response rates. However, some researchers use tactics that reduce response rates. To create a questionnaire that appears short to respondents, researchers sometimes place items one after the other, with little space in between, and reduce the page margins to get as many words as possible on a page. However, this actually makes the questionnaire look cramped and confusing and makes it difficult to distinguish one question from another. Items should be spread out instead. However, they shouldn't be

too spread out because you don't want your questionnaire to be too long. The researcher must find a suitable middle ground between the two. The layout should be easy on the eyes. It is also important to be sure that questions and answers remain together. In some cases a question can be on one page and the response options can be on the next page. This creates confusion and should be avoided.

In some questionnaires you will notice that not every question is relevant to every respondent. Researchers should always be sure that respondents are answering questions that are relevant to them. You may run an alcohol rehabilitation center and design a questionnaire to identify how many people in an area could use your services. The questionnaire may ask a series of questions about alcohol consumption. You may want to know whether or not people drink alcohol and if they do so, how much they drink. However, you don't want people who don't drink alcohol answering a question about how much they drink. This presents an opportunity to use what are called filter questions. A **filter question** screens respondents by guiding them to questions that are relevant to them. A filter question leads to a contingency question. The answer to a filter question determines the question the respondent answers next. A **contingency question** is a question that is answered depending on a participant's response to a previous question (a filter question). Exhibit 10.7 presents an example of a filter question and a contingency question.

Sometimes a questionnaire will have a series of questions or statements with identical response options. These are called matrixes. This is typically the case when Likert-type response options are used. Indexes and scales with multiple items often use matrixes. Matrixes make questionnaire completion easier and quicker for the

Exhibit 10.7

Filter and Contingency Items

6. Do you drink alcohol?
- Yes
- No

If Yes: How often do you drink alcohol?
- A few times a year
- About once a month or so
- A few times a month
- 1-3 times a week
- 4 or more days a week

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respondent. The best way to identify errors and weaknesses in a questionnaire is to **pretest** it by administering it to a sample that is similar to your population of interest. It is easy for a researcher to miss something, and it always helps to ask people to go through your instrument and look for errors.

Conducting the Self-Administered Questionnaire

There are three main ways of administering survey questions to respondents: surveys administered by researchers in face-to-face settings, surveys conducted by telephone, and self-completed questionnaires in which respondents are expected to administer the questionnaire themselves (Babbie, 2001).

The most common self-administered questionnaires are mailed questionnaires. These are sent through the mail with a letter explaining the purpose of the research and a self-addressed, stamped envelope for the return of the completed questionnaire. There are many advantages to mailed questionnaires. They are popular because they are relatively easy and inexpensive. Mailed questionnaires allow the researcher to cover a large geographic area. They also provide anonymity to the respondent. The response rates (the percentage of questionnaires returned to the researcher) for mailed questionnaires tend to be high for highly educated target populations with interest in the topic. However, there are some disadvantages to mailed questionnaires. By far the biggest problem is low response rates. It could be that only people who are particularly interested in the topic in question respond. This means that when you get a low response rate, those who do respond may be systematically different from the rest of the population in some key ways. Another challenge is that the researcher cannot control the conditions under which the respondent completes the questionnaire. The respondent could be distracted and complete the questionnaire under less than ideal circumstances. When a respondent is completing a mailed questionnaire (as opposed to a survey), he or she cannot ask questions for clarification. As a consequence, researchers can receive some incomplete questionnaires.

What can researchers do to resolve this problem? It is important for researchers to monitor their returns. The researcher should record the dates and demographic characteristics of respondents' forms as they are returned. By collecting data from respondents, the researcher can keep track of sampling bias by noting the characteristics of those who have returned questionnaires. Returned questionnaires may be primarily from those who have high levels of education, those who are unemployed, or those who with high levels of income. Increasing response rates thus becomes a challenge to the researcher.

Follow-Up Questionnaires and Letters

Sending follow-up questionnaires to respondents also increases response rates. If respondents have not returned their questionnaires after 2 or 3 weeks, researchers should send a follow-up questionnaire. Sending three follow-up letters has been found to be most efficient (Babbie, 2001). With two follow-up letters, the researcher can expect to receive a 15–20% increase over the initial return rate.

The response rate of a research study using mailed questionnaires indicates quite a bit about the study. A high response rate decreases the likelihood of bias in the sample. However, low response rates indicate a greater likelihood of a biased sample. A response rate of 50% is acceptable; 60% is good; and 70% or above is very good (Babbie, 2001).

Cover Letter

Having a good cover letter increases the response rate. Mailed questionnaires should be accompanied by a cover letter that introduces and explains the questionnaire to the researcher. The cover letter should explain who the researcher is, what institution or organization is sponsoring the research, an explanation of the purpose of the research, and the address and contact information of the researcher. In addition, it is always important to remind research participants of the confidentiality of their responses.

Length and Appearance

In general, the longer the questionnaire, the lower the response rate will be. The questionnaire should be no longer than five pages and take no longer than 30 minutes to complete. However, there is no strict rule on these limits, and a researcher shouldn't try to force items to meet these limits. Therefore, the researcher should go through every item and be sure to remove all non-essential items. The questions should be as short as possible to encourage completion. Because people are discouraged by having to do a lot of writing, mailed questionnaires should also have as few open-ended items as possible.

Payment

Offering potential respondents payment or other incentives has a positive effect on cooperation or participation. This approach usually has a greater effect if the payment is accompanied by the questionnaire rather than being promised once the questionnaire is returned. However, it is a misconception that payment needs to be

large. Payments between $2 and $20 are known to increase response rates by 10% (Monette, Sullivan, & DeJong, 2005).

Diaries

Sometimes a researcher is interested in a research topic that requires analyzing precise estimates of human behavior. This presents an opportunity to use the **diary method**. Using the diary method, the research participant observes his or her own behavior. For example, a researcher might be interested in studying the number of hours people spend watching television, how often and what kind of vegetables they eat, or how often they engage in exercise. These interests are suitable to the diary technique. In each case, the participant is instructed to systematically record a particular behavior of interest. If you use the survey approach and ask people how many hours of television they watch per day, their answers are more likely to be subject to forgetting or misremembering. However, the diary approach limits the interference of memory problems.

The diary approach is most appropriate when the researcher is interested in analyzing precise sequences of events or the frequency of behaviors. Diaries are also more appropriate than observations for personally sensitive topics. However, diaries can still be time consuming because of the researcher's responsibility to be sure that diaries are being kept properly. Diaries can also suffer a high attrition rate because people grow tired of recording their behavior over long periods of time. Moreover, people are not always diligent in recording their behavior and may forget to do so. When this happens, memory problems can affect the accuracy of the recordings.

Advantages of Questionnaires

Self-completion questionnaires are quicker and more inexpensive than interviews. A researcher is able to collect data from more participants in a shorter amount of time than it would take to interview the same number of people. Data can be collected from geographically dispersed populations in an inexpensive way compared to traveling to individual households. When topics are of a sensitive nature, respondents are more likely to answer self-completion questions because they do not have to worry about being judged by an interviewer. The self-completion questionnaire also reduces what we described earlier to be social desirability bias. Self-completion questionnaires also eliminate the problem of interviewer bias, that is, the effect that interviewers can have on respondents because of their body language, vocal tone, facial expressions, and overall demeanor in reaction to respondents' answers.

Disadvantages of Questionnaires

Because self-administered questionnaires do require a certain level of literacy, some respondents will be at a disadvantage. For this reason, mailed questionnaires are more likely to be completed by respondents with higher levels of education. With mailed questionnaires, researchers also don't have the opportunity to answer respondents' requests for clarity. This can result in respondents skipping questions they don't understand, which results in a greater risk of missing data. There is also no opportunity to ask respondents to provide more information or to rephrase their answers. When respondents complete a questionnaire on their own, they have to contend with the fact that there is no assurance that the person they intended to complete the questionnaire is the one who actually completes it. Finally, researchers must contend with non-response bias, or the threat that those who do not return questionnaires will differ in some systematic way from those who do respond.

Interviews

Interviews are a part of everyday social life. The interview is a form of data collection that typically involves orally asking people questions and recording their answers. Interviews can take place face to face, over the telephone, or through the Internet. Face-to-face interviews have the highest response rates. Properly done face-to-face interviews should have an 80–85% response rate. The presence of an interviewer provides the opportunity to probe interviewees for more explanation and clearer answers. This type of interview is best for the use of longer questionnaires and more complex topics. However, face-to-face interviews can be very expensive and time consuming for interviewees in terms of travel and personal costs, and the interviewer's tone of voice, appearance, and demeanor all increase the risk of interviewer effect.

Monette, Sullivan, and DeJong (2005) identify three levels of interviews: (1) structured, (2) semi-structured, and (3) unstructured interviews. These interview types differ primarily in their degree of rigidity. This section will deal specifically with structured interviews, while semi-structured and unstructured interviews will be covered in Chapter 13. The **structured interview**, the most rigid approach, involves asking a specific standardized set of questions in a fixed order. These questions have to be presented to each respondent in the exact same way because the objective is to make each interview comparable to all the others. Most of the questions are likely to be closed-ended, although some may be open-ended. Instead of having respondents read the questions themselves, in structured interviews only the interviewer asks the questions. All interviewees respond to the same questions

read to them in the same order and in the same wording. These questions are delivered in exactly the same way to each interviewee so that different interviewees' responses will be comparable. Structured interviews are best when researchers are dealing with large populations. They are also useful in longitudinal studies in which the researcher is interested in collecting the same information at different points in order to measure change over time.

Conducting Interviews

KNOW THE INTERVIEW SCHEDULE

One of the first responsibilities of the interviewer is to be familiar with the interviewing schedule. An **interview schedule** contains specific instructions for conducting an interview, the specific questions to be asked, and the order in which interview questions should be asked. If the interviewer is not conversant with the interview questions, he or she can miss questions or ask the wrong questions during an interview. If there are multiple interviewers, each of them needs to be trained so that they are not asking questions in different ways.

INTRODUCING THE RESEARCH TO THE RESPONDENT

Respondents are more willing to participate in an interview when they have been presented with an adequate rationale for the study. Consider that your respondent is giving his or her valuable time to participate in your study. At a minimum, the researcher should explain why this study is directly or indirectly important to the respondent's community, the Black community, the country, or the world. The interviewer should explain to the interviewee his or her intentions and the conditions under which the research is being conducted (for university research, market research, professional research, etc.). The interviewer must explain to the interviewee the purpose of the research and why the interviewee has been selected. Interviewees must be reminded that their participation is voluntary and that their identification is confidential.

Rose, Kim, Dennison, and Hill (2000) conducted semi-structured interviews with 19 Black males living with high blood pressure. The study assessed their perceptions of health, health problems, and their concerns with daily living that influence their appointment keeping. However, before their interviews, the researchers began with the following statement:

I am interested in what it is like for you in your daily life to manage health problems and concerns, including high blood pressure and the things that might make it easy or hard to get treated for those problems. (Rose, Kim, Dennison, & Hill, 2000, p. 589)

APPEARANCE OF THE INTERVIEWER

The interviewer should dress in a similar way as the population being interviewed. Generally, this means dressing in a way that is acceptable to a wide variety of people. An interviewer who is dressed in formal wear may have trouble getting interviewees who are dressed casually to open up. Conversely, an interviewer who is dressed casually may have the same trouble with interviewees who are dressed in a very formal way. The way you dress can be interpreted as a sign of your assumptions, attitudes, and beliefs. In general demeanor, the interview should seek to be pleasant. Interviewers should conduct themselves in ways that make the interviewee feel comfortable.

WORDING

In structured interviews, an interviewer must be sure to stick to the wording of questions. When questions are worded uniformly, interviews are comparable. However, if questions are differently worded to multiple respondents, there is a risk that the wording of the questions will influence the answers. On the other hand, when recording answers given by respondents, the researcher must be sure that answers are recorded exactly as the respondent gives them. If researchers paraphrase interviewees' words, they risk distorting their views and introducing error to the research. This means that interviewees' words should not be summarized, nor their grammar corrected.

PROBING

In some cases an interviewee may give an unclear or incomplete answer. In this case it is important for an interviewer to **probe,** or request that interviewees elaborate or provide more explanation. For example, if a researcher poses the question "What in your opinion is the most important problem facing the Black community?" and the respondent replies, "Schools," this answer is incomplete. The interviewee must then probe the respondent, possibly by saying "How are schools the most important problem?" or "In what ways are schools the most important problem?" Other useful probes are: "Could you say more about that?" "Why do you think that?" or "In what ways?" Other times, silence is a useful probe. Silence lets respondents know that you are expecting more explanation from them. However, the interviewers need to be sure that the probes they use do not influence the respondent's answer.

TRAINING INTERVIEWERS

In situations where a researcher hires interviewers to conduct large numbers of interviews, those interviewers must be trained. It cannot be assumed that they will all be on the same page. The risk of some interviewers asking different questions

than other interviewers has to be minimized. Interviewers working on the same project have to be trained and supervised as they contact prospective interviewees. They also have to be instructed about how to read and ask questions properly, use probes, and record answers. Interviewers can be trained by having them conduct mock interviews, and their styles can be monitored by recording individual response rates. Also, contacted respondents can be called back and asked to report on their interviewer's conduct.

UNDERREPRESENTED GROUPS IN INTERVIEWING

Social desirability bias refers to respondents' tendency to want to present themselves in a way that they believe will appear socially desirable to their interviewer. This is especially true when questions deal with issues of race, ethnicity, gender, and sexuality. The general rule of thumb is that the smaller the social distance, the more honest respondents' answers will be. Blacks are more likely to honestly discuss issues of race when a Black person interviews them. Women are more likely to discuss issues of rape openly when interviewed by a female. However, there can also be intraracial- and intragender-based bias. It is up to the researcher to ensure that respondents are comfortable and give their most honest answers with as little bias as possible.

ENDING THE INTERVIEW

The interviewer should thank the respondent before leaving. The interviewer should then organize his or her interview notes (date, time, and place of interview). This should be done as soon as possible. The longer you wait, the more likely you are to misremember or leave important information out of your notes.

Telephone Interviews

Face-to-face interviews are a relatively expensive means of collecting data. **Telephone interviews,** however, are relatively inexpensive and require no travel. They are a common data collection technique used in marketing research in which the interviewer asks questions over the telephone instead of being face to face. In fact, you may have recently encountered some form of telephone-based marketing research. Lots of academic research is based on face-to-face interviews.

There are many advantages to conducting telephone interviews. Telephone interviews are cheaper to administer than face-to-face interviews. Like mailed questionnaires, telephone interviews make it easier for the researcher to access a geographically dispersed population. When using more than one interviewer, conducting interviews over the telephone makes monitoring or supervising interviews

much easier. This helps to guard against interviewer falsification. Telephone interviews limit the effect of the interviewer on the respondents' answers, although the interviewer's voice may still have some effect on the interviewer. In telephone interviews the interviewers are far more remote (not physically present) than in face-to-face interviews and have a lesser likelihood of their characteristics affecting the respondent's answers. In fact, interviewees may be more likely to provide the interviewer with answers that are socially undesirable if they don't have to look the interviewer in the eye. Finally, it is difficult for mailed questionnaires to accommodate non-English-speaking populations unless the languages that potential respondents speak are already known. However, telephone interviews make it easier to accommodate multilingual interviewers who are conversant in the respondent's language can be made available.

As with other methods, the telephone interview has its limitations. The most obvious limitation is that it is, by definition, limited to people who own telephones. Depending on what country you are conducting research in, disadvantaged populations may be underrepresented among those who own telephones, which introduces sampling bias. Those who elect to have their numbers unpublished are typically richer. Another form of bias that may affect telephone interviewing is the difficulty encountered by potential respondents who have hearing problems. Telephone interviews also tend to be shorter, typically not lasting beyond 20–25 minutes. This time limitation restricts the amount of information and depth of information that can be explored in telephone interviews. Telephone interviewing also eliminates the possibility of making observations of interviewees' nonverbal behavior in response to questions.

Computer-Assisted Interviewing

Computer technology is influencing telephone interviewing by way of **Computer-Assisted Telephone Interviewing** (CATI) techniques. CATI is an increasingly popular method of interviewing. Using CATI, the interviewer is able to sit at the computer and use the computer program to randomly dial telephone numbers and present the person who answers the phone with a series of questions that the researcher programs it to ask. The program may ask the interviewee, "How many people live in this residence?" and the interviewee is given a number (code) to enter for a closed-ended question, or will verbally respond to an open-ended question. In any event, the respondents' answers are displayed and recorded by the researcher, who sits at the computer and records respondents' coded responses and copies their verbatim open-ended responses. **Computer-Assisted Personal Interviews** (CAPI) are similar to CATI except that they are used in face-to-face interviews instead of over the telephone. **Computer-Assisted Self-Interviews** (CASI) occur

when a researcher brings a laptop to the respondent, and the respondent reads and answers the questions him or herself.

Online Surveys

Online surveys are surveys that are often sent as email attachments or links to web-based questionnaires. Online surveys work best when the researcher has access to the online contact data for a population of interest. They are also well suited for surveying regular visitors to particular websites. Online surveys have many advantages. They are faster, inexpensive, and are able to reach people all over the globe. Internet surveys also make it easier to incorporate visual and auditory aids. Because online surveys are automated, they reduce error and make filter and contingency items easy to follow. Social desirability bias and interviewer effects are limited, given that there is no interviewer.

Online surveys also have disadvantages. Not everyone has access to the Internet. In fact, often it is those who are in most need of basic human services who lack access to the Internet. Because of this and the fact that not everyone chooses to respond to online surveys, some researchers believe that online surveys should be considered convenience samples instead of probability samples. Typically, online surveys are considered skewed toward those who are richer, have higher levels of education, and are young and male.

Key Terms

Closed-Ended Items
Computer-Assisted Personal Interviews (CAPI)
Computer-Assisted Self Interviews (CASI)
Computer-Assisted Telephone Interviews (CATI)
Contingency Question
Diary Method
Factual Item
Filter Question
Interview

Interview Schedule
Item
Online Surveys
Open-Ended Items
Opinion Items
Probe
Question
Questionnaire
Social Desirability Bias
Statement
Structured Interview
Survey
Telephone Interviews
Vignette Question

CHAPTER ELEVEN

Experimental Design

We have now stumbled upon another area in which infants have demonstrated their heightened instincts for research, *the experimental design*. We have to protect infants from their unbridled propensity for experimentation. They have an insatiable curiosity to discover "what would happen." To protect them, we have to cover electric outlets, make sure sharp objects are out of reach, and lock away hazardous substances. Have you ever asked yourself, "What would happen if…?" taken some action, and then observed the consequences? If you have, then you have conducted an **experiment**. An experiment involves manipulating a treatment condition or initiating a cause and systematically observing the consequences. Experimentation is natural. It involves the researcher taking an action and observing the consequences in a systematic way. This chapter explores the basic types of experimental designs and assesses their strengths and limitations. It also explores threats to the internal and external validity of experimentation and how to avoid them.

The basic purpose of an experiment is to identify and explain cause-and-effect relationships. Experiments are best for topics that have well-defined concepts and are the best-suited method for hypothesis testing and identifying causation. Do you remember the criteria for causation mentioned in Chapter 1? Experimental designs are the best-suited methods for establishing causation because they are the most likely to meet all three of the major criteria for establishing causation. The studies described at the beginning of this chapter identify story framing as the cause of judgments about newsworthiness and attitudes about colon cancer screening.

Thinking about Science

Activity 1

Find a survey on the Internet and critique it according to the rules of survey item construction discussed in the chapter. Identify any violations of the rules of item construction in the survey and indicate what could be changed about the survey to remedy the violations.

Activity 2

Look at the following list of open-ended questions and turn them into closed-ended items.

- How often do you spend time with your child?
- What is your race?
- What is your age?
- How important is culture in your daily life?

Activity 3

Look at the following research variables and determine whether or not the survey approach is the best tool for collecting data on them. Explain why or why not. If not, what do you think is a more appropriate tool for collecting data?

- The voter turnout rate of Black youth in your country's last presidential election.
- Black people's attitudes about the relationship between physical health and spirituality.
- The average annual income of Black people.
- The effects of a new approach to teaching literature on the reading comprehension of a group of high school students.

Activity 4

You are conducting an interview about Internet access and you have asked a respondent why he or she thought access to the Internet was important. The reply was "access to jobs and healthcare." Identify three different things you might say to the respondent to probe for a better answer.

Qualitative Field Research and Data Analysis

Qualitative Methods

Observation is a widely used term in research methods. Observational techniques refer to the "collection of data through direct visual or auditory experience of behavior" (Monette, Sullivan, & DeJong, 2005, p. 218). Researchers may choose to use qualitative or quantitative observational techniques depending on the nature of what they are investigating. This chapter explores different types of qualitative methods and the circumstances under which each method is most useful. The strengths and weaknesses of each method will also be explained. Finally, we will explore the basic techniques for qualitative data analysis.

Qualitative research data comes in the form of words, narratives, pictures, and descriptions. These kinds of data produced in qualitative research are not as easily reduced to numbers as data that comes from more quantitative methods such as surveys. Therefore, they require unique techniques of data reduction. Neuman (2009) identifies three key features of qualitative methods:

1. Inductive: Qualitative methods usually take an approach to the development of theory from data collection as opposed to more quantitative approaches that begin with theories and test them through data collection.
2. Interpretivist: They take an epistemological approach that is interpretivist, meaning that this approach to research emphasizes the interpretation or understanding of the social world through the analysis or perspective of cultural insiders or participants in those cultures.;
3. A constructionist ontological position: the constructionist ontological position adopted in qualitative methods is grounded in the assumption that social properties are the consequence of interaction between individuals and not phenomena separate from those involved in the construction.

Qualitative approaches are meant to offer more descriptive data on peoples' lives, behaviors, and subjective experiences compared to quantitative methods. Qualitative approaches are said to be non-positivist. Positivism asserts that ideas, emotions, morality and other human qualities could be studied quantitatively (Vogt, 1999). While positivism asserts a world independent of people's subjectivities, qualitative approaches are non-positivist in that their interpretivist or *versterben* approach privileges understanding human subjectivities and how they perceive their own realities. According to Monette, Sullivan, and DeJong (2005), researchers cannot capture the meaning people attach to their lives adequately through quantitative methods; instead they need a subjective—or what Max Weber called a *versterben*, understanding (Weber, 1957).

Field Research

Field research is a qualitative approach to collecting data on people or research elements in natural settings. W.E.B. Dubois, one of the premier Black intellectuals of the 20th century, pioneered *urban ethnography* in the social sciences using field research. Dubois introduced this approach to social sciences in his landmark study of the Black Population in Philadelphia's 7th ward. Field research involves observations made of people in naturalistic settings. Data produced in field research is not collected in laboratory or contrived settings but in real-life or natural settings where people act or behave as if they were not subjects of research observations. Survey researchers indirectly observe the phenomena they study, while field researchers use techniques that allow them to see and hear what they are studying in the field or natural setting. Field work is meant to be a method that reveals human attitudes and behaviors that might be missed by researchers using other methods. Lofland and Lofland (1995) and Babbie (2001) discuss several key elements of the field research method:

- Practices: Various kinds of behavior such as talking or reading a book;
- Episodes: A variety of events such as divorce, crime, and illness;

- Encounters: Two or more people meeting or interacting;
- Roles: The analysis of the positions people occupy and the behavior associated with them. For example, occupations, family roles, and ethnic groups;
- Relationships: Behavior appropriate to pairs or sets of roles. For example, mother-son relationships, friendships, and the like;
- Groups: Small groups such as friendships, athletic teams and workgroups;
- Organizations: Formal organizations such as hospitals or schools;
- Settlements: Small scale "societies" such as villages or ghettoes, and neighborhoods, as opposed to large societies such as nations, which are difficult to study;
- Social Worlds: Ambiguous entities with vague boundaries and populations, such as "the sports world" and "Wall Street";
- Lifestyles or subcultures: How large numbers of people adjust to life in groups such as a "ruling class" or "urban underclass."

For example, Saayman, and Crafford (2012) investigated how workers at a South African manufacturing company negotiated and constructed their work identities. The authors were interested in how the workers understand their identity in the context of their jobs and the work they do. The researchers were also interested in the competing demands and tensions that impact the workers' processes of understanding their identities. The authors chose field research because they were primarily interested in how people create and share meaning in natural settings. Quantitative approaches are less suited to this kind of research objective. Some of the main conceptual frameworks used in field work are naturalism, ethnomethodology, and grounded theory.

Naturalism is about investigating social reality on its own terms or *as it is* by making thick, detailed descriptions of people and their interaction in natural settings. Naturalism is one of the oldest perspectives in qualitative research based on the positivist assumption that social reality is most objectively described and reported by a scientific researcher. **Ethnomethodology** is a perspective that is based on the presumption that social reality is socially constructed through communication and interaction. The ethnomethodologist rejects the idea that social reality is simply there for the researcher to observe. Instead of decrying social reality as it objectively is, the ethnomethodologist privileges and validates people's descriptions of social reality as their subjective ways of making sense of it. **Grounded theory** is not a theory as it may seem simply based on its name. Grounded theory is instead a method of developing theory (grounded in data) by recognizing patters or codes in data collected through qualitative methods. In the positivist methodology, first, data is to be collected; second, it is analyzed and; lastly, theory is developed. In the grounded theory methodology, each of these steps can occur simultaneously. A re-

searcher may start by making observations and, depending upon these, may develop new concepts and seek explanation for them. Instead of starting with preexisting theories that may restrict the researcher's thinking, using grounded theory observations are made and concepts and theoretical explanations are developed during the processes of data collection and analysis. **Action research** is another approach which is designed to find the most effective way to bring about some desired social change. Central to action research is the integration of theory *and* practice. In action research, of which there are many different types, the collection of data is more tightly associated with the development of solutions. For instance, in **participatory action research**, the researcher and the members of a social setting collaborate in the process of studying a problem and developing a solution for it. Participatory research shares several things with action research, such as placing value on practical or useful knowledge and making change. However, participatory action research combines the added element of collaboration with members of a social setting in the data collection and change-making process.

Akom (2011) developed the framework, **Black Emancipatory Action Research** (BEAR), as an orientation meant to enhance qualitative methods in research involving people of African descent. BEAR is a framework for guiding research that seeks to liberate African Diasporic peoples from various forms of oppression. The core principals of BEAR are: 1) structural racialization; 2) Intersectionality and social construction of knowledge; 3) the development of critical consciousness and; 4) love, healing, and a commitment to social justice (Akom, 2011). The theory of structural racism is at the core of BEAR. The theory of structural racism rejects conceptualizations of racism that focus on individual acts of racial discrimination. BEAR incorporates this model to examine how individuals and institutions interact to produce enduring, radicalized, and unequal distributions of power and privilege. BEAR locates structural racialization at the intersection of multiple forms of oppression such as class, gender, religion, nationality, sexual orientation, immigrant status, surname, phenotype, accent, and special needs by explaining how they interact as a system of oppression. BEAR encourages everyday people to deconstruct the systems that oppress them through critical consciousness. BEAR locates healing as another central aspect of Black community development given the historical trauma that White Supremacy has had and continues to have on Black life. Lastly, BEAR seeks to develop love and self-determination in people of African descent through the research process by empowering them to conceptualize, study, and meet their challenges in a collective manner.

There are several main steps in conducting field research in general.

- Identify the topic: Explore the topic you are interested in. Review the existing literature and decide whether or not it is a topic that warrants the

use of field research. Learn as much as you can about the population and social phenomena you are interested in. Finally, make a decision about how appropriate field research is in investigating it.

- *The formulation of a research question:* In field research the research question is more general than the research question in quantitative research. According to Nielson (2011), the African American shopper makes more trips to the grocery store and spends less money per trip than the average American shopper. Quantitative and qualitative questions on this topic might be as follows:
  - Quantitative: According to the Shoppers Choice Survey (SCS) how does race and ethnicity impact grocery shopping frequency and choice of goods among African American shoppers in Oakland, California?
  - Qualitative: How do African American shoppers negotiate where and what groceries to buy?

- Selecting the Field Site: The field researcher has to decide which group of people are most appropriate to study to answer the research question or to address the research problem at hand. Keep in mind that the setting doesn't have to be a single physical setting because a group of people can interact in many settings in a fluid way. Neuman (2009) identifies four factors that affect a field researcher's choice of a site:
  1. Containment: Bounded areas where small groups of people interact are easier to study while large open areas where many people pass through are more difficult;
  2. Richness: According to Neuman (2009) "More interesting data come from sites that have overlapping webs of social relations among people with a constant flow of activities and diverse events" (p.269);
  3. Unfamiliarity: A researcher can more easily be open-minded and attentive to detail in an environment that is new and unfamiliar to them;
  4. Suitability: The researcher's time, accessibility, safety, and skill should be taken into consideration when choosing a setting.

- Gaining Access: There are open public spaces (parks, airports, etc.) and closed spaces (schools, private homes, etc.). Closed spaces require permission from someone who controls access.
- Data Collection: In field research the researcher is the instrument of data collection. The researcher collects data on the physical setting, people's behaviors, interactions, and words.

- Interpretation of Data: Collected data must be analyzed for themes and patterns.

- Development of New Concepts and Theories: Often new concepts and theories emerge from the coding process.

There are several different kinds of qualitative research methods. The following sections will specifically cover qualitative interviewing, focus groups, observations, case studies, and discourse analysis. Three qualitative methods are interviewing, observation, and document analysis. **Ethnography** is the careful study of a culture through qualitative (unstructured or semi-structured) interviews, observations (complete observer, participant as observer, observer as participant, complete participant), and analysis of cultural documents. "Ethno" means "people," and "graphy" means "to describe something" (Neuman, 2009). Ethnography is based on the idea that people live in cultures and in order to understand them it is necessary to study them in their cultures. Those cultures can be micro cultures such as families, or macro cultures such as nations. The job of the ethnographer is to immerse him- or herself in the culture under study to see through the eyes of the people being studied and to make sense of it from a scientific perspective. What is most important to the ethnographer is how the members of a culture define their own reality. According to Bryman (2008), ethnography is a method in which the researcher:

- Is immersed in a social setting for an extended period of time;
- Makes regular observations of behavior of the members of that setting;
- Listens to and engages in conversations;
- Interviews informants on issues;
- Collects documents about the group;
- Develops an understanding of the group's and people's behavior in the context of that group;
- Writes a detailed account of that setting.

When the researcher has collected data about a culture through interviews, observations, and/or analysis of cultural documents from that culture, the next objective is pattern recognition. The researcher must find commonalities and logical patterns in the data that represent aspects of their existence. One of the major tools of the ethnographer is analysis of cultural documents, which has already been covered. Let's discuss the remaining two tools of ethnography: interviews and observations.

Observation/Participant Observation

Observation is a technique in which the researcher observes people in their natural environment. **Participant observation** involves observing and participating in the activities of people in their natural environment. In participant observation, researchers learn about the social world that they are studying by participating within and engaging with it. It is a way of generating researcher understanding through empathy (Monette, Sullivan, and DeJong, 2005). Observation in this context refers to taking note of and recording how people act and interact in their natural environment or social setting. For example, Richardson (2012) conducted participant research on the role of the African American coach as a source of social capital for at-risk African American male junior high school students. Richardson (2012) participated as a coach himself and observed students in multiple settings including their schools, their local communities, and their home environments. Richardson (2012) was able to find that African American coaches served as mentors, social fathers, supervisors, guidance counselors, motivators, and encouragers. Gold (1958) identifies four different participant observer roles: 1) the complete participant; 2) the participant as observer; 3) the observer as participant and; 4) the complete observer. The *complete participant* uses a covert approach to observation in which the researcher does not make those who are being studied aware that they are being observed. You, as the researcher, enter the field under the guise that you are a participant like the others. The researchers' goal is to be seen as natural members of the social setting without making known their identities as researchers. The role of the *participant as observer* is similar to the role of the complete observer with the exception that those who are being researched are aware that the researcher is observing them. In this role the researcher engages and interacts with individuals and they go about activities in their everyday lives. The *participant as observer* participates in the routines of people's everyday lives, but is overt about doing so for the purpose of research. This is the role that Richardson (2012) played in his research on coaches as social capital. The role of the *observer as participant* is similar to the role of the participant as observer in that they both make their status as a researcher known to members of the social setting being observed; however, they differ in the extent to which the researcher engages in the social setting and the amount of time the researcher spends in that setting. In this role, the researcher is more of an interviewer who engages in observation, but with little participation. The role of the *complete observer* is unobtrusive because the researcher observes but does not interact with the people being studied. This role is not considered participant observation because there is no participation alongside individuals in the social setting.

Taking Field Notes

The human memory is imperfect, and because of this, researchers have to take careful notes of their observations. These notes are called **field notes** or detailed descriptions of events and behaviors and the researcher's reflections on them. They are necessary even in the presence of audio or video recording devices which cannot capture the subtleties of social settings that a human being can. When in the field or social setting, it is the researcher's duty to take notes and record that which could not have been written down immediately after exiting the field. Field notes should be written down as quickly as possible when the researcher sees and hears relevant things in the field. Field notes that cannot be written down immediately should at the least be written down at the end of the day on which they were observed. The following are two different types of field notes:

1. Jotted Notes: These running descriptions are brief notes written down, such as in a notebook, to jog one's memory about events and action to be written up in more detail later. They usually need to be written down quickly and inconspicuously since detailed note-taking in front of people could make participants self-conscious. (Bryman, 2008; Monette, Sullivan, and DeJong, 2005).

2. Full Field Notes: These detailed notes should be written up as soon as possible because they serve as the researcher's main data source and should be completed at the end of the day at the latest.

What to Write About

You might be thinking, "I can't write up everything!" No, and you should not be expected to. However, you should record the most *relevant* or pertinent events and actions that occur in the social setting that you are observing. The researcher should primarily be observing the setting and the people in it. Observers should describe the physical and social aspects of the environment. It could be a home, a gymnasium, or a restaurant. Field notes should include a description of the conditions, the weather, and other physical aspects that might shape or have been shaped by the people in the social setting being observed.

The physical and social setting is important because it plays a role in the atmosphere in which people think and act. What is written on the walls, the floor, or the ceiling? These are relevant questions when making observations. The people should also be observed because they are often the key players. What do they look like, how are they dressed, how many of them are there, and how are they interacting?

Take note of their age and gender. Why? Because people often interact or behave differently based on these characteristics. People's actions should also be observed. Who interacts with whom and how do they do it? Do you notice any patterns in their behaviors and interactions with one another? The researcher should also take note of group behavior and interaction. On what basis do groups form, and how do groups interact with one another? Researchers should also pay attention to meaning. This refers to the meaning that people create for themselves, the perspectives they exhibit, and evidence of them. If the researcher is taking a quantitative approach to field notes, s/he enters the field with a set of predetermined categories or actions and behaviors that s/he is interested in observing. These things are noted on one's coding sheet. If the researcher is taking more of a qualitative approach, he or she must code field notes or analyze them for patterns.

Qualitative Interviews

Structured interviews are too rigid for qualitative research. Field research calls for less structured interviews. Qualitative interviewing makes use of two particular types of interviews: semi-structured interviews and unstructured interviews. Cashmore (2002) conducted **unstructured interviews** with 100 Black and Asian police officers in Britain about the importance of recruiting police officers who belong to underrepresented racial/ethnic groups. Using the unstructured approach, the interviewer develops interview questions as the interview progresses. This approach is called unstructured because the interviewer obtains different information from each respondent. In unstructured interviews the researcher is tasked with keeping the interview going while keeping the interviewee on topic. This approach is best for exploratory research, as the interviewer is essentially exploring the research topic with the interviewee. The researcher often begins the unstructured interview with a general question allowing the respondents to take the interview where they will. Using the unstructured approach, the interviewees are free to discuss the topic as they see fit and can touch on any particular issues they choose while relating them to their personal experiences. In an unstructured interview the role of the researcher is to record and ask the respondents for clarification and further explanation. The unstructured approach works best when the researcher does not need to make comparisons between respondents because each respondent is not being asked the exact same set of questions.

The **semi-structured interview** method is used with more specific topics. In the semi-structured interview each respondent is asked to answer a specific set of questions. However, the semi-structured interview maintains a conversational style in which the interviewer probes the respondent and is free to ask questions in a differ-

ent order for all respondents. Although a semi-structured interview involves a standard set of questions, it also allows for interviewers to ask sub-questions and develop new questions based on interviewees' responses. Semi-structured interviewing does presuppose prior knowledge on the research topic. Qualitative interviews are more like conversations than structured interviews and should be understood as appropriate or less appropriate according to the nature of the research question.

Discourse Analysis

We have already covered content analysis. **Discourse analysis** is a research technique that allows you to systematically analyze the hidden and visible content in communication messages. Documents are among the sources analyzed in the process of conducting content analysis. However, this section will focus on the analysis of documents in qualitative research. In this case, documents refer to the texts, writings, manuscripts, and materials produced by members of the culture being studied.

Historians often use personal documents, but they may also be used in social science research. Personal documents are documents such as diaries, letters, and autobiographies produced by individuals being studied. In addition to letters and diaries, emails and text messages are also personal documents that could be analyzed in qualitative research. How such documents should be assessed is another matter. Scott (1990) identifies four criteria to help assess the quality of such documents studied in discourse analysis:

1. *Authenticity.* The researcher must know how genuine the document is. The researcher must make sure that the supposed author of the document is indeed the true author. This is an issue that arises in relation to autobiographies written by "ghost writers." However, it is also a concern related to other documents.

2. *Credibility.* The researcher must know that the document under study is free of error, misrepresentation, and falsehood. The researcher must assess the accuracy of information in the document. The researcher must also assess to what extent the document reflects the true attitudes and beliefs of the author. If individuals are aware that others will be reading their personal documents (for instance, those written by celebrities), they may present an image of themselves that they think will be appealing to others—not necessarily one that is representative of their true feelings.

3. *Representativeness.* The researcher must know to what degree the document under study is or is not representative of similar kinds of documents of its

kind and how representative it is of the population under study. For example, if an underrepresented racial/ethnic population produces less of a certain kind of document due to lack of access, capacity, or status, then the documents being studied may be less representative of that population.

4. *Meaning.* Is the evidence or document under study clear and understandable? When documents are difficult to read, undecipherable, or damaged, their meaning may be unreachable or unclear.

Visual objects such as photographs may also be used in qualitative research. They can be analyzed for what they reveal about those being studied, and they can also be used to evoke thought and dialogue from research participants. Official documents were discussed earlier as secondary sources of information. Official documents such as the minutes of meetings or transcripts of senatorial or congressional hearings can be subjects of analysis, as can mass media, such as movies, news programs, and episodes of television series. Virtual documents such as websites and Internet postings can also be subjects of research, as they reveal data about their creators or authors. Documents have to be interpreted and analyzed within the context that they were produced. Ultimately, they should be analyzed using techniques such as content analysis and other relevant qualitative data analysis techniques to be covered in the next chapter. There are some approaches to analysis of qualitative data that are concerned with contextualizing analysis, as opposed to attempting generalizations to larger populations. Five such approaches are conversation analysis, profiling, narrative analysis, case studies, and focus groups.

Conversation Analysis

Like discourse analysis, **conversation analysis** treats language as a topic rather than a resource. However, conversation analysis is focused on "talk," while discourse analysis is more flexible in that it can include things like texts such as newspapers and letters. Conversation analysis is the detailed analysis of naturally occurring spoken words. The purpose of conversation analysis is to discover the underlying structures of talk in interaction. The premise behind conversation analysis is that social order is constructed through social interaction, with a particular focus on conversational interaction. Given this premise, conversation analysis seeks to discover the assumptions in social life by analyzing the way people converse with one another. Heritage (1984) proposes three basic assumptions of conversation analysis:

1. *Talk is structured.* Talking is composed of structured patterns. Conversation analysis rejects the researcher's attempts to infer speakers' motiva-

tions from what they say; instead, the conversation analyst is interested in identifying the underlying structures revealed in talk.

2. *Talk is forged contextually.* Talk reveals action, and talk must be analyzed in context.

3. *Analysis is grounded in data.* Conversation analysts reject preexisting theories and argue that the sequences of talk must instead be induced from the conversational data itself.

Pallitt (2009) conducted a conversation analysis of South African primary school children's conversational interactions around email activities and how they communicate about resources in their environment. In conversation analysis, Pallitt's (2009) research demonstrated how students use the privacy of email technology, among other things, to gain or avoid individual attention from the teacher. Bertrand and Priego-Valverde (2011) used conversation analysis to investigate how conversational humor is produced and co-constructed in talk interaction. Their analysis of the patterns and sequences of conversational humor revealed how repetition, confirmation, and requests between conversationalists are key aspects of humor construction in conversation. Conversation analysis could also be used to study the structures and sequences in the use of Ebonics, or the Black vernacular among African Americans.

Profiling

Profiling in qualitative research refers to the use of excerpts about a person's experiences taken from qualitative interviews. Profiles are pieced together in a way that tells a story. Using profiling, the researcher transcribes an interview and then selects portions of the interview that are important in telling that person's story. The researcher goes through the passages to be sure that they flow together, that they have proper transitions, and that redundancies are eliminated. Although the researcher may include some commentary, the majority of the profile is in the person's own words. The researcher only adds commentary to clarify things or to make a transition from one topic to the next.

Narrative Analysis

Narrative analysis is similar to profiling. The objective of **narrative analysis** is to piece together narratives of people's lives and the world around them, using a number of sources. Narrative analysis focuses on people's stories and descriptive accounts

of lives and events. Like profiling, it relies heavily on people's own words. However, unlike profiling, instead of relying solely on in-depth interviews, narrative analysis makes use of letters, autobiographies, interviews, and other sources. Koro-Ljungberg, Bussing, Williamson, Wilder, and Mills (2008) used a narrative analysis to investigate how African American teenagers described and constructed stories about their personal lives and experiences with Attention Deficit/Hyperactivity Disorder (ADHD). The researchers' intention was to describe the experience of ADHD in a way that would be more culturally situated and useful for health professionals to understand the personal realities of African American teens with ADHD.

Case Studies

A **case study** is a detailed, intensive, and descriptive account of a single individual, group, or organization. Although it is often an individual or an organization, a case can also be a time period. Case studies are most commonly associated with, but not limited to, qualitative research. Focus in case studies is on the detailed description of the entity under study and the context that it is in. In case studies, people's lives are explained in great detail, but unlike profiles and narratives, they don't need to be primarily in the words of those being studied. Instead, case studies can make use of document analysis, interviews, official documents, observation, or a combination of these methods. The basic goal of the case study is to produce a detailed description of the particularities and complexities of the entity under study. Kinney (2012) conducted a case study of a young African American male participating in a songwriting exercise at the Music Resource Center (MRC) in Cincinnati, Ohio. The MRC has a literacy exercise that makes use of songwriting. By way of a case study, Kinney (2012) investigated how African American youth such as the one he investigated use songwriting as a form of self-expression and as a way of dealing with emotional trauma. For this case study, Kinney (2012) made use of semi-structured interviews, field notes from observations, compact discs (cds), and transcriptions of song lyrics.

Focus Groups

An interview is typically thought of as an act that takes place between one interviewer and one interviewee, but sometimes it is a good idea to bring research participants into the same room for interviewing. This is called a **focus group**—qualitative interviews of a group of research participants in an interactive group setting. Focus groups are appropriate for research questions that are concerned with collective or

joint meaning making and the co-construction of ideas. Focus groups usually involve 4–15 people who are brought into the same room to discuss a topic, typically for up to three hours. The size of a focus group is kept small to allow the researcher to get a greater depth of information. Studies using focus groups are typically composed of 10–15 different groups, and only rarely just one group. Focus groups are best used for exploratory purposes rather than explanatory or descriptive purposes.

Focus groups are conducted using the unstructured or semi-structured interviewing styles. The facilitator or the moderator is the person who conducts the interview. If you are the interviewer, you should intend to be unintrusive. Your major responsibility is facilitating the focus group by using a set of broad and open-ended questions. To do so, it is important to have an understanding of the topic before formulating the questions and facilitating the focus group.

The careful selection of research participants is a critical feature of focus group research. If, for example, the researcher were interested in studying West African immigrants' perceptions of child and protective services in the United States, it would be important for the researcher to select for participation those who are in the best position to provide information about the topic. Participants who know each other should not be placed in groups together because they are likely to modify their answers in the presence of friends or acquaintances. In the case of perception of child protective services, the participants would be West African immigrants with children who have had relationships with child protective services. In general, participants should be selected to participate based on their level of involvement with the topic at hand.

There are several advantages to conducting focus groups. One of the strengths of focus groups is that they give participants the opportunity to discuss issues and question and build upon one another's answers. The key here is the collective construction of knowledge, which is the jewel of the focus group method. This gives the researcher the opportunity to record the participants' dialogue, agreements, and differences of opinion. The fact that participants can build upon and feed off one another can provide interviewers with deeper insights than they may have gleaned from interviewing individual participants separately. The focus group approach also allows the researcher to collect data from large groups of people in short periods of time. Given that African American males in the United States represent 47% of cases of police use of excessive force, it would be plausible to interview Black males about their perceptions of police officers. However, focus groups would allow one to analyze how Black males construe their perceptions of the police in conjunction with other Black males.

The group atmosphere of the focus group allows participants to probe and challenge one another in ways the interviewer might not be able to or may not have thought of. Participants can also bring up issues interviewers may not have asked about. In some cases this kind of atmosphere encourages participants to rethink

and revise their attitudes. This evolution of thought in the group setting is important for the researcher to record. The focus group replicates the meaning-making process that takes place in everyday life. Moreover, for conducting action research dealing with resolving social problems, focus groups can also serve the purposes of problem solving and conflict resolution.

The moderator of the focus group begins by stimulating the conversation with one or two general questions. Ultimately, focus groups use fewer than 12 questions. However, the number of questions asked varies, and it is based on the complexity of the topic and the diversity of the participants. More complex topics and diverse groups use fewer or more specific questions. Groups that are less diverse in thought and share a similar outlook are likely to move through topics and questions more quickly than groups that are less homogeneous. As the focus group goes on, questions may become more specific. Such general questions are meant to allow the participants to discuss the issues of interest to them as long as they stay on topic.

As mentioned earlier, the role of the moderator in focus groups is not to be intrusive, but to skillfully allow the participants to articulate their perspectives by asking a small number of general, open-ended questions. The respondents should be allowed to discuss issues, probe, and respond to one another. However, the moderator needs to keep the participants on topic and prevent them from going off on unrelated tangents. The moderator should also probe participants in cases where a particularly interesting point is left unexplored or unexplained.

There are several limitations to the focus group approach. The researcher has less control of the research process in focus groups compared to structured interviews. However, this is not a true limitation because, for the focus group interviewer, it is advantageous to render control to the interviewees because doing so allows the participants to discuss issues on their own terms. Focus group recordings and transcripts produce lots of data, which are time consuming to analyze. They are also difficult to transcribe in some cases because participants often speak inaudibly or talk at the same time. Focus groups can be difficult to organize because of the high likelihood of people not showing up at an agreed-upon time or leaving early. Because of this, researchers often over-recruit participants to ensure that there are enough, or offer incentives for respondents ranging from money to gift certificates. There are also group effects on participants' responses in focus groups. Individuals in focus groups can be more likely to express attitudes they perceive to be socially desirable to the group, especially when sensitive topics are being discussed. When sensitive issues are being discussed, individual interviews are preferable.

Tips for Being Successful in the Field

Neuman (2009) described several basic strategies for success in field research:

- *Building relationships.* The researcher should build relationships with members of the social setting they are researching, but always keep a balance between social sensitivity and research goals. The researcher should be aware of how he or she appears to members of the social setting.

- *Perform small favors.* The researcher should be willing to engage in small acts of kindness without expecting anything in return.

- *Appearing interested and exercising selective inattention.* It is disrespectful to appear bored or disinterested in a social setting. The researcher should monitor his or her words and actions, including nonverbal cues that may signify disinterest.

- *Being an earnest novice.* The researcher should make an effort to try not to appear to be a *know-it-all* or *expert.* Instead, the primary mission of the researcher is to be a learner and to listen and ask questions.

- *Avoiding conflict.* It goes without saying that if the researcher is trying to collect data on an important issue that affects people's quality of life, being involved in a conflict within that group can only limit the researcher's ability to be of service.

Sampling in Qualitative Research

Probability sampling is rarely used in qualitative field research because of the difficulty of establishing a sampling frame. Field research usually makes use of nonprobability sampling techniques such as purposive sampling and snowball sampling. Purposive sampling, as described in previous chapters, allows the researcher to select a sample directly related to the research question. Probability sampling is sometimes used in qualitative research; usually it is used in qualitative interviewing. If the researcher is interested in generalizing findings to a large population, it would be smart to use probability sampling.

Validity and Reliability

Internal validity in qualitative research refers to how good a match there is between the observations the researcher makes during the research process, the conclusions researchers draw, and the theories they develop. Internal validity is particularly strong in qualitative research because researchers often spend lots of time in the social setting they are studying, compared to relatively brief interactions between the researcher and the participants in quantitative research. External validity refers to how well conclusions can be applied to larger social settings. External validity can present a problem for qualitative research because qualitative research so often makes use of case studies of small sample sizes. In qualitative

research there are several techniques that can be used by the researcher to enhance the validity of observations.

External reliability refers to the degree to which a study can be replicated. However, this is difficult in qualitative research because social settings are different. Internal reliability refers to the degree to which observers agree about what they observe in situations in which there is more than one observer. Methods of increasing reliability will be discussed below.

Some scholars argue that since the goals of qualitative research and quantitative research are different, they should be evaluated differently. Lincoln and Guba (1985) discuss two main criteria for evaluating a qualitative study: trustworthiness and authenticity.

Trustworthiness is made up of four different criteria: credibility, transferability, dependability, and conformability.

Credibility is a concern in qualitative research because different researchers can create different accounts of the same phenomena that are observed. However, what is important about those observations is their credibility, or how correctly the researchers understood what they observed. This can be enhanced by ensuring that the researcher used ethical and best practices. Additionally, the researcher can confirm his/her observations with members of the social setting they observe to ensure that people's attitudes and behaviors were observed properly. *Triangulation* is another name for the researcher's practice of providing research participants with an account of their research and findings to seek confirmation or validation of the findings they arrived at.

Transferability refers to the degree to which qualitative findings can be transferred to or applied to different social settings. According to Lincoln and Guba (1985), qualitative research is concerned with providing detailed descriptions of the uniqueness of social settings. They add that the thick description or rich detail of qualitative research provides the information necessary to determine how transferable findings are to other social settings.

Dependability should also be assessed through an auditing process. Research must be monitored to ensure that complete records are kept, including all phases of the research process from problem formulation, to sample selection, and field notes to the making of interview transcripts, data analysis, and the drawing of conclusions.

Conformability refers to the degree to which the researcher has acted in good faith by not letting his or her personal opinions or theoretical inclinations obstruct the conduct of research and interpretation of findings.

Authenticity consists of five components: fairness, ontological authenticity, educative authenticity, catalytic authenticity, and tactical authenticity.

Fairness is concerned with how justly or honestly the researcher represents the viewpoints of all members of the social setting under observation.

Ontological authenticity refers to how well the research allows members of the setting to gain a better understanding of their social conditions.

Educative authenticity refers to how well the research helps members of the social setting better appreciate the different perspective of other members of their social setting.

Catalytic authenticity refers to whether or not the research inspires members of the social setting to engage in social change to improve their condition.

Tactical authenticity refers to whether or not the research has empowered members of the social setting with the steps necessary to engage in social action (Bryman, 2008).

These criteria are very much relevant to action research and Black emancipatory action research. Monette, Sullivan, and DeJong (2005) suggest several procedures that can be employed in field research to enhance the validity of research:

- *Be as thorough as possible in describing and interpreting situations.* Thorough observations increase the likelihood that the most important aspects of the social setting are captured. It is better to have too much data and too much detail than too little.

- *Carefully assess your own values, prejudices, and dispositions to see how they might bias your research.* Researchers' expectations shape their perceptions. These expectations lead to what we have discussed earlier in this text as selective observation. To guard against this we should consciously look for cases or situations that contradict our expectations.

- *Have other researchers or confederates observe the same social setting to see if they have similar interpretations.* This can confirm the researcher's observation or alert him or her of bias.
- *Confirm the conclusions reached through field observations with those researched through other methods.* If other methods such as experimental designs and survey data confirm qualitative research, then the findings can be received with more confidence.
- *Consider how the conditions of the observer might influence the research.* The researcher's mental state (stress, anxiety, and other extreme emotions) might influence observations. The researcher should be aware of this and minimize these emotions' effect on how participants are described.
- *Look for illegal, risky, or embarrassing behavior.* If people engage in this kind of behavior when they know they are being observed, then it is more likely that they are acting naturally and not reacting to the observer.
- *If possible, make an audio or video recording of the social setting.* Recordings can pick up things that the researcher misses through human error. This is a good way of checking or validating researcher observations.

Because qualitative researchers are interested in observing the specifics of very particular social settings or cultures, reliability is not as easy to assess. However, if observations are done in a more structured way, they may be assessed by way of monitoring coding manuals and coding schedules mentioned earlier in the text. Researchers also assess reliability using inter-coder reliability or having more than one observer code the same data into categories to check for consistency.

Strengths and Limitations

Because field research is not limited to words and verbal statements, it is well positioned to observe the consistency between people's words and behaviors, or what they say during interviews and what they actually do in the real world. Because qualitative research often takes place over long periods of time, it is well suited to describe change as it takes place over time. Field research also provides a depth of information that is not often found in survey research or experimental design. Finally, field research can also be used to observe groups that might otherwise be inaccessible in other methods of research. Some groups may not be open to participating in experiments or survey designs.

However, there are some disadvantages to field research. Because the researcher is the primary tool of observation in field research, the possibility of observer bias is greater than in quantitative research. Because researchers and social settings are

so different and qualitative studies are less structured, it is also more difficult to establish reliability in qualitative research. Because field research involves so much dense description and detailed observation, the data are much more difficult and time consuming to quantify. Field research is also less generalizable in most cases because it involves small sample sizes.

Qualitative Data Analysis

Qualitative analysis involves the analysis of data without converting them to numerical form (Babbie, 2001). However, there is not a clear delineation between quantitative and qualitative data analysis. Qualitative data analysis still relies on some level of numerical analysis, although far less in comparison to quantitative data analysis, which will be covered in the next chapter. As we know, qualitative methods produce lots of data in the form of words and narratives from field notes and in-depth interviews. That data has to be analyzed. In most cases, it must be coded.

Coding, or thematic analysis, involves translating or reducing data into categories based on patterns or themes. Researchers do *coding* by looking for patterns in data that provide understanding and meaning of phenomena being studied. The codes produced as a result are essential in the process of conceptualization and the development of theories such as in the *grounded theory* approach. Thomas, Manusov, Wang, and Livingston (2011) conducted semi-structured interviews with Black males to determine what characteristics and experiences contributed to their success in being admitted to and graduating from medical school. The semi-structured interviews produced lots of qualitative interview data, but they had to be coded. The researchers had to identify patterns or themes in the data; this process simplifies the mass of unstructured data derived from qualitative methods of data collection. Those themes would represent the characteristics and experiences that contributed to the men's success.

Consider the following two approaches to coding. One approach is to enter the process of coding with no pre-established coding scheme. This is characteristic of the grounded theory approach. Using this approach, coding is done during the research process. Themes in the data are identified as the researcher reads though transcripts. Thomas, Manusov, Wang, and Livingston (2011) identified six categories of factors from their analysis of interview data: social support, education, exposure to the field of medicine, group identity, faith, and social responsibility. Another approach involves going into field research with a pre-established coding scheme. This coding scheme would come from the researcher's review of relevant literature and theoretical knowledge. For example, a researcher conducting research

on Black male success in medical school after Thomas and colleagues' study (2011) might decide to use the themes identified by them as a coding scheme. In this case they would conduct interviews or observations on a different set of Black males, looking specifically for semi-structured interview data that falls within the categories of social support, education, exposure to the field of medicine, group identity, faith, and social responsibility. This approach would test the preexisting coding scheme and possibly generate new categories.

According to Bryman (2008), there are several basic steps in the coding process. The researcher must code as soon as possible. Coding during the research process prevents the researcher from having to deal with a backlog of data to code when all data collection is completed. The researcher should first read through the data, taking into note of significant or interesting aspects of the data. Data should be read through again and key words and themes identified. These will become your categories. The researcher should go over the codes s/he has generated to see if some categories are the same or if they should be separated into distinct categories. The researcher should, again, analyze the codes or categories created to determine if there is enough support for each of them. This means that there should be observational data to support each of them. For example, multiple interviewees in the study by Thomas and fellow researchers (2011) mentioned social support, education, exposure to the field of medicine, group identity, faith, and social responsibility. Some people may have mentioned other factors that contributed to their success, but these themes represent the most commonly recurring factors. Themes that do not have enough support should be eliminated.

Ryan and Bernard (2003) identify several things for researchers to look for when they are searching for themes: repetition, indigenous typologies, metaphors and analogies, similarities and differences, linguistic connectors, missing data, and theoretical material. *Repetition* is one thing to look for in the coding process. In particular, the researcher should be looking for the repetition of topics and subject matter. *Indigenous typologies* are also important to look for; they are expressions that are unfamiliar or used in an unfamiliar way. Researchers should pay attention to the *metaphors and analogies* that respondents use to represent their thoughts. Because *similarities and differences* reveal how respondents express the same or different ideas in unique ways, it is essential to take note of them. Paying attention to *linguistic connectors* such as the words "because" or "since" is important, because they often indicate respondents' perceptions of causal relationships. *Missing data* are equally important because what is not said is just as important as what is said, and this can present an opportunity for the researcher to ask about the kind of information that respondents omit. Finally, *theoretical material* refers to theoretical concepts in the social science literature that may be represented among the data being analyzed.

CAQDAS

Computer-assisted qualitative data analysis software (CAQDAS) refers to techniques that allow researchers to code qualitative text while on the computer. CAQDAS allows the computer to complete some of the previously mentioned tasks associated with qualitative data analysis such as marking patterns of text and organizing them in a sequential way. However, CAQDAS cannot perform other tasks associated with qualitative data analysis such as interpreting data. There are several software packages designed for CAQDAS such as NVivo, ATLAS/ti, and Ethnograph that can be downloaded from the following sites:

www.qsrinternational.com
www.atlasti.com
www.qualisresearch.com

Key Terms

Action Research
Black Emancipatory Action Research (BEAR)
Case Study
Coding
Computer-assisted qualitative data analysis software (CAQDAS)
Conversation Analysis
Discourse Analysis
Ethnography
Ethnomethodology
Field Notes
Field Research
Focus Group
Grounded Theory
Narrative Analysis
Naturalism
Observation
Participatory Action Research
Participant Observation
Profiling
Semi-structured Interviews
Unstructured Interviews

Thinking about Science

1. "Actions speak louder than words."
2. "If you make your bed you have to lie in it."
3. "I won't let the same bee sting me twice."
4. "A bird in the hand is worth two in the bush."
5. "The blind leading the blind."
6. "Don't bite off more than you can chew."

Quantitative Data Analysis

People in Ancient Africa used notational marks on things like stones and bones in groups of fives and tens to indicate number systems. Ancient Kemetic (Egyptian) science moved beyond diagonal strokes grouped together; instead, single hieroglyphic symbols (Medu Neter) were used to represent numbers. Small symbols allowed the ancient Egyptians to understand more of the universe. These symbols allowed them to use numbers to survey land, prepare for floods, grow crops, build pyramids, and map the solar system. We know similar symbols today such as 1, 2, 3, 4, and 5. **Quantitative data analysis** refers to deriving meaning from numerical data collected during research. It involves numbers representing values that measure characteristics of research subjects or participants. These numbers help us understand the *social* universe. In this chapter we will explore different levels and approaches to quantitative data analysis. We will explore the data analysis techniques appropriate for data analysis based on how many variables are involved. Ultimately, we will explore how you go about making meaning of data through statistical analysis.

Statistics are the mathematical procedures that researchers use to produce numerical values for the purpose of summarizing and interpreting information. For instance, the National Urban League developed the Save Our Sons Diabetes Prevention Project (National Urban League, 2012). The program was designed to teach participating African American men how to recognize diabetes through

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7. "Never burn your bridges behind you."
8. "You can't have your cake and eat it too."
9. "The blacker the berry, the sweeter the juice."
10. "What goes around comes around."
11. "One monkey don't stop the show."
12. "Don't be an education fool."
13. "You've got to work twice as hard to get half as much."
14. "Don't miss the forest for the trees."
15. "Don't be the pot calling the kettle black."
16. "Keep what you got and share what you have."
17. "Blood is thicker than water."
18. "It takes a village to raise a child."
19. "A closed mouth don't get fed."
20. "Until you know where you've been you can't know where you are going."

Activity 1

Read these 20 quotes and code them by grouping the quotes into categories based on common themes. Identify two or more common themes among the quotes. Create a name for each theme. Place the quotes into categories based on the themes they share. You may not be able to find a category for every quote. In this case, place the uncategorized quotes into the category called "miscellaneous."

Activity 2

Go to your library website and print out three field studies involving African/Black people.

Activity 3

Catch a local bus. Ride the bus from the beginning to the end of the line. Take field notes on the environment inside and outside of the bus as you ride. Take note of changes in the environment and interactions from the beginning to the end of the line.

workshops and other activities. The program also involved the men in a variety of physical fitness activities, including tennis, walking, bicycling, and swimming. The men also met regularly with "a personal trainer, dietician, and naturopathic doctor who discussed exercise routines, diets, and how to implement changes in health behaviors" (National Urban League, 2012, p. 178). Through statistical analysis of numerical data collected during the program, the Urban League was able to demonstrate that the men's health and knowledge of risk factors had significantly improved. Many of the men decreased their weight by 50 pounds and their cholesterol levels by 60 points, and saw improvements in their body mass index, glucose levels, and blood pressure. This brief example illustrates how statistics can be used to demonstrate the level of effectiveness of social interventions and other service-providing activities. Today, statistics can help us decipher and critique research about the social universe.

There are two basic purposes of statistics (Gravetter & Wallnau, 2004):

1. to help the researcher organize and summarize information, clarify what happened in the research, and communicate the results.
2. to help the researcher answer the research question(s) and determine what conclusions are justifiable based on the results.

Scales of Measurement for Different Types of Variables

The types of variables on which data are collected influence what statistical analysis can be undertaken. It is important for researchers to anticipate the types of variables on which they will be collecting data so that they know what kinds of analysis they will need to use. There are four levels of measurement ranging from the most simple to the most sophisticated.

Nominal scales are used to categorize data collected from observations. Measures using this scale involve labeling or naming things. Variables such as gender, job occupation, race, or religious affiliation are measured at the nominal level. Data can be differentiated based on what category they are assigned to at the nominal level, but you cannot say that one is more or less than the other. For example, if two people answer a question asking them what religion they are, and one checks Christian and the other checks Muslim, you cannot say that one has more religiosity than the other. Nominal scales simply categorize; they only identify qualitative differences, not quantitative differences.

Ordinal scales measure data on variables that can be rank-ordered. Ranks such as small, medium, or large or achievement levels ranked as low, medium, or high are

measured at the ordinal level. However, ordinal measurement does not tell you how far apart individuals are. For example, if Rashid is at the high math proficiency level and Tamara is at the medium math proficiency level, you know that Rashid is a better mathematician, but you do not know how much better.

Ratio and interval scales measure data where the distance between categories is the same. For example, if you collected data on how many minutes people spend per day exercising, the difference between someone who spends 25 minutes and another person who spends 30 minutes would be the same as the difference between someone who spends 35 minutes and a person who spends 40 minutes. These scales are important to keep in mind when deciding how to analyze data.

Coding Quantitative Data

Once researchers collect raw data, those data have to be converted into a computer-readable format. This process is called **data coding**. Computers organize numerical data as **data records**. Data records are usually kept on a file card or computerized document. A single data record contains all information on each variable for one person. If you distribute and collect questionnaires from 200 people, then you have 200 data records. The researcher must assign numerical values to each attribute or category of each variable. (Numbers are necessary because the information must go into a computer program for analysis). For example, you may want to collect data on sex, grade point average (GPA), and college major. For sex, there are often two attributes: male and female. However, the researcher would be prudent to either provide an open-ended "other" option or to provide specific options for other categories of sex. Sex is a nominal-level variable, so male and female would have to be assigned numerical values so that they are computer readable. You might code male as 2 and female as 1. GPA is already a numerical value and can be entered directly into a computer data analysis program. If a Likert-type scale were used to measure an attitude such as self-esteem, you would need to assign numbers to each attribute of the scale so that they can be tabulated and measured. For example:

1. Strongly disagree
2. Disagree
3. Not sure
4. Agree
5. Strongly agree

variables that are considered at a given time: one, two, three, or more. In other words, there are *univariate* statistics (one variable), *bivariate* statistics (two variables), and *multivariate* statistics (three or more variables). Descriptive techniques are called **univariate analysis** when only one variable and its attributes are involved. An example of a univariate analysis would be an investigation of the average annual income for African American teachers. The only variable in that example is annual income; African Americans are a constant. This same investigation could be turned into a bivariate analysis by introducing a second variable such as: "How does gender affect the average income paid to African American school teachers?" Now the investigation has two variables: gender and level of income. A multivariate analysis could be done by adding additional variables such as age.
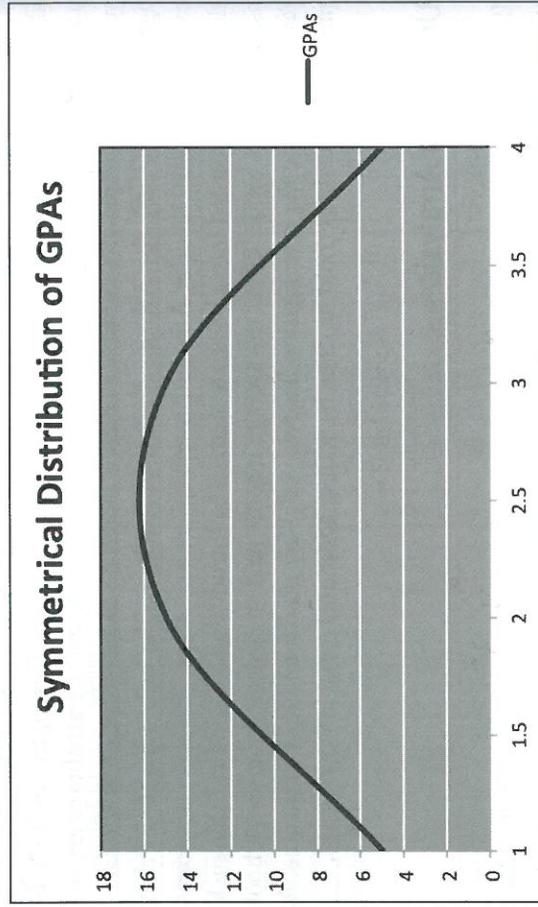
Univariate Analysis

Illustrations or charts, graphs, and images are all ways of simplifying the organization and presentation of data. There are many ways to illustrate univariate data, and several will be covered in this section. One of the easiest ways to illustrate numerical data about one variable is a **frequency distribution** (See Table 13.2). A frequency distribution is a description of the number of people (or animals or objects) that are classified in the same category of variable attributes. The frequency distribution simply shows you how many cases fall into each variable category. It also illustrates the variable categories that make up the measurement scale, and the frequency or number of individuals in each variable category (Gravetter & Wallnau, 2004). For example, you may have a frequency distribution of the ages of 83 high school students.

Table 13.2

Age Frequency Distribution		
	FREQUENCY	PERCENT
Valid		
14.00	6	7.2
15.00	11	13.3
16.00	21	25.3
17.00	27	32.5
18.00	16	19.3
19.00	2	2.4
Total	83	100.0

---

le 13.1

Sample Variable Code Book			
VARIABLE ID	VARIABLE NAME	DATA RANGE	MEASUREMENT SCALE
able 1	Sex	1 = F; 2 = M	Nominal
able 2	G.P.A.	0–4.0	Interval
able 3	Starting Salary	0–100	Ratio
able 4	Ending Salary	0–100	Ratio
able 5	SES	0–100	Ordinal
able 6	College Major	1 = Fine Arts 2 = Social Sciences 3 = Education 4 = Business Management	Nominal
able 7	Residence	1 = City 2= Suburb; 3 = Rural area	Nominal
able 8	Job Satisfaction	0–100	Interval

ll of the data items in a study must be converted to numerical codes representing the attributes of each variable (See Table 13.1). A **variable codebook** is a document or chart that describes the names of each variable, the codes of its attributes, the level at which they are measured. The variable codebook is a guide that tells how to interpret and analyze each variable as it is entered into the computer. Because of human error, data are not always entered properly. **Data cleaning** is the process of identifying and correcting errors in coding. Having errors in your can invalidate your study. One method of cleaning your data is to go through numerical values for impossible codes. For example, if sex consists of 1s and 2s you find a code of 3 under the category "sex," then there has been a coding. You must find the correct value and enter it.

criptive Statistics

here are two branches of statistics: descriptive and inferential. **Descriptive statistics** refers to a branch of statistics that is used to organize, summarize, and interpret data. **Inferential statistics** are used to make generalizations from sample to the population they were sampled from.

descriptive statistics are used to transfer and summarize raw data into a more ified form. Descriptive statistics can be organized based on the number of

Figure 13.2

Asymmetrical Distribution of GPAs with Positive Skew

of that subgroup relative to the other subgroups. Figure 13.4 provides an example of a pie chart. Green jobs are defined as jobs that are necessary for producing products and services that increase energy efficiency, expand the use of renewable en-
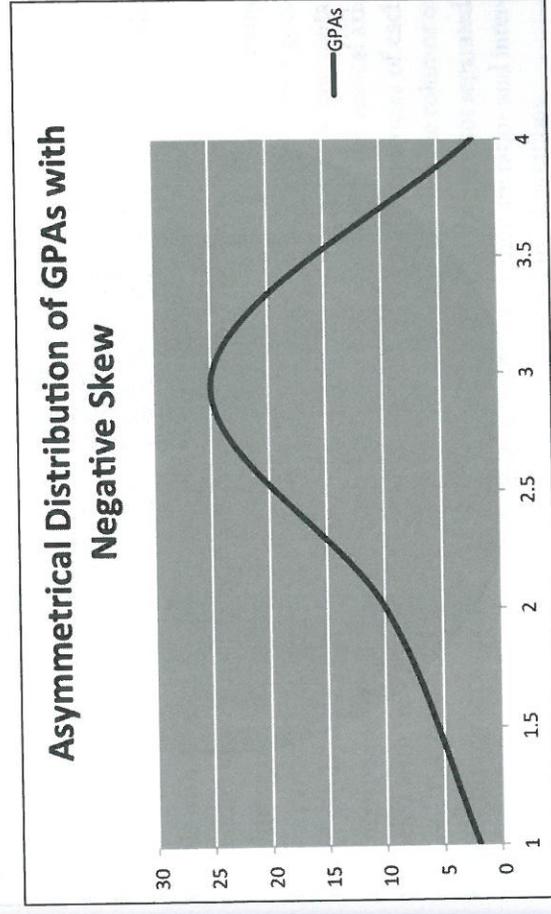
Figure 13.3

Asymmetrical Distribution of GPAs with Negative Skew

Figure 13.1

Symmetrical Distribution of GPAs

The frequency distribution would illustrate how many students fall into each category (14, 15, 16, 17, 18, or 19) of the variable "age" (see Table 13.2).

Types of Distributions

Frequency distributions present the range of values in a data set. This allows the researcher to evaluate the shape of the frequency distribution. The shape of the frequency distribution comes from the pattern created by the values in the data set. There are several labels that describe different kinds of distributions.

There are symmetrical and asymmetrical distributions. A **symmetrical distribution** is balanced, with one half of the distribution being exactly the same as the other half. However, in practice, data distributions only approach perfect symmetry (Figure 13.1). Asymmetrical or skewed distributions are noticeable because in them, most cases are gathered or clustered toward one end of the frequency distribution, with fewer cases trailing off in the other direction. A **positively skewed distribution** is one in which the long tail is extended toward the direction of the higher value (Figure 13.2), and the **negatively skewed distribution** is one in which the long tail is extended toward the direction of the lower values (Figure 13.3).

Frequency data can also be presented in the form or a pie chart, a bar chart, or a histogram. A **pie chart** is a good way to show how a whole group is divided into subgroups. The whole group is represented as a circle, and each subgroup is represented as a sector of that circle. The size of each slice in a pie chart shows the size
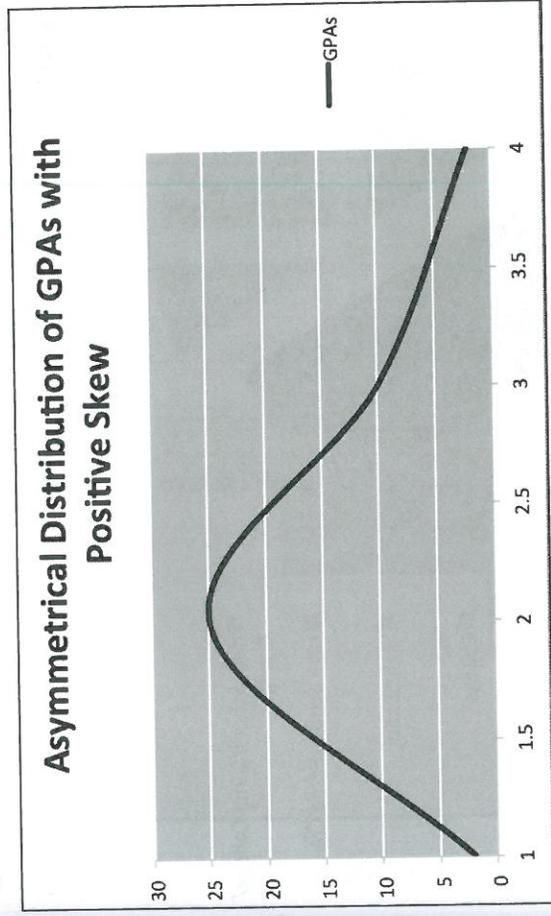
Figure 13.4

Frequency Distribution of Green Occupations by Educational Cluster

- High School/Some College/College
- High School/Some College
- High School
- College

Figure 13.5

Age

- 14.00
- 15.00
- 16.00
- 17.00
- 18.00
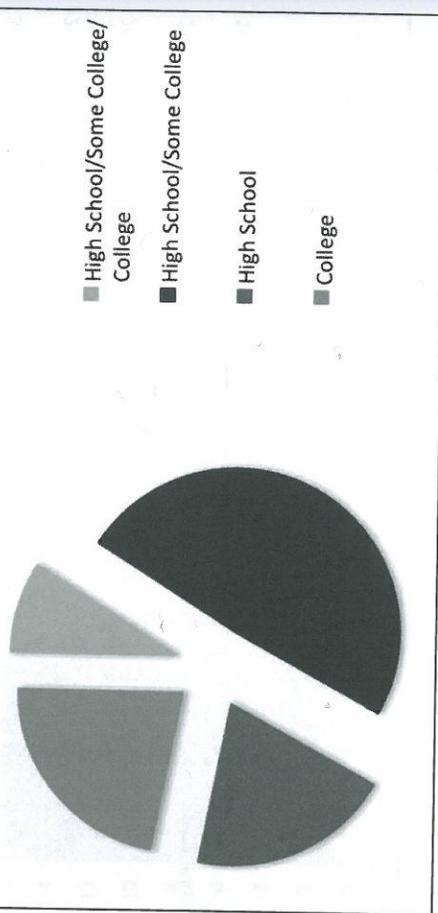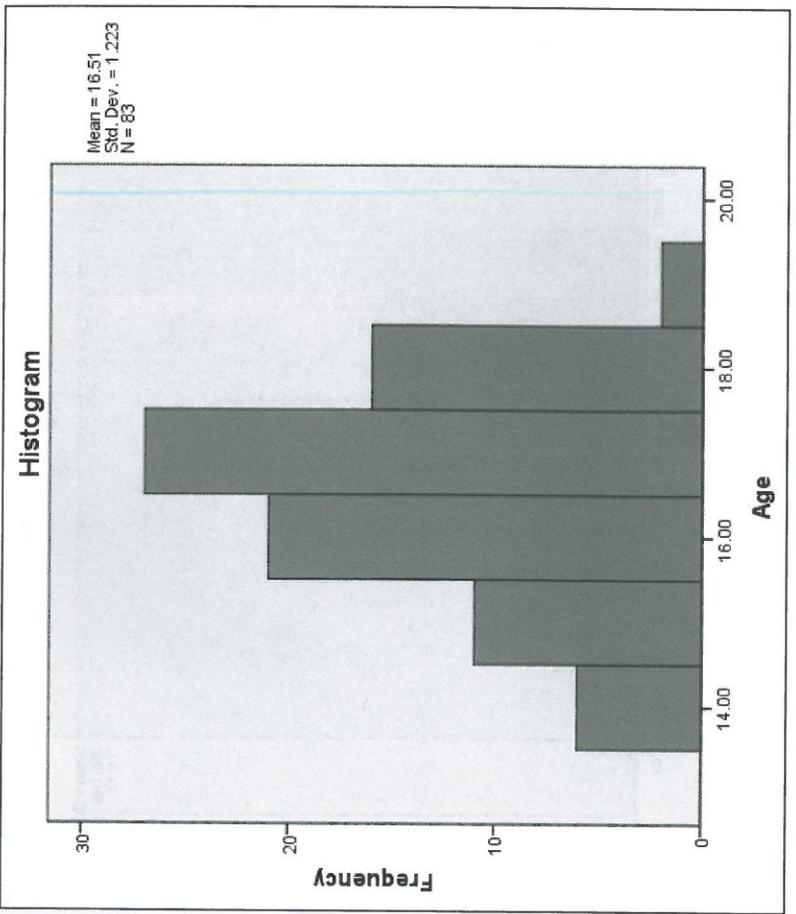- 19.00

Figure 13.6

Histogram

Mean = 16.51
Std. Dev. = 1.223
N = 83

ergy, and support environmental sustainability. The Bureau of Labor Statistics provides data on the frequency of jobs by educational cluster. According to the statistics, 20% of green jobs are accessible to individuals with only a high school diploma, 49% to individuals with a high school diploma or some college, and 22% for individuals with a college degree (National Urban League, 2010) (Figure 13.4).

Another example of a pie chart is provided in Figure 13.5, an age pie chart.

A **histogram** refers to the use of vertical columns or lines to indicate how many times a particular score appears in a data set (Figure 13.6). Histograms are a good way of displaying interval or ratio data. In a histogram the baseline or horizontal axis corresponds to the observed scores on the dependent variable. The vertical axis is labeled with frequencies. The top of the bar represents the frequencies of each category. The differences between histograms and bar charts is that the columns or bars in a histogram represent ratio- or interval-level data, so they are not separated. However, the bars in bar chart data are separate. Because they are ratio- and interval-level variables, age and GPA are good for the histogram illustrations.
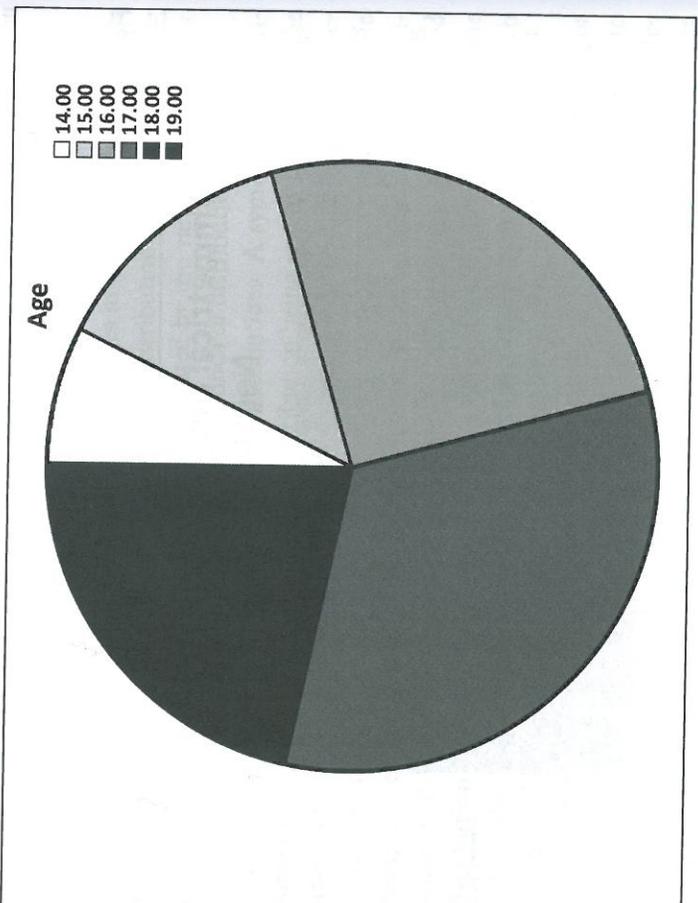
Figure 13.7

Histogram

Mean = 2.75
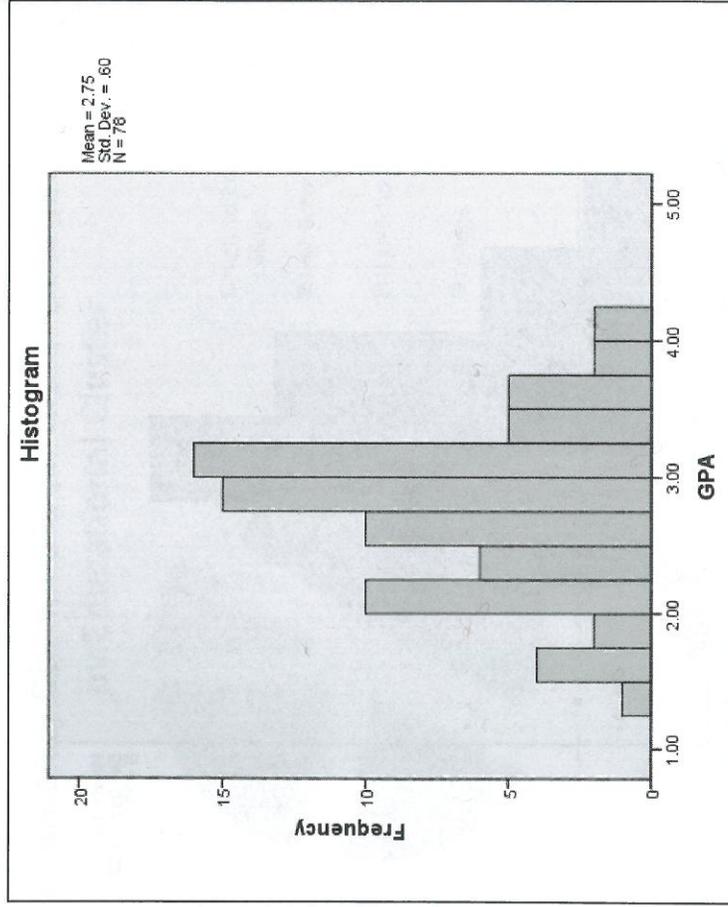Std. Dev. = .60
N = 78

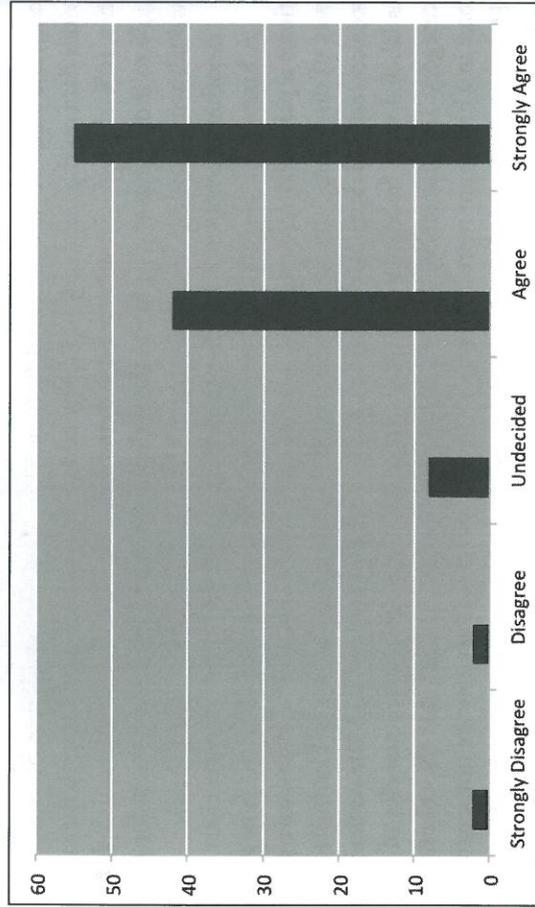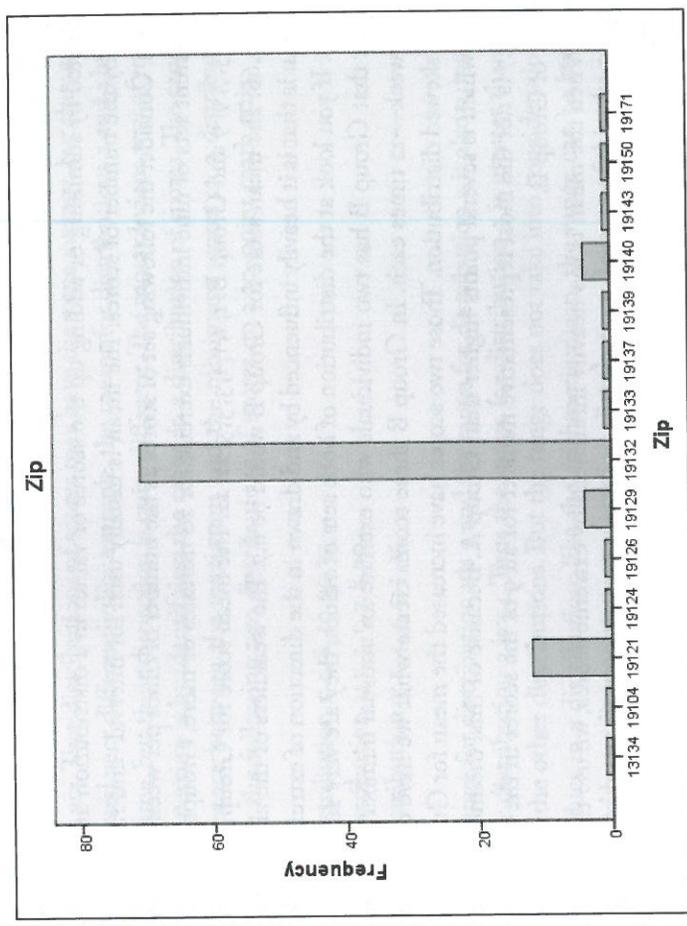Figure 13.8: Bar Chart of Responses to "I study Best when it is quiet."

Figure 13.9: Frequency Distribution of Research Participants by Zip Codes

Bar charts are used to represent nominal- and ordinal-level data. The categories of measurement in a bar chart are listed along the baseline, or x-axis. The bar chart is the same as the histogram, except that there are spaces between the bars. This is because nominal and ordinal data do not have equal spaces between points, and you cannot be certain that ordinal categories are the same size. Figure 13.8 illustrates student responses to the item "I study best when it is quiet" using a Likert-type agreement scale. The results indicate that 2 people strongly disagree, 2 people disagree, 8 people are undecided, 42 people agree, and 55 people strongly agree. The bar chart illustrates that most students study best when it is quiet. Figure 13.9 illustrates the presence of research participants by zip code (a nominal variable) using a bar chart. Obviously, the great majority of the research participants (71 out of 101) lived in zip code 19132 in Philadelphia.

Measures of Central Tendency

The purpose of **measures of central tendency** is to identify a single score that is the most representative of the entire distribution. Measures of central tendency are

meant to select the value that is most typical of a distribution of values. Using descriptive statistics, you can calculate three main measures of central tendency: the mean, median, and mode.

The **mean** is the arithmetic average of a distribution of values. The mean is calculated by summing or adding up the scores or values in a distribution and dividing by the number of scores. The mean is usually used for interval- and ratio-level data. Consider the following set of scores as the number of times per week that two different sets of nine individuals exercise for 20 minutes or more, Group A: 2, 2, 2, 3, 3, 5, 7, 9, 9 and Group B: 1, 1, 1, 1, 3, 5, 5, 22, 22. The mean score for Group A would be 4.66. The mean score for Group B would be 6.7. The weakness of the arithmetic mean is that it is heavily influenced by and drawn in the direction of extreme numbers. If you look at the distribution of both sets of values, they are very similar except that Group B has two individuals who exercise an unusual number of times per week—22 times each. In Group B these scores create what we have discussed as a skewed distribution. Those two scores have increased the mean for Group B to 6.7, which is several points higher than Group A. Because of this, the mean score of 6.7 is not the most representative number for all 9 of the scores in the distribution of Group B.

When the mean is too heavily influenced by extreme scores, we use the **mode**. The word "mode" means the customary or popular style (Gravetter & Wallnau, 2004). The mode is the value that occurs most frequently throughout a distribution. It can be used with all kinds of data: nominal, ordinal, interval, or ratio. The mode in Group A is clearly 2; there are no scores that occur more frequently. The mode for Group B is clearly 1. However, sometimes there is no mode. The mode is not used very often in formal studies, but it is sometimes used in informal studies.

The **median** is the middle score, or the midpoint of a distribution. It is the score in the distribution that divides the distribution exactly in half. To identify the median, you place the scores in the distribution in ascending order. Group A has an odd number of values, so the middle number is easy to identify: 3. Group B, however, has an even number of scores; therefore, to calculate the median, we must identify the two middle values of a distribution and calculate their average, which is 4. Whereas the mean is vulnerable to extreme scores in the distribution, the median is unaffected by them. For this reason, the median is best suited for calculating the central tendency of a skewed distribution. Because the mean will be influenced by extreme scores, the median is often used in official statistics that intend to identify the most representative number. For example, the U.S. Census Bureau reports the median family income because the average family income will be influenced by the few extremely wealthy individuals. The median can be used in calculating central tendency for interval-, ratio-, and ordinal-level data.

Measures of Dispersion

Dispersion refers to how values are distributed in a distribution of scores. **Measures of dispersion** are meant to identify how dispersed or spread out the values in a distribution are. Two distributions of scores may have the same average, but they could be dispersed very differently. For example, the means for distributions 2 and 3 below are the same, but their dispersion is quite different. The most obvious way of measuring dispersion is by identifying the range in a distribution of scores. The **range** is the difference between the maximum and the minimum scores in a distribution. Consider the following two distributions of scores on a 20-point math quiz:

Distribution 1: 2, 8, 10, 10, 11
Distribution 2: 1, 3, 5, 7, 8, 10
Distribution 3: 1, 4, 4, 5, 5, 15

The range for distribution 1 is 9 and the range for distribution 2 is also 9, but the range for distribution 3 is 14. Thus the range for distribution 3 is greater than the range of the other distributions. But the range does not take into consideration all of the values in a distribution; like the arithmetic mean, the range can be heavily influenced by outliers or extreme scores in a distribution. Because of this, the range is not the best indicator of dispersion in a distribution.

A more accurate measure of dispersion is the standard deviation, SD. The **standard deviation (SD)** is a statistic that describes the amount of variability in a distribution. Variability is the amount by which values in a distribution differ. As the standard deviation represents the average spread of the scores, the higher the SD, the more dispersed the scores in a distribution are from the mean. The smaller the SD, the less dispersed the scores are from the mean. The standard deviation takes into consideration the distance between each individual score and the mean. You might be worried that the SD could also be influenced by extreme scores in a distribution. The answer is yes, but those scores' impact is offset by dividing by the number of scores in the distribution. Considering the following scores on a different test from group 1, 2, and 3:

Group 1: 5, 10, 15, 20, 25, 30, 35
M = 20, SD = 10.8

Group 2: 19, 19, 19, 20, 21, 21, 21
M = 20, SD = 1

Group 3: 20, 20, 20, 20, 20, 20, 20
M = 20, SD = 0

Table 13.3

Descriptive Statistics

	N	RANGE	MINIMUM	MAXIMUM	MEAN	STD. DEVIATION
Group 1	7	30.00	5.00	35.00	20.0000	10.80123
Group 2	7	2.00	19.00	21.00	20.0000	1.00000
Group 3	7	.00	20.00	20.00	20.0000	.00000
Valid N (listwise)	7					

The scores in these three distributions all have the same average, but they also have very different levels of variability. The scores in group 1 are different by 5 points, and therefore they have a higher SD (10.8) than the scores in group 2 (1). However, all the scores in group 3 are exactly the same; therefore the SD is 0.

The Normal Distribution

When a randomly selected sample approaches 100 or more, the shape of the distribution typically takes on a bell curve, formally called a normal curve or normal distribution. In a **normal distribution,** 68% of the scores or values in a distribution lie within one standard deviation of the mean, one standard deviation (34%) below the mean, and one standard deviation (34%) above the mean. Ninety-five percent lie within two standard deviations of the mean. For example, if a study re-

Figure 13.10

34% 34% 13.5% 13.5% 2.5% 2.5%

Standard Deviations

-3 -2 -1 0 1 2 3

veals that the mean, $M = 75$ and $SD = 10$ in a normal distribution of math test scores then we know that 68% of the test takers scored between 65 (75 minus 10) and 85 (75 plus 10). A standard deviation takes into account how many points away from the mean it takes to capture 68% of the distribution. These statistics, such as 68%, cannot be expected in a distribution that is not normal (Figure 13.10).

Percentiles and Percentile Ranks

It is helpful for the researcher to be able to identify where specific scores in a distribution lie. When you take a test you may want to know in what percentile you scored. If you are a school principal or president, you may be interested in knowing in what percentile your students' scores rank in a distribution of state test scores. One way to identify this statistic is by calculating the percentile rank. **Percentile rank** is the number of scores in a distribution that are at or below a particular value. For example, imagine that you took a vocabulary test and earned 86 points, and you also know that 70 percent of your class scored at or below 86 points. Then your score has a percentile rank of 70%, and you scored in the 70th percentile. That score describes your position in a distribution. As we already know, the median of a distribution represents its 50th percentile. The 25th percentile represents the score at which 25% of the distribution are at or below that score. If you scored at the 90th percentile, then you scored better than 90% of the distribution and only 10% scored better than you. Knowing the percentile rank can tell you a lot about where a score lies with respect to other scores.

Z-Scores

Many of the previous measures that have been discussed in this section describe entire distributions. However, when describing a single score in a distribution, the researcher creates a standard score, or **z-score.** The z-score uses the mean and standard deviation of a distribution to calculate a z-score. The z-score expresses scores in terms of how many standard deviations they are above or below the mean. Z-scores also transform raw scores into standardized scores that allow you to compare across different distributions. Z-scores adjust for different distributions. This is useful when you want to compare the same variable in two populations.

Bivariate Analysis

In the previous sections of this chapter we looked at statistical procedures involving single-variable data sets. We looked at some examples wherein more than one
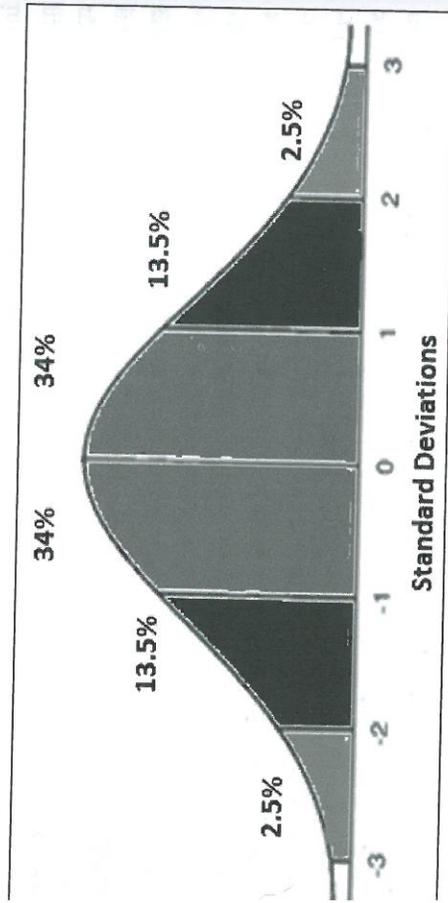
Table 13.4

Contingency Table of Student GPA and Hours per Day Spent Reading

GPA LEVEL	LESS THAN 1 HOUR	1-2 HOURS	3 OR MORE HOURS
2.5 and Above	8 (28%)	10 (50%)	20 (90%)
2.49 and Below	21 (72%)	10 (50%)	2 (10%)
Total	29	20	22

Figure 13.11

Linear

Figure 13.12

Curvilinear

variable were described, but they were described one at a time. However, most investigations involve statistical procedures that analyze the relationships between more than one variable. Here we will look at statistical techniques that help describe the relationship between two variables. Such statistical procedures are called *bivariate*. **Bivariate analysis** involves the analysis of two variables to determine whether or not there is a relationship between them.

Relationships between variables can be displayed in *contingency tables* and charts. A contingency table is a table that presents data on the relationship between variables as a distribution of percentages. Contingency tables are similar to frequency tables, but they are best suited to examine the relationship between two or more variables simultaneously. In most contingency tables, the independent variable is presented in the columns, and the dependent variables in the rows. The heading of a table should always describe exactly what data are being displayed. The variables and attributes of those variables should also be clearly described and explained. Table 13.4 illustrates data on two variables: high school students' grade point averages (GPA) and the number of hours per day they spend reading. The question these data can help to answer is whether or not there is a relationship between the number of hours per day high school students spend reading and their GPAs.

The contingency table reveals a positive relationship between GPA and hours spent reading. Bivariate relationships can also be displayed in a scattergram. A **scattergram** is a chart that allows you to see the relationships between two variables. In most cases, the independent variable is presented on the horizontal axis and the dependent variable on the vertical axis. Scattergrams are best used for interval- and ratio-level data. They do not work well for studies with only a few cases; they work best with large sample sizes. Scattergrams also reveal different kinds of relationships between variables. They can reveal independence between variables, which means that there is no relationship between variables. They can also reveal linear relationships between variables (Figure 13.11). The linear relationship, indicated by a straight line running from one corner of a table to the other, can be either positive or negative. *Positive* and *negative* indicate the directionality of a relationship be-
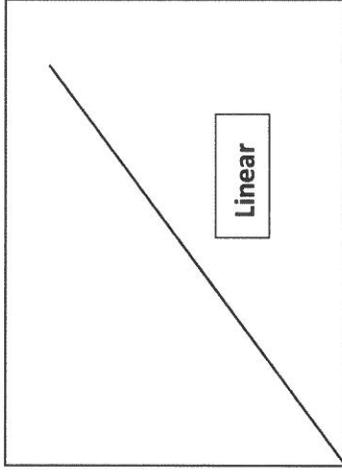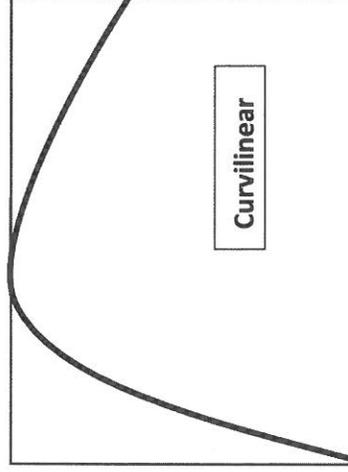
tween variables. There is also the curvilinear relationship, or non-linear relationship, which is indicated by a "U" shape or the shape of an upside down "U" (Figure 13.12). A positive relationship is illustrated by a line that starts at the lower left of a table and stretches to the upper right (Figure 13.13). A negative relationship is indicated by a line that begins at the upper left of a table and stretches to the lower right (Figure 13.14). The relationship between GPA and hours spent reading is a positive relationship.

Bivariate relationships have varying degrees of precision. The examples below indicate that a precise relationship describes a situation where all of the cases fit along the line that represents their direction and relationship (Figure 13.16). However, an imprecise relationship describes a situation where cases are more scattered near and far from the line representing their direction and relationship (Figure 13.15).
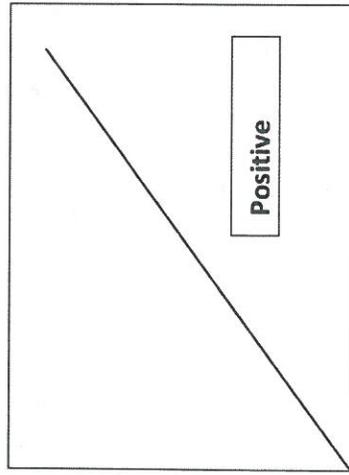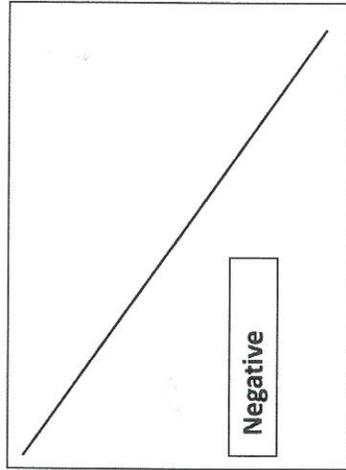
Figure 13.13

Positive

Figure 13.14

Negative

Figure 13.15

Imprecise

Figure 13.16

Precise
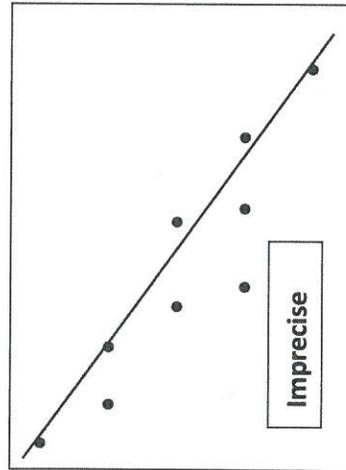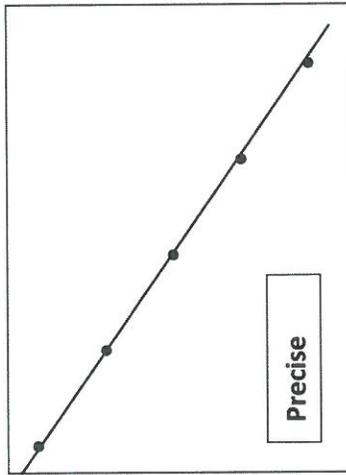
Strength of Association

Measures of association reduce the strength and direction of association between two variables to a single number. The most commonly used measure of the strength of association between two variables is the **Pearson Product Moment Correlation Coefficient**. The symbol for the Pearson correlation coefficient symbol is r. However, there are many other measures of association, such as Cramer's V, Lambda, Gamma, Tau, Rho, and Chi-Square. If the result of a measure of association is zero, this indicates statistical independence, meaning that there is absolutely no relationship between the two variables being measured. If the relationship is not zero, then there is a relationship between the variables. Pearson's r ranges from -1 to $+1$; negative numbers indicate an inverse or negative relationship, and positive numbers indicate a positive relationship (Figure 13.17). Let's consider our examples of the relationship between GPA and number of hours spent reading per day. If there were a correlation coefficient of 1 ($r = 1$), that would mean that there is a perfect positive correlation without error between GPA and number of hours spent reading per day such that every increase in hours spent reading per day corresponds with an equal increase in GPA. If there were a correlation coefficient of -1 ($r = -1$), that would

Figure 13.17

Inverse Relationship   Positive Relationship

Perfect Inverse Relationship   No Relationship   Perfect Positive Relationship

-1.00   0   1.00
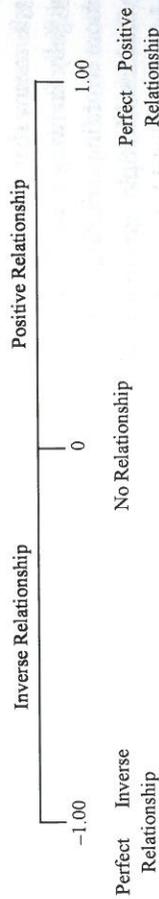
mean that there is a perfect inverse correlation without error between GPA and number of hours spent reading per day such that every increase in hours spent reading per day corresponds with an equal decrease in GPA. The closer a correlation coefficient is to 1 or −1, the stronger the relationship is (Figure 13.17). Pearson correlations can be thought of in terms of percentages. However, to do so the correlation coefficient must be converted into what is called a coefficient of determination symbolized as r^2. To compute this number, you square r. Therefore, if the relationship between the number of hours spent watching television per day and number of hours spent reading per day were −.85, there would be an r of −.85, r^2 = −.72. If you multiply −.72 by 100, the result is 72%. This means that 72% of the variance in hours spent watching television per day can be accounted for by the number of hours spent reading per day.

Multivariate Analysis

Multivariate analyses involve the simultaneous analysis of the relationship between three or more variables. Multivariate analyses are useful for many reasons. What we already know from earlier chapters is that just because there is a relationship between two variables, this doesn't mean that one is the cause of the other. Sometimes there is a third variable or spurious variable responsible for changes in both variables. To determine the impact of other variables on a relationship, researchers often include alternative variables. Outside of the impact of spurious variables, there may simply be other variables that impact the relationship between variables. For example, we may be interested in how much students' parents' levels of education are related to the number of hours per day students spend watching television or reading. Including other variables or control variables helps a researcher to provide a better explanation of the relationship between variables.

One method of analysis that is used for interval- and ratio-level data is the **multiple regression analysis**. There are many statistical computer packages that run multiple regression analyses. A multiple regression analysis allows the researcher to predict a dependent variable based on information about multiple independent variables. A multiple regression analysis produces a number referred to as R-squared, or R^2. An R^2 tells the researcher what percentage of accuracy in predicting the dependent variable can be accounted for by multiple independent variables. An R^2 of 35% means that the accuracy in predicting the dependent variable is improved by 35% by knowing the independent variables. This means that you would make 35% more errors in predicting the dependent variable without knowing the independent variables. Multiple regression analysis also tells you how much of an impact each independent variable has on the dependent variable in question. This is especially use-

ful when the researcher is interested in knowing how much impact multiple independent variables have on a dependent variable, or which independent variable has the greatest impact on a dependent variable. For example, a multiple regression would be useful if we were interested in how much impact hours spent reading per day, hours spent watching television per day, and parents' levels of education, all taken together, have on students' GPAs, or which of them has the greatest impact.

Inferential Statistics

Inferential statistics moves from simply describing data to testing hypotheses and relating results from sample data to the populations they were drawn from. **Inferential statistics** allows the researcher to use probability theory to test hypotheses and evaluate the strength of relationships between variables. It is assumed that if the researcher uses inferential statistics, a random sampling technique has been used. One aspect of inferential statistics is the concept of statistical significance: the probability that a researcher's observations represent a genuine pattern and not just mere chance. There are many tests of statistical significance, such as the **t-test** and the **analysis of variance (ANOVA)**. Researchers use these tests of statistical significance to provide the data necessary to decide whether or not to accept or reject their hypotheses.

The reason that statistical significance is important is because researchers must always be concerned with the threat that the findings they arrive at from their sample will not be representative of the larger population they were selected from. As we already know, **sampling error** is the difference between the sample that a researcher selects and the population from which the sample was selected. Even when the researcher has used a probability sample, sampling error is still an ever-present threat. Moreover, researchers can never be certain that their findings apply to the population they were drawn from. All researchers can do is determine how confident they can be in their findings, and tests of statistical significance help the researcher make such determinations. These tests tell the researcher how much risk they are taking in making inferences about the larger population based on sample results.

Imagine that we selected a random sample of 1,000 African Americans adults from Baton Rouge, Louisiana. We may discover from our analysis of the 1,000 African American adults that there is a strong inverse or negative relationship between their strength of spiritual belief and their level of alcohol consumption, such that the stronger individuals' spiritual beliefs are, the less alcohol they consume. Tests of statistical significance tell us how confident we can be that this finding is true for other African American adult residents of Baton Rouge, and how much risk we are taking in applying this finding to the larger population. Technically, **statistical significance** tells you how likely the results from a sample could be due

to random error (simply put, it's the probability of finding a relationship among sample data when there is none in the larger population).

Hypothesis Testing

Statistical significance often involves the testing of hypotheses. A **hypothesis** is a statement about the relationship between variables in a study. The researcher goes on to test that relationship. The researcher develops two contradictory or completely opposite hypotheses. The test of statistical significance tells the researcher which one of the hypotheses is most likely correct. The first hypothesis is called the **null hypothesis**, which states that two or more variables are not related in the population. For example, the null hypothesis in our spirituality and alcohol study would state that there is no relationship between strength of spiritual beliefs and level of alcohol consumption. Simply put, the null hypothesis guesses that there is no relationship between variable A and variable B in a population. The second hypothesis is called the **alternative hypothesis,** or the research hypothesis. The alternative hypothesis would be that there *is* a relationship between strength of spiritual beliefs and level of alcohol consumption. That is, the alternative hypothesis states that there is a relationship between variable A and variable B in a population. Statistical tests tell us which hypothesis is probable or improbable. These hypotheses exist because there is no way to prove the research hypothesis directly, but what a researcher *can* do is determine how likely the null and alternative hypotheses are to be false or true.

Tests of statistical significance provide the researcher with a **level of significance.** The level of significance provides researchers with a precise measure of how likely it is that their findings are due to chance alone, so that a researcher may use it to decide whether or not to accept or reject the null hypothesis. If the finding is not likely to be due to chance, then the relationship between variables in the sample is likely to be true for the larger population as well. In this case, the researcher would reject the null hypothesis and accept the alternative hypothesis. If the findings of a study indicate that the relationship between variables in a study have 5% or greater chance of being due to random chance, then the scientific community agrees that it is not statistically significant. In this case we would accept the null hypothesis and reject the alternative hypothesis. However, if the finding has less than a 5% chance of being due to the random process, then the finding is considered by the scientific community to be statistically significant. The level .05 is also referred to as the **alpha level,** or the level at which the null hypothesis will be rejected. Again, the level of significance tells the researcher the likelihood that results are due to random chance. Statistically significant results occur at three different probability levels:

- .05 Level
- .01 Level
- .001 Level

According to probability theory, if results are significant at the .05 level, you are likely to find these results as a consequence of random chance only 5 in 100 times. It also means that there is a 95% probability that the results are not due to random chance but are truly reflective of the larger population. It means you can be 95% *confident* that your sample findings are true for the larger population, too. Because we cannot say for certain that the findings we draw from a sample are true for the larger population the sample was drawn from, probability theory allows us to determine how likely it is that our results are the consequence of random error. Moreover, the scientific community has agreed that .05, or 5% chance of error or less, is small enough to take seriously.

There are two types of errors that a researcher can make in the process of drawing inferences based on statistical analyses: Type I errors and Type II errors. A **Type I error** occurs when the researcher rejects the null hypothesis when s/he should have accepted or confirmed it. When this happens, it means that the researcher claims to have found a relationship among the population when it was not a true relationship but was instead due to chance. If we draw our conclusions using a .05 level of significance, we are more likely to make a Type I error than when we are using a .01 level of significance. However, if you use a .01 or level of significance—meaning you do not reject the null hypothesis unless there is less than a .01 chance of error—you are more likely to make a Type II error. A **Type II error** occurs when the researcher accepts the null hypothesis when s/he should have rejected it, meaning that the researcher has claimed to have found no relationship among the population when there was a true relationship that was not attributable to random chance.

Additional Statistical Procedures

In addition to previously mentioned statistical procedures such as the Pearson correlation and multiple regression, there are several other statistical procedures used to measure statistical significance levels. One test used to decide whether two sample means are significantly different from one another is the **t-test**. The t-test assumes that random sampling procedures have been used. If you are using a t-test of any inferential statistical procedure, the larger the sample, the smaller the likelihood that observed differences will be due to sampling errors. The t-test is well suited for dichotomous independent variables such as sex.

Imagine that we have a new, engaging method of teaching math. We might be interested in determining whether or not this new engaging method of teaching math

is better for girls or boys. We might conduct a study in which we expose a randomly selected group of 100 students (50 boys and 50 girls) to this new and engaging method of teaching math. We might use a t-test to analyze the grades achieved by girls and boys at the end of the semester, and we might discover that the mean score of the boys was 85, and the girls' mean score was 93. However, we don't just want to know whether there was a statistical difference between the boys' and girls' scores; we want to know whether or not that score was statistically significant. Thus, we discover that the difference in their mean scores is statistically significant and that the probability level is .0345. Is this statistically significant? Yes! It is statistically significant because it is smaller than .05. This means that we can reject the null hypothesis and accept the alternative hypothesis because it is only less than 5 times out of 100 that the difference we found between boys and girls will be due to random chance.

The t-test was designed to compare the means of two groups and keep the experiment wise error rate at alpha .05. However, what happens when you need to compare the means of three or more groups—for example, freshmen, sophomores, juniors, and seniors? You could conceivably conduct a t-test on each group (i.e., you could compare freshmen with sophomores, then freshmen with juniors, then freshmen with seniors, and so on), but the error rate or alpha would be greater than .05, which means you have inflated your chance of making a type I error or claiming to have a significant finding when you do not. Multiple t-tests increase your chances of drawing an incorrect conclusion.

Analysis of variance (ANOVA) can be used to compare the means of three or more groups of subjects based on a single independent variable (or any number of means). ANOVA is designed to compare three or more means simultaneously, keeping the experiment wise error rate at alpha .05. ANOVA could be used to test whether or not there is a statistical difference between the scores of freshmen, sophomores, juniors, and seniors who are taught math using our new engaging methods of teaching mathematics. There are many more statistical procedures that are beyond the scope of this text. To go further into these and other procedures, readers are encouraged to pursue additional reading in statistical textbooks. All of the previously mentioned procedures vary in their usefulness, depending on the nature of the research being conducted. Be aware of the functions of each technique, and you will know when to use any particular technique.

Key Terms

Alpha Level
Analysis of Variance (ANOVA)

Alternative Hypothesis
Bar Chart
Bivariate Analysis

Data Cleaning
Data Coding
Data Records
Descriptive Statistics
Frequency Distribution
Histogram
Hypothesis
Inferential Statistics
Interval Scales
Level of Significance
Mean
Measures of Central Tendency
Measures of Dispersion
Median
Mode
Multiple Regression Analysis
Multivariate Analysis
Negatively Skewed Distribution
Nominal Scales
Normal Distribution

Null Hypothesis
Ordinal Scales
Pearson Product Moment Correlation Coefficient
Percentile Rank
Pie Chart
Positively Skewed Distribution
Quantitative Data Analysis
Range
Ratio Scales
Sampling Error
Scattergram
Standard Deviation (SD)
Statistical Significance
Statistics
Symmetrical Distribution
T-Test
Type I Error
Type II Error
Univariate Analysis
Variable Codebook
Z-Score

Thinking about Science

Jamison (2006) examined the relationships between African Self-Consciousness, Cultural Misorientation, Hypermasculinity, and Rap Music Preference. African Self-Consciousness was measured using a 42-item African Self-Consciousness Scale. The scale assesses (1) individuals' recognition of themselves as having African identity and heritage, (2) the level of priority they place on the well-being of African/Black people, (3) the specific activity priorities they place on self-knowledge and the collective survival of African/Black people, and (4) their resistance to forces that threaten the well-being of African/Black people. The scale produces a score representing a person's level of African Self-Consciousness. Cultural Misorientation was measured using the 56-item Cultural Misorientation Scale, which assesses cultural misorientation across six dimensions: (1) materialism, (2) individualism, (3) alien self-orientation, (4) anti-self-orientation, (5) self-destructive orientation, and (6) integration orientation. Hypermasculinity was measured

using the 30-item Hypermasculinity Inventory, which measures three dimensions of hypermasculinity, including (1) danger as exciting, (2) calloused sexual attitudes toward women, and (3) violence as manly. Rap music preference was categorized into three different subgroups: (1) reality rap (politically conscious), (2) conscious rap, (3) recreational rap, and (4) non-rap listeners.

Activity 1

Identify the level of measurement for the variables Rap Music Preference, African Self-Consciousness, and Cultural Misorientation.

Activity 2

African Self-Consciousness was divided into two categories: High African Self-Consciousness and Low African Self-Consciousness. There were a total of 72 participants in the study. Among those in the Low African Self-Consciousness group, 23 preferred reality rap, 3 preferred conscious rap, 9 preferred recreational rap, and 1 was a rap non-listener. Among those in the High African Self-Consciousness group, 12 preferred reality rap, 17 preferred conscious rap, 3 preferred recreational rap, and there were 4 rap non-listeners. Create a contingency table representing the information explained in Activity 2.

Activity 3

Jamison (2006) conducted an independent samples t-test to find out whether or not there was a significant difference between the Hypermasculinity scores of those who were low in Cultural Misorientation and those who were high in Cultural Misorientation. The test indicated that the group that had high Cultural Misorientation scores had significantly higher Hypermasculinity scores than those who had low Cultural Misorientation scores. The probability value was less than .05. What were the null and alternative hypotheses? Based on the information in Activity 3, would Jamison (2006) accept or reject the null hypothesis?

Glossary

ACTION RESEARCH: An approach to research that is designed to find the most effective way to bring about some desired social change.

AFRICANA STUDIES: The critical and systematic study of the thought and practice of African people in their current and historical unfolding.

ALPHA LEVEL: The level at which the null hypothesis will be rejected.

ANALYSIS OF VARIANCE (ANOVA): A test used to compare the means of three or more groups of subjects based on a single independent variable.

ALTERNATIVE HYPOTHESIS: A statement that there is a relationship between two or more variables in a population.

BAR CHARTS: Graphic displays of data used to represent nominal- and ordinal-level data. The categories of measurement in a bar chart are listed along the baseline, or x-axis. The bar chart is the same as the histogram except that there are spaces between the bars. This is because nominal and ordinal data do not have equal spaces between points, and you cannot be certain that ordinal categories are the same size.

BENEFICENCE: The researcher's responsibility to conduct research that contributes to the well-being of the population being studied.

BIVARIATE ANALYSIS: Analysis of two variables to determine whether or not there is a relationship between them.

BLACK EMANCIPATORY ACTION RESEARCH (BEAR): An orientation to research meant to enhance qualitative methods in research involving African diasporic peoples. BEAR is a framework for guiding research in the process of liberating African diasporic peoples from various forms of oppression.

CASE STUDY: A detailed, intensive, and descriptive account of a single individual, group, or organization. Although it is often an individual or an organization, a case can also be a time period. Case studies are most commonly associated with qualitative research, but they are not limited to qualitative research.

CLASSIC EXPERIMENTAL DESIGN: An experimental design that has random assignment and consists of an experimental stimulus, an experimental group, and a control group.

CLOSED-ENDED ITEMS: Statements or questions designed to provide respondents with a fixed set of response options, often multiple choices.

CLUSTER SAMPLING: A procedure in which the final grouping of elements in a sample are drawn from larger units of elements called clusters.

CODING: A part of content analysis that involves synthesizing text into systematic categories of data (sometimes quantitative data).

CODING MANUAL: A statement of instructions for the coder. It includes all possible categories for each dimension being coded.