CHAPTER 9:

Understanding the Report Process and Research Methods

9-CI CHAPTER INTRODUCTION

9-1 Identify the characteristics of a report and the various classifications of business reports.

9-2 Apply steps in the problem-solving process and methods for solving a problem.

9-3 Use appropriate printed, electronic, and primary sources of information.

9-4 Demonstrate appropriate methods of collecting, organizing, and referencing information.

9-5 Explain techniques for the logical analysis and interpretation of data.

TOPIC 8-CR
TOPIC 9-1

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9-1 CHARACTERISTICS OF REPORTS

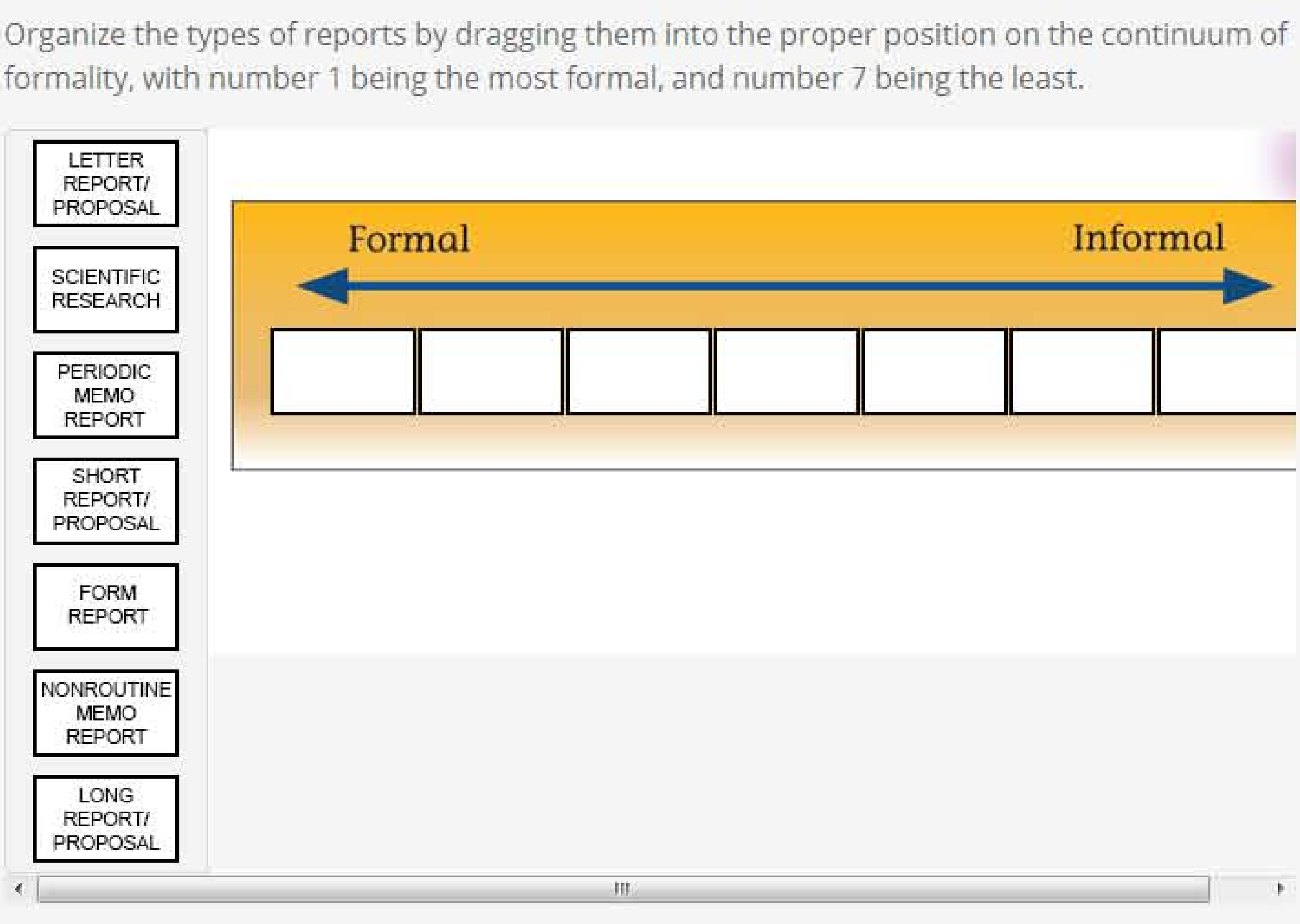
> *"Hi, Kate. This is Lewis in sales. Do you know whether the latest sales figures report is ready? My supervisor wants me to review it in preparation for next week's presentation."*
> *"Hi, Lewis. Yes, I just finished a draft of the report yesterday. I will email it to you right now. If there are any changes, I will let you know."*

> *Because reports contribute to decision making and problem solving, they should be as objective as possible.*

This brief exchange illustrates a simple reporting task. A question has been posed; the answer given (along with supporting information) satisfies the reporting requirement. Although Kate might never have studied report preparation, she did an excellent job; so Lewis can prepare to report the sales figures. Kate's spoken report is a simple illustration of the four main characteristics of reports:

- **Reports typically travel upward in an organization because they usually are requested by a higher authority.** In most cases, people would not generate reports unless requested to do so.
- **Reports are logically organized.** In Kate's case, she answered Lewis's question first and then supported the answer with evidence to justify it. Through your study of message organization, you learned the difference between deductive and inductive organization. Kate's report was deductively organized. If Kate had given the supporting evidence first and followed that with the answer that she would meet the deadline, the organization of her reply would have been inductive and would still have been logical.
- **Reports are objective.** Because reports contribute to decision making and problem solving, they should be as objective as possible. When nonobjective (subjective) material is included, the report writer should make that known.
- **Reports are generally prepared for a limited audience.** This characteristic is particularly true of reports traveling within an organization and means that reports, like letters, memos, and emails, should be prepared with the receivers' needs in mind.

Organize the types of reports by dragging them into the proper position on the continuum of formality, with number 1 being the most formal, and number 7 being the least.



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9-1a **Types of Reports**

Based on the four characteristics, a workable definition of a *report* is an orderly, objective message used to convey information from one organizational area to another or from one organization to another to assist in decision making or problem solving. Reports have been classified in numerous ways by management and by report-preparation authorities. The form, direction, functional use, and content of the report are used as bases for classification. However, a single report might fit several classifications. The following brief review of classification illustrates the scope of reporting and establishes a basis for studying reports.

- **Formal or informal reports.** The formal/informal classification is particularly helpful because it applies to all reports. A **formal report** is carefully structured; it is logically organized and objective, contains much detail, and is written in a style that tends to eliminate such elements as personal pronouns. An **informal report** is usually a short message written in natural or personal language. An internal memo generally can be described as an informal report. All reports can be placed on a continuum of formality, as shown in Figure 9.1. The distinction among the degrees of formality of various reports is explained more fully in Chapter 11.
- **Short or long reports.** Reports can be classified generally as short or long. A one-page memo is obviously short, and a report of 20 pages is obviously long. What about in-between lengths? One important distinction generally holds true: as it becomes longer, a report takes on more characteristics of formal reports. Thus, the classifications of formal/informal and short/long are closely related.
- **Informational or analytical reports.** An **informational report** carries objective information from one area of an organization to another. An **analytical report** presents suggested solutions to problems. Company annual reports, monthly financial statements, reports of sales volume, and reports of employee or personnel absenteeism and turnover are informational reports. Reports of scientific research, real estate appraisal reports, and feasibility reports by consulting firms are analytical reports.
- **Vertical or lateral reports.** The vertical/lateral classification refers to the directions in which reports travel. Although most reports travel upward in organizations, many travel downward. Both represent vertical reports and are often referred to as *upward-directed* and *downward-directed* reports. The main function of **vertical reports** is to contribute to management *control*, as shown in Figure 9.2. **Lateral reports**, on the other hand, assist in *coordination* in the organization. A report traveling between units on the same organizational level, as between the production department and the finance department, is lateral.
- **Internal or external reports.** An **internal report**, such as a production or sales report, travels within an organization. An **external report**, such as a company's annual report to stockholders, is prepared for distribution outside an organization.
- **Periodic reports.** **Periodic reports** are issued on regularly scheduled dates. They are generally directed upward and serve management control purposes. Daily, weekly, monthly, quarterly, semiannual, and annual time periods are typical for periodic reports. Preprinted forms and computer-generated data contribute to uniformity of periodic reports.
- **Functional reports.** A **functional report** serves a specified purpose within a company. The functional classification includes accounting reports, marketing reports, financial reports, personnel reports, and a variety of other reports that take their functional designation from their ultimate use. For example, a justification of the need for additional personnel or for new equipment is described as a *justification report* in the functional classification.

FIGURE 9.1.

Report Formality Continuum

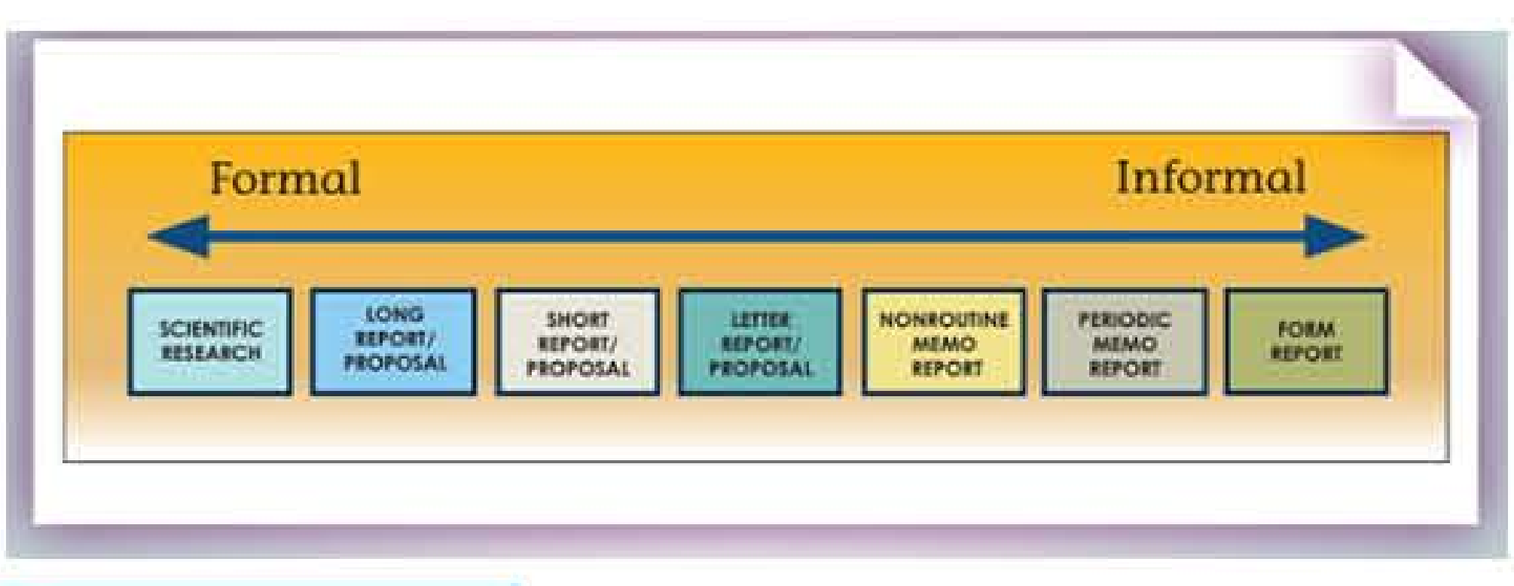

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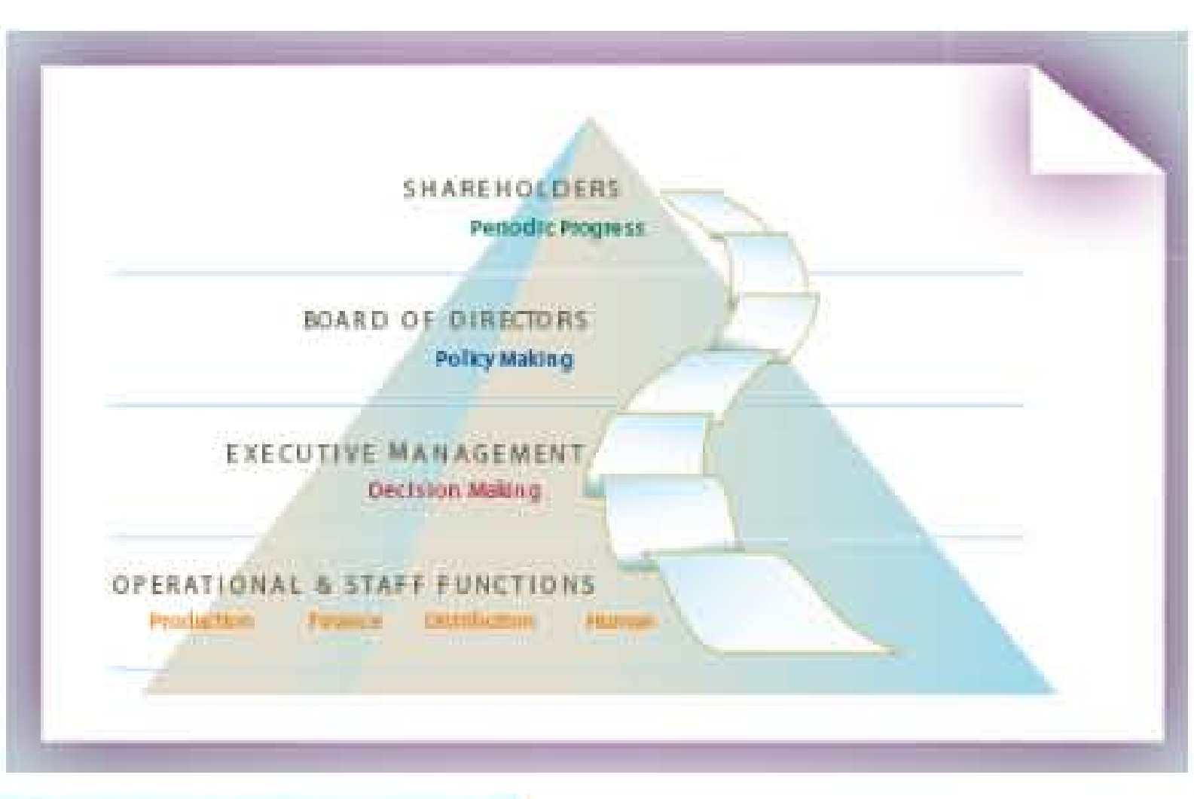
FIGURE 9.2.

The General Upward Flow of Reports



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9-1b **Proposals**

A **proposal** is a written description of how one organization can meet the needs of another; for example, by providing products or services or solving problems. Businesses issue *calls for bids* that present the specifications for major purchases of goods and certain services. Most governmental and nonprofit agencies issue *requests for proposals*, or RFPs. Potential suppliers prepare proposal reports telling how they can meet that need. Those preparing the proposal create a convincing document that will lead to obtaining a contract.

In our information-intensive society, proposal preparation is a major activity for many firms. In fact, some companies hire consultants or designate employees to specialize in proposal writing. Chapter 11 presents proposal preparation in considerable detail.

As you review these report classifications, you will very likely decide—correctly—that almost all reports could be included in these categories. A report may be formal or informal, short or long, informational or analytical, vertically or laterally directed, internal or external, periodic or non-periodic, functionally labeled, a proposal, or some other combination of these classifications. These report categories are in common use and provide necessary terminology for the study and production of reports.

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TOPIC 9-2

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9-2 BASIS FOR REPORTS: THE PROBLEM-SOLVING PROCESS

The upward flow of reports provides management with data that someone might use to make a decision. The purpose is to use the data to solve a problem. Some problems are recurring and call for a steady flow of information; other problems might be unique and call for information on a one-time basis. A problem is the basis for a report. The following steps are used for finding a solution:

1. Recognize and define the problem.
2. Select a method of solution.
3. Collect and organize the data and document the sources.
4. Arrive at an answer.

Only after all four steps have been completed is a report written for presentation. Reports represent an attempt to communicate how a problem was solved. These problem-solving steps are completed *before* the report is written in final form.

9-2a **Recognizing and Defining the Problem**

Problem-solving research cannot begin until the researchers define the problem. Frequently, those requesting a report will attempt to provide a suitable definition. Nevertheless, researchers should attempt to state the problem clearly and precisely to ensure they are on the right track.

USING PROBLEM STATEMENTS, STATEMENTS OF PURPOSE, AND HYPOTHESES

The **problem statement**, or statement of the problem, is the particular problem that is to be solved by the research. The **statement of purpose** is the goal of the study and includes the aims or objectives the researcher hopes to accomplish. Research studies often have both a problem statement and a statement of purpose. For example, a real estate appraiser accepts a client's request to appraise a building to determine its market value. The problem is to arrive at a fair market value for the property. The purpose of the appraisal, however, might be to establish a value for a mortgage loan, to determine the feasibility of adding to the structure, or to assess the financial possibility of demolishing the structure and erecting something else. Thus, the purpose might have much to do with determining what elements to consider in arriving at an answer. In other words, unless you know *why* something is wanted, you might have difficulty knowing *what* is wanted. Once you arrive at the answers to the *what* and *why* questions, you will be on your way to solving the problem.

A **hypothesis** is a statement to be proved or disproved through research. For example, a study of skilled manufacturing employees under varying conditions might be made to determine whether production would increase if each employee were part of a team, as opposed to being a single unit in a production line. For this problem, the hypothesis could be formulated in this way:

> ***Hypothesis:*** *Productivity will increase when skilled manufacturing employees function as members of production teams rather than as single units in a production line.*

Because the hypothesis tends to be stated in a way that favors one possibility or is prejudiced toward a particular answer, many researchers prefer to state hypotheses in the null form. The *null hypothesis* states that no relationship or difference will be found in the factors being studied, which tends to remove the element of prejudice toward a certain answer. The null hypothesis for the previous example could be written as follows:

> ***Null hypothesis:*** *No significant difference will be found in productivity between workers organized as teams and workers as individual production line units.*

Using the problem/purpose approach, the hypothesis approach, or both, is a choice of the researcher. In many ways, the purpose of a study is determined by the intended use of its results.

LIMITING THE SCOPE OF THE PROBLEM

A major shortcoming that often occurs in research planning is the failure to establish or to recognize desirable limits. The *scope* of the report helps to establish boundaries in which the report will be researched and prepared. Assume, for instance, that you want to study salaries of computer technicians. Imagine the enormity of such a task. Millions of people are employed in computer jobs. Perhaps a thousand or so different types of jobs fall into this classification. Use the *what*, *why*, *when*, *where*, and *who* questions to reduce such a problem to reasonable proportions.

LIMITS YOU MIGHT SET AS THE HUMAN RESOURCES MANAGER OF A COMPUTER COMPANY:

What:	A study of salaries of technical support personnel
Why:	To determine whether salaries in our firm are competitive and consistent
When:	Current
Where:	United States
Who:	Technical support personnel at a computer company

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Now you can phrase the problem this way:

Statement of purpose: *The purpose of this study is to survey salaries of technical support personnel at computer companies working in the United States to determine whether our salaries are competitive and consistent.*

Note that this process of reducing the problem to a workable size has also established some firm limits to the research. You have limited the problem to website functionality, the particular area, and a certain group of users. Note, too, how important the *why* was in helping to establish the limits. Limiting the problem is "zeroing in on the problem."

In some reports, it is desirable to differentiate between the boundaries that were placed on the project outside the control of the researchers and those that were chosen by the researchers. Boundaries imposed outside the control of the researchers are called *limitations*; they might include the assignment of the topic, allotted budget, and time for completion of the report. These boundaries affect what and how the topic can be researched. Boundaries chosen by the researchers to make the project more manageable are called *delimitations*; they might include the sources and methods chosen for research.

DEFINING TERMS CLEARLY

Words often have more than one meaning, and technical or special-use words might occur in the report that are not widely used or understood. Such terms would require a definition for the reader's understanding of the information presented. In the previously used example concerning the study of computer technicians' salaries, a comparison of one bank's salaries with those paid by others would be meaningful only if the information gathered from other banks relates to identical jobs. A job description defining the duties performed by a computer technician, for example, would help ensure that all banks would be talking about the same job tasks regardless of the job title. In addition, the term *salary* requires definition. Is it hourly, weekly, monthly, or yearly? Are benefits included?

DOCUMENTING PROCEDURES

The procedures or steps a writer takes in preparing a report are often recorded as a part of the written report. This **procedures** section, or **methodology**, adds credibility to the research process and also enables subsequent researchers to repeat, or replicate, the study in another setting or at a later time. Reports that study the same factors in different time frames are called **longitudinal studies**.

The procedures section of a report records the major steps taken in the research, and possibly the reasons for their inclusion. It might, for instance, tell the types of printed and electronic sources that were consulted and the groups of people interviewed and how they were selected. Steps in the procedures section are typically listed in chronological order so that the reader has an overall understanding of the timetable that existed for the project.

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9-3 SELECTING A METHOD OF GATHERING INFORMATION

After defining the problem, the researcher will plan how to arrive at a solution. The research methods you use to collect necessary information can be secondary, primary, or both.

9-3a **Secondary Research**

Secondary research provides information that has already been created by others. Researchers save time and effort by not duplicating research that has already been undertaken. They can access this information easily through the aid of electronic databases and bibliographic indexes. Suppose that a marketing manager has been asked to investigate the feasibility of implementing a strategic information system. The manager knows other companies are using this technology. By engaging in secondary research, the manager can determine the boundaries of knowledge before proceeding into the unknown.

Certain truths have been established and treated as principles reported in textbooks and other publications. However, because knowledge is constantly expanding, the researcher knows that new information is available. The job, then, is to canvass the literature of the field and attempt to redefine the boundaries of knowledge.

SECONDARY RESEARCH ACCOMPLISHES THE FOLLOWING OBJECTIVES:

- Establishes a point of departure for further research
- Avoids needless duplication of costly research efforts
- Reveals areas of needed research
- Makes a real contribution to a body of knowledge

Secondary research can be gathered by means of traditional printed sources or by using electronic tools.

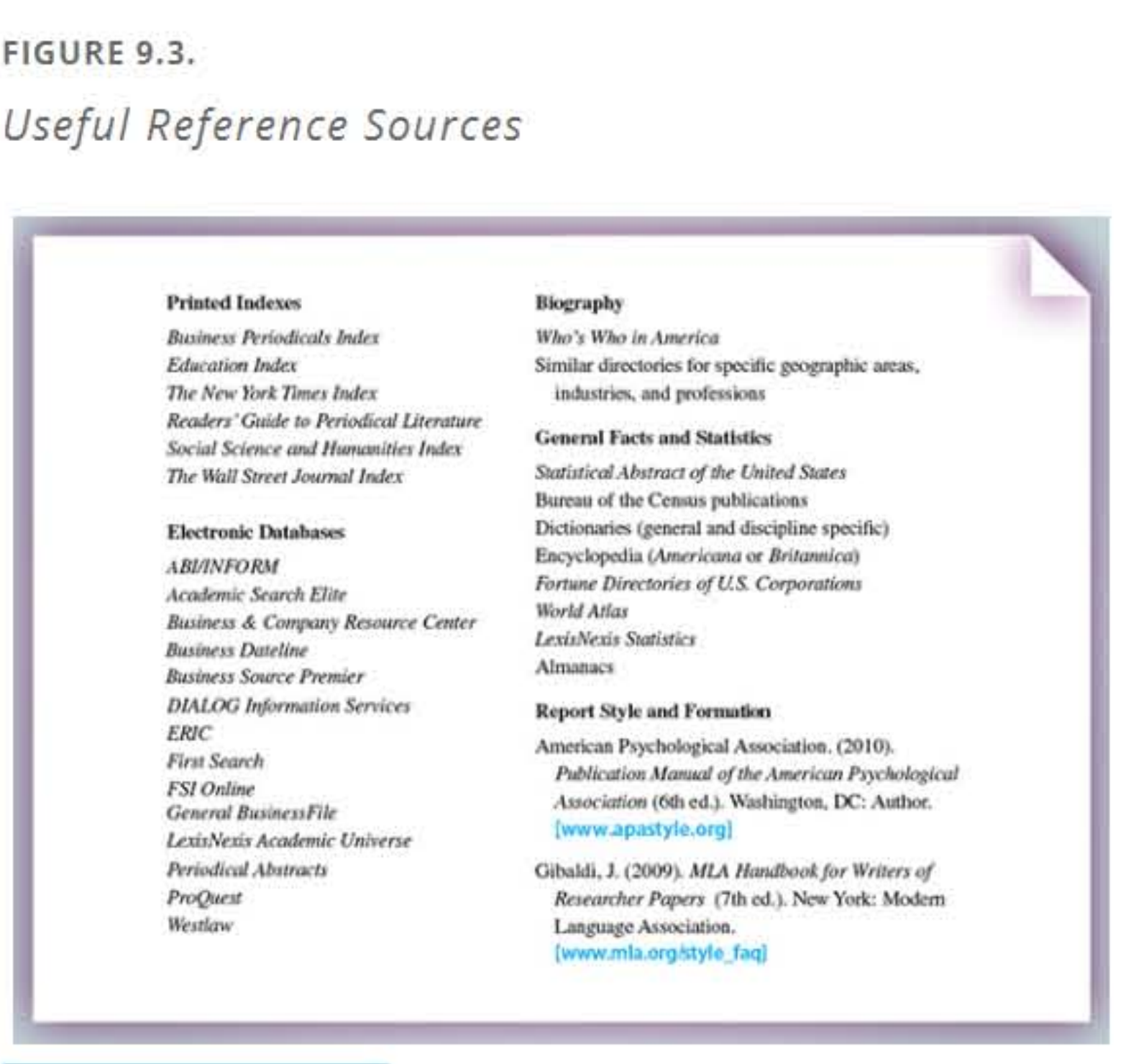
PRINTED SOURCES

Major categories of printed sources are books, periodicals, and government documents. Books are typically cataloged in libraries by call number, with larger libraries using the Library of Congress classification system. Traditional card catalogs in libraries have been replaced by online catalogs, which allow the user to locate desired books by author, title, subject, or keyword. A wide assortment of reference books is typically available for use within libraries; these include dictionaries, encyclopedias, yearbooks, and almanacs. Some of these volumes contain general information on a wide array of topics, whereas others are designed for a specific field of study.

Periodicals, referred to as *serials* by librarians, include various types of publications that are released on a periodic basis. Newspapers, magazines, and journals are all types of periodicals. Newspapers, which are usually published daily, are a good initial source for investigation because they give condensed coverage of timely topics. Magazines might be published weekly, monthly, bimonthly, or in some other interval. They are typically written for a general readership, providing expanded coverage in an easy-to-read format. Journals, on the other hand, are written for more specialized audiences, are peer reviewed, and are more research oriented and thus more credible. Journal articles share the results of research studies and provide data that support their findings. They also provide bibliographies or citation lists that can be used to locate related materials. Articles on specific topics can be located using both printed and online indexes. A partial list of these sources is shown in Figure 9.3.

FIGURE 9.3.

Useful Reference Sources



Printed Indexes
Business Periodicals Index
Education Index
The New York Times Index
Readers' Guide to Periodical Literature
Social Science and Humanities Index
The Wall Street Journal Index

Electronic Databases
ABI/INFORM
Academic Search Elite
Business & Company Resource Center
Business Dateline
Business Source Premier
DIALOG Information Services
ERIC
First Search
FSI Online
General BusinessFile
LexisNexis Academic Universe
Periodical Abstracts
ProQuest
Westlaw

Biography
Who's Who in America
Similar directories for specific geographic areas, industries, and professions

General Facts and Statistics
Statistical Abstract of the United States
Bureau of the Census publications
Dictionaries (general and discipline specific)
Encyclopedia (*Americana* or *Britannica*)
Fortune Directories of U.S. Corporations
World Atlas
LexisNexis Statistics
Almanacs

Report Style and Formation
American Psychological Association. (2010). *Publication Manual of the American Psychological Association* (6th ed.). Washington, DC: Author. [www.apastyle.org]
Gibaldi, J. (2009). *MLA Handbook for Writers of Researcher Papers* (7th ed.). New York: Modern Language Association. [www.mla.org/style_faq]

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ELECTRONIC SOURCES

The availability of computer-assisted data searches has simplified the time-consuming task of searching through indexes, card catalogs, and other sources. Weekly and monthly updates keep electronic databases current, and they are easy to use. Databases such as LexisNexis Academic Universe have full-text retrieval capability, meaning you can retrieve the entire article for reviewing and printing. Other databases offer only some articles in full text, with citations or abstracts provided for others. Note the list of electronic databases for business users listed in Figure 9.3.

The Internet and its subset, the World Wide Web, have made thousands of reference sources available in a matter of seconds. However, the vastness of this resource can be overwhelming to the novice researcher. The following tips will help make your Internet search more productive:

- **Choose your search engine or database appropriately.** A *search engine* is a cataloged database of websites that allows you to search specific topics. Several popular search engines exist, including Yahoo!, Ask, AOL, and MyWebSearch. Megasearch engines such as Google and Bing, which index billions of web pages, search through a number of other engines to produce "hits."* (A *hit* is a located website that contains the word or words specified in the search.) You want to obtain a sufficient number of hits, but not thousands. Although the variety of these larger engines is greater, they pose more difficulty in narrowing a search.

Electronic databases provide access to articles from newspapers, magazines, journals, and other types of publications. The database provider might charge a subscription fee or a document delivery fee to access articles. These types of databases are not accessible by a search engine and are often described as the *hidden Internet.* Many libraries provide access to these databases. Some databases are suited for topic searches of general interest; others are geared toward specialized fields. A topic search will produce a listing of references and article abstracts, or even full-text articles in some cases. Databases available through your library might include Business Source Premier (an offering of EBSCO), Academic Search Elite, LexisNexis Academic Universe, ABI Inform First Search, Business and Company Resource Center, General BusinessFile, and others.

- **Structure searches from broad to specific.** Use words for your topic that are descriptive and do not have multiple meanings. Once sites have been located for your general topic, you can use *Boolean logic* to narrow the selection. Boolean operands (*and*, *or*, *not*) serve to limit the identified sites. The following example shows how these delimiters can assist you in locating precisely what you want:
    - Using the key phrase *workplace productivity* will produce all sites that have either of the key words in the title or descriptors.
    - Placing "and" between key words will produce hits that have both words.
    - Keying *workplace productivity not United States* will eliminate hits that refer to the United States.
- **Use quotation marks when literal topics are desired.** Putting quotation marks around your topic words can drastically affect the number of hits. The quotation marks cause the search engine to look for the designated words as a phrase, thus producing only those sites that have the phrase present. Without the quotation marks, the search engine will treat the words individually and produce many more hits, most of which might not be useful. For instance, if you are looking for sites related to "international communication," placing quotation marks around the desired phrase would eliminate the sites that deal with international topics that are not communication oriented.
- **Look for web pages that have collections of links to other related topics.** Clicking on these hyperlinks will allow you to maximize your time investment in the data-gathering phase of your research.
- **Be adaptable to the various access format requirements.** Each search engine and database has its own particular format and instructions for use. The method for specifying and narrowing your search will vary.

Several reference sources can assist you in your research and information. Categorize each of the following references according to type by making appropriate matches.

Biography
Electronic Database
Electronic Databases
General Facts
Printed Indexes

ERIC
ProQuest
Dictionary
Business Source Premier
Who's Who in America
Readers' Guide to Periodical Literature
The Wall Street Journal Index
Directory of American Scholars
Statistical Abstract of the United States
CIA World Factbook
Education Index
Almanac
U.S. Census Bureau
LexisNexis
ABI/INFORM
Business Periodicals Index

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9-3b **Primary Research**

After reviewing the secondary data, you might need to collect primary data to solve your problem. **Primary research** relies on firsthand data, such as responses from pertinent individuals or observations of people or phenomena related to your study. Recognized methods to obtain original information are observational studies, experimental research, and normative surveys.

Observational studies are those in which the researcher observes and statistically analyzes certain phenomena to assist in establishing new principles or discoveries. For example, market analysts observe buying habits of certain income groups to determine the most desirable markets. Internal auditors analyze expected patterns in expense reimbursement amounts to identify potential fraud activity. Developing an objective system for quantifying observations is necessary to collect valid data. For example, to gain insight into the effect of a comprehensive ethics program, a researcher might record the number of incidents of ethical misconduct reported or the number of calls made to an ethics helpline designed to provide advice about proper conduct. Observational studies typically involve no contact with the human subjects under study.

Experimental research typically involves the study of two or more samples that have exactly the same components before a variable is added to one of the samples. Any differences observed are viewed as due to the variable. Like scientists, businesses use experimental research to solve various problems. For example, a company conducts new employee training with all new hires. Two training methods are presently used: new hires in one regional office receive their training in a traditional classroom setting with other new employees, while employees at the other regional office take a web-based training class. Management wants to determine whether one method is superior to the other in terms of learning success. During the period of the study, learning differences in the two study groups are noted. Because the training method is assumed to be the only significant variable, any difference is attributed to its influence. Experimental research involves very careful recordkeeping and can require informed consent from participants who are subjected to experimental methods.

Normative survey research is undertaken to determine the status of something at a specific time. Survey instruments such as questionnaires, opinion surveys, checklists, and interviews are used to obtain information from participants. Election opinion polls represent one type of normative survey research. The term *normative* is used to qualify surveys because surveys reveal "norms" or "standards" existing at the time of the survey. A poll taken two months before an election might have little similarity to one taken the week preceding the election.

Surveys can help verify the accuracy of existing norms. The U.S. Census is conducted every decade to establish an actual population figure, and each person is supposedly counted. In effect, the census tests the accuracy of prediction techniques used to estimate population during the years between censuses. A survey of what employees consider a fair benefits package would be effective only for the date of the survey. People retire, move, and change their minds often. These human traits make survey research of opinions somewhat tentative. Yet surveys remain a valuable tool for gathering information on which to base decisions and policies.

Researchers normally cannot survey everyone, particularly if the population is large and the research budget is limited. **Sampling** is a survey technique that eliminates the need for questioning 100% of the population. Sampling is based on the principle that a sufficiently large number drawn at random from a population will be representative of the total population. That is, the sample will possess the same characteristics in the same proportions as the total population. For example, a company collecting market research data before introducing a new low-fat food product would survey a small number of people. The data are considered *representative* if the sample of people surveyed has the same percentage of ages, genders, purchasing power, and so on as the anticipated target market.

As a researcher, you must be cautious about drawing conclusions from a sample and generalizing them to a population that might not be represented by the sample. For example, early-morning shoppers might differ from afternoon or evening shoppers; young adults might differ from senior citizens; male shoppers might differ from female shoppers. A good researcher defines the population as distinctly as possible and uses a sampling technique to ensure that the sample is representative.

Whether a survey involves personal interviewing or the distribution of items such as checklists or questionnaires, some principles of procedure and planning are common to both methods. These principles assure the researcher that the data gathered will be both valid (i.e., it will measure what the researcher intended to measure) and reliable (i.e., it will measure data accurately).

- **Validity** refers to the degree to which the data measure what you intend to measure. It generally results from careful planning of the questionnaire or interview questions or items. Cautious wording, preliminary testing of items to detect misunderstandings, and some statistical techniques are helpful in determining whether the responses to the items are valid. A *pilot test* of the instrument is often conducted prior to the full-scale survey so that a smaller number of participants can test the instrument, which can then be revised prior to wide-scale administration.
- **Reliability** refers to the level of consistency or stability over time or over independent samples; that is, reliable data are reasonably accurate or repeatable. Reliability results from asking a large enough sample of people so that the researcher is reasonably confident the results would be the same even if more people were asked to respond or if a different sample were chosen from the same population. For example, if you were to ask 10 people to react to a questionnaire item, the results might vary considerably. If you were to add 90 more people to the sample, the results might tend to reach a point of stability where more responses would not change the results. Reliability would then be reasonably established.

Responses to surveys often represent only a small percentage of the total mailings. In some cases, a return of 3% to 5% is considered adequate and is planned for by researchers. In other cases, such as employee surveys or questionnaires, a return of considerably more than half the mailings might be a planned result. Selecting an appropriate data collection method and developing a sound survey instrument are crucial elements of an effective research study.

TOPIC 9-2 TOPIC 9-4

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9-4 COLLECTING AND ORGANIZING THE DATA

Collecting the right data and ensuring that they are recorded appropriately is paramount to the success of a business report. Various techniques can assist in this process when collecting both secondary and primary research.

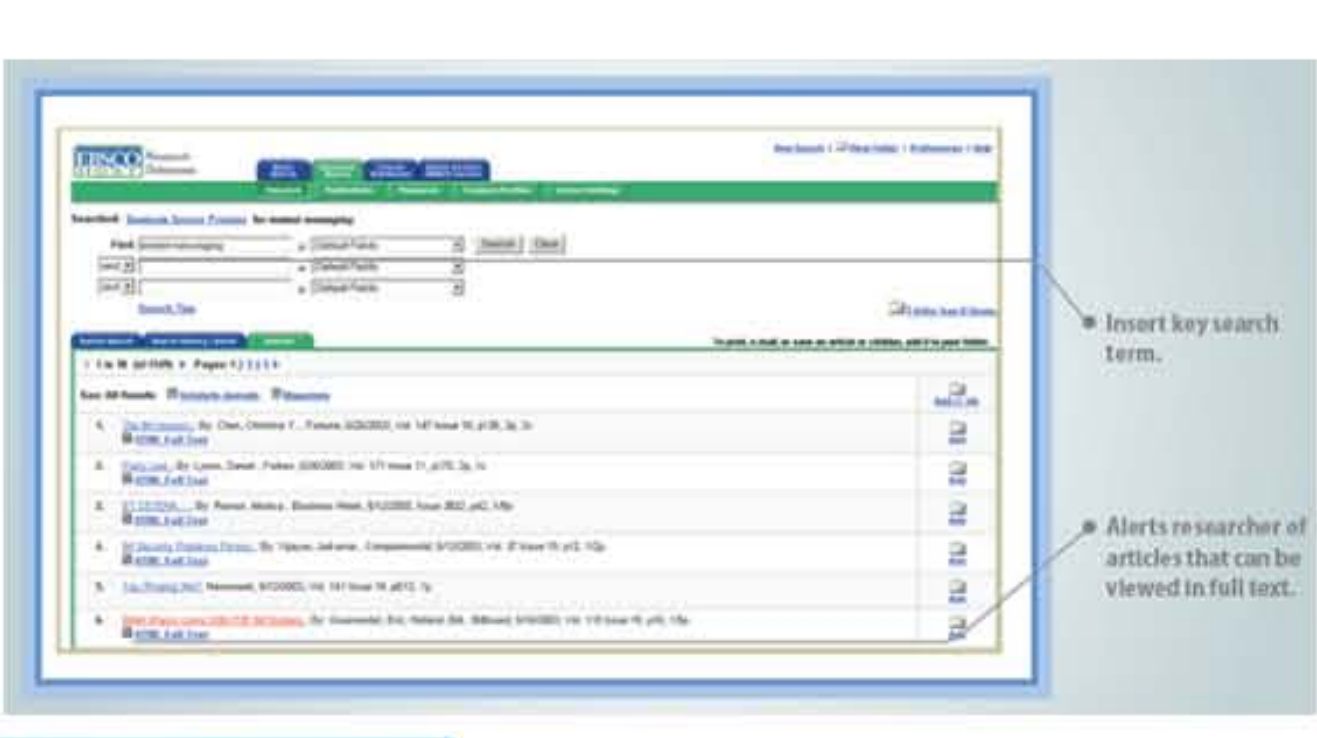
9-4a **Collecting Secondary Data**

When beginning to collect secondary data, beware of collecting too much information—one of the major deterrents to good report writing. Although you want to be thorough, you do not want to collect and record such a large amount of information that you will hardly know where to begin your analysis.

The availability of computer-assisted data searches has simplified the time-consuming task of searching through indexes, card catalogs, and other sources. For example, suppose you select an online database such as Business Source Premier or an Internet search engine such as Google to research the role of microblogging in the workplace. By inputting the key term *instant message* in an online database, you receive the screen output in Figure 9.4. The screen output contains information that will facilitate your research.

FIGURE 9.4.

A Sample Computer Data Search Using an Online Database


Insert key search term.
Alerts researcher of articles that can be viewed in full text.

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First, you can quickly evaluate the relevance of references by reading each article's title and abstract, if available, to determine appropriateness to your topic. Retrieved full-text articles can be read and analyzed for useful information, saved, and printed for later use. Be sure to record a full bibliographic citation for each reference you obtain, to avoid the need to relocate the online source or revisit the library to find it again.

After you have located relevant sources, you can take notes using various methods. When your aim is to *learn*, the following technique for taking notes is effective: (1) read an article rapidly and put it aside, (2) *from memory*, list main and supporting points, and (3) review the article to see whether all significant points have been included.

Rapid reading forces concentration, builds a strong understanding of the topic, and reveals relationships between ideas. Traditionally, researchers read the article and immediately wrote notes on cards. Currently, researchers typically prefer copying and pasting relevant information into a word-processing file or highlighting important points on a photocopy or printout of the article; then, from the selected passages, they compose notes at the keyboard.

You can use two kinds of note-taking: direct quotation or paraphrase. The *direct quotation method* involves citing the exact words from a source. This method is useful when the exact words have specific impact or expert appeal. The *paraphrase method* involves summarizing information in your own words without changing the author's intended meaning. Put direct quotes in quotation marks, and indicate the page numbers, if available.

Plagiarism is the presentation of someone else's ideas or words as your own. To safeguard your reputation against plagiarism charges, be certain to give credit where credit is due. Specifically, provide a citation for each (1) direct quotation and (2) passage from someone else's work that you stated in your own words rather than using the author's words—the words are your own, but the idea is not.

To attribute information to another source, develop complete, accurate citations and a reference page according to some recognized referencing method.

9-4b **Collecting Data Through Surveys**

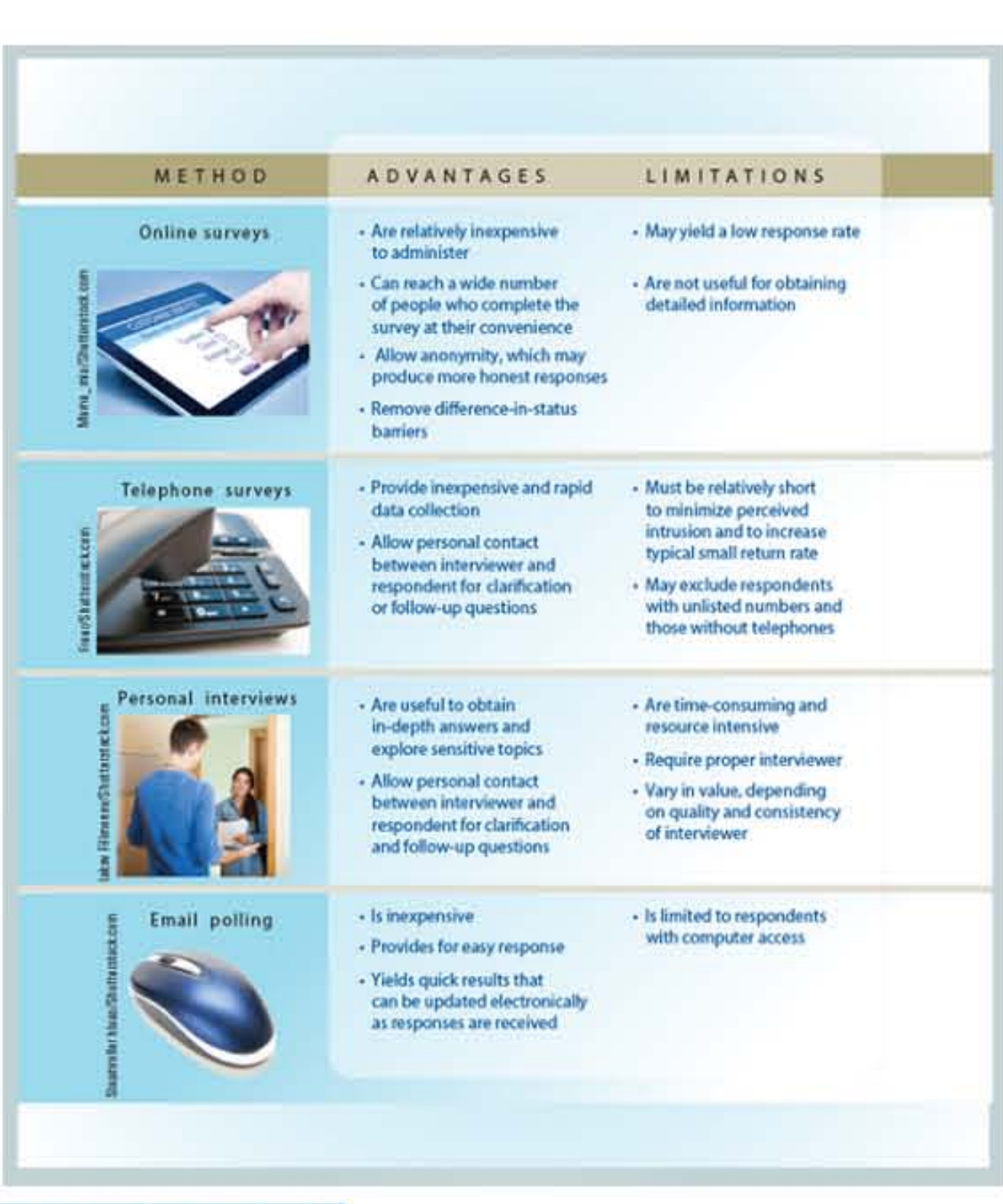
The method of distribution and the makeup of the questionnaire are critical factors in successful survey research.

SELECTING A DATA COLLECTION METHOD

Selecting an appropriate data collection method is crucial to effective research. Researchers must consider various factors when selecting an appropriate method for collecting data, as illustrated in Figure 9.5.

FIGURE 9.5.

Selecting an Appropriate Data-Collection Method



METHOD	ADVANTAGES	LIMITATIONS
Online surveys	• Are relatively inexpensive to administer • Can reach a wide number of people who complete the survey at their convenience • Allow anonymity, which may produce more honest responses • Remove difference-in-status barriers	• May yield a low response rate • Are not useful for obtaining detailed information
Telephone surveys	• Provide inexpensive and rapid data collection • Allow personal contact between interviewer and respondent for clarification or follow-up questions	• Must be relatively short to minimize perceived intrusion and to increase typical small return rate • May exclude respondents with unlisted numbers and those without telephones
Personal interviews	• Are useful to obtain in-depth answers and explore sensitive topics • Allow personal contact between interviewer and respondent for clarification and follow-up questions	• Are time-consuming and resource intensive • Require proper interviewer • Vary in value, depending on quality and consistency of interviewer
Email polling	• Is inexpensive • Provides for easy response • Yields quick results that can be updated electronically as responses are received	• Is limited to respondents with computer access

COLLECT STUDYBIT

DEVELOPING AN EFFECTIVE SURVEY INSTRUMENT

No matter which survey technique or combination of techniques is used, the way in which the survey instrument is designed and written has much to do with the validity and reliability of results, response rate, and quality of information received.

The construction of the survey instrument—usually a questionnaire or interview guide—is critical to obtaining reliable and valid data. Before developing items for a questionnaire or opinion survey, a researcher should visualize the ways responses will be compiled and included in a final report. Here are some suggestions for developing an effective questionnaire:

- **Provide brief, easy-to-follow directions.** Explain the purpose of the study in a cover letter or in a brief statement at the top of the questionnaire so that the respondents understand your intent. Although a screening question might be needed to determine whether the respondent is qualified to answer a set of questions, minimize confusing "skip-and-jump" instructions such as the following:

  > *If you answered Yes to item 4, skip directly to item 7; if you answered No, explain your reason in items 5 and 6.*

With the availability of online survey technology, you can automate whether and how respondents are advanced to the next question based on answers to screening questions.

- **Arrange the items in a logical sequence.** If possible, the sequence should proceed from easy to difficult items; simple, nonthreatening items involve respondents and encourage them to finish. You might group related items such as demographic questions or those that use the same response options (multiple choice, rating scales, open-ended questions).
- **Create an appealing, easy-to-comprehend design.** Use typefaces, bold, underline, and italics to emphasize important ideas. Use text boxes and graphic lines to partition text so that the reader can identify and move through sections quickly.
- **Use short items that ask for a single answer to one idea.** Include only the questions needed to meet the objectives of your study, because long questionnaires affect the return rate negatively.
- **Design questions that are easy to answer and to tabulate.** Participants might not take the time to answer numerous open-ended questions that require essay-style answers. When open-ended questions are included, provide enough space for respondents to answer adequately.
- **Strive to write clear questions that all respondents will interpret in the same way.** Avoid words with imprecise meanings (e.g., *several*, *usually*) and specialized terms and difficult words that respondents might not understand. Use accurate translations for each concept presented if other cultures are involved. Provide examples for items that might be difficult to understand.
- **Ask for information that can be recalled readily.** Asking for "old" information might not result in sound data.
- **Provide all possible answer choices on multiple-choice items.** Add an "undecided" or "other" category so that respondents are not forced to choose a nonapplicable response.
- **Ask for factual information whenever possible.** Opinions might be needed in certain studies, but opinions might change daily. As a general rule, the smaller the sample, the less reliable are any conclusions based on opinions.
- **Decide on an optimal number of choices to place on a ranking scale.** Ranking scales, also called Likert scales, allow participants to indicate their opinion on a numbered continuum. When deciding the numbers to place on the scale, consider the tendency of some groups to choose the noncommittal midpoint in a scale with an odd number of response choices (for instance, choosing 3 on a scale from 1 to 5).
- **Avoid questions that might be threatening or awkward to the respondent.** For sensitive issues, such as age and income, allow respondents to select among ranges if possible. Ensure that ranges do not overlap, and provide for all possible selections.
- **Consider the advisability of prompting a forced answer.** A forced-answer question can be used to determine which single factor is most critical to a respondent, as shown in the following examples:

  > *Of the locations listed, which is the most convenient for your use?*
  >
  > *Do you agree to the terms of use provided in the attached document?*
  >
  > - *Yes*
  > - *No*

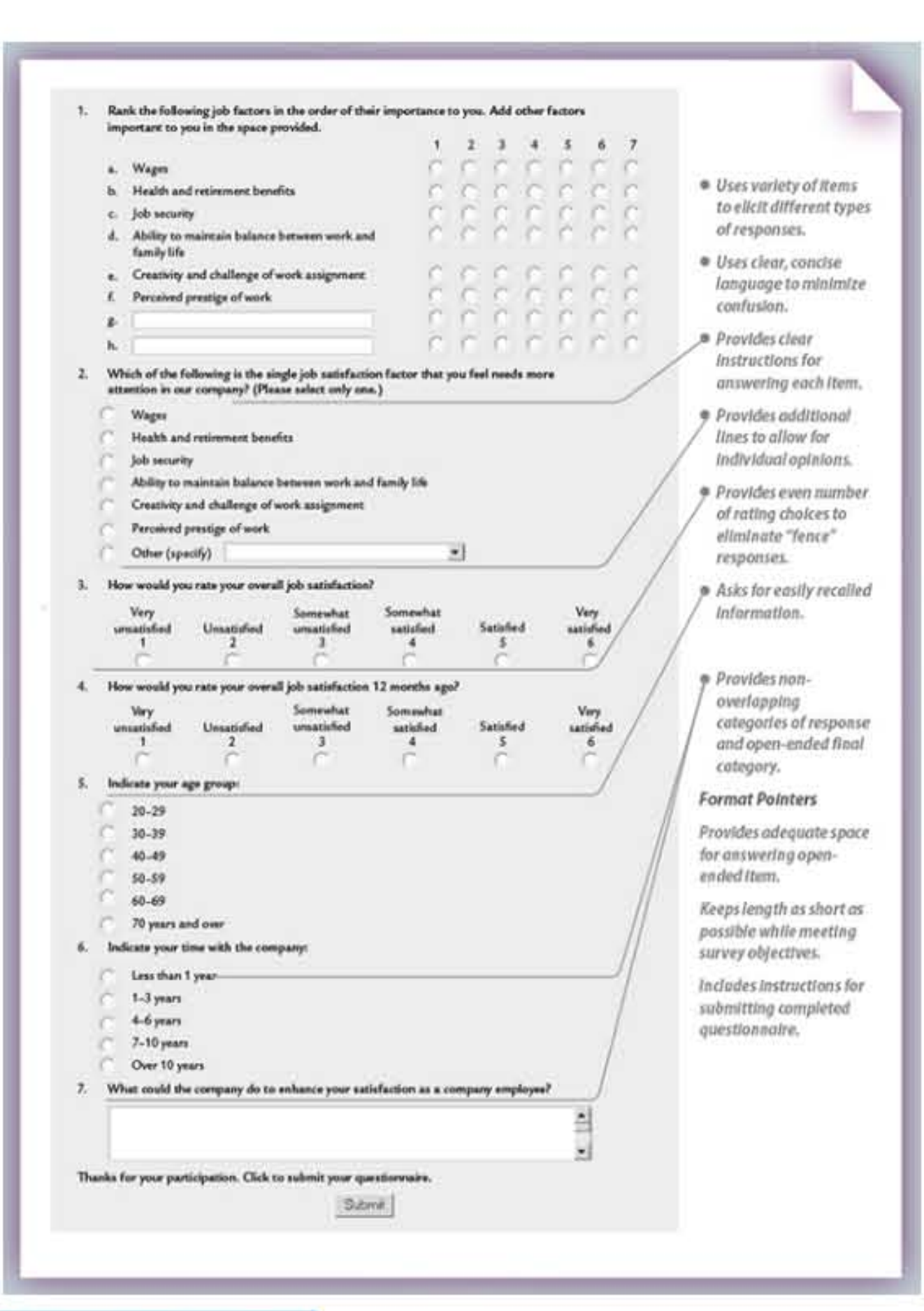
When using forced-choice items, avoid "leading questions" that cause people to answer in a way that is not their true opinion or situation. The following item is an example of such a question:

> *Would you participate in unethical acts, such as insider trading, if this potential were provided?*
>
> - *Yes*
> - *No*

Various types of items can be used in questionnaire design, depending on your purpose and the characteristics of your participants. Figure 9.6 illustrates the principles of effective questionnaire design.

FIGURE 9.6.

Example of an Effective Questionnaire



1. Rank the following job factors in the order of their importance to you. Add other factors important to you in the space provided.

	1	2	3	4	5	6	7
a. Wages	○	○	○	○	○	○	○
b. Health and retirement benefits	○	○	○	○	○	○	○
c. Job security	○	○	○	○	○	○	○
d. Ability to maintain balance between work and family life	○	○	○	○	○	○	○
e. Creativity and challenge of work assignment	○	○	○	○	○	○	○
f. Perceived prestige of work	○	○	○	○	○	○	○
g.	○	○	○	○	○	○	○
h.	○	○	○	○	○	○	○

2. Which of the following is the single job satisfaction factor that you feel needs more attention in our company? (Please select only one.)

○ Wages
○ Health and retirement benefits
○ Job security
○ Ability to maintain balance between work and family life
○ Creativity and challenge of work assignment
○ Perceived prestige of work
○ Other (specify)

3. How would you rate your overall job satisfaction?

Very unsatisfied 1	Unsatisfied 2	Somewhat unsatisfied 3	Somewhat satisfied 4	Satisfied 5	Very satisfied 6
○	○	○	○	○	○

4. How would you rate your overall job satisfaction 12 months ago?

Very unsatisfied 1	Unsatisfied 2	Somewhat unsatisfied 3	Somewhat satisfied 4	Satisfied 5	Very satisfied 6
○	○	○	○	○	○

5. Indicate your age group:

○ 20–29
○ 30–39
○ 40–49
○ 50–59
○ 60–69
○ 70 years and over

6. Indicate your time with the company:

○ Less than 1 year
○ 1–3 years
○ 4–6 years
○ 7–10 years
○ Over 10 years

7. What could the company do to enhance your satisfaction as a company employee?

Thanks for your participation. Click to submit your questionnaire.

Submit

Uses variety of items to elicit different types of responses.
Uses clear, concise language to minimize confusion.
Provides clear instructions for answering each item.
Provides additional lines to allow for individual opinions.
Provides even number of rating choices to eliminate "fence" responses.
Asks for easily recalled information.
Provides non-overlapping categories of response and open-ended final category.
Format Pointers
Provides adequate space for answering open-ended item.
Keeps length as short as possible while meeting survey objectives.
Includes instructions for submitting completed questionnaire.

COLLECT STUDYBIT

A final step in questionnaire design is to test the instrument by asking others to complete and critique the questionnaire. For surveys of major importance, researchers typically conduct a pilot study, disseminating the questionnaire to a small group of the population involved. This process allows them to correct problems in clarity and design, and typically leads to better response and quality of answers. A pilot study might uncover factors affecting your results, which you can address in the final research design and before conducting the actual survey.

Researchers must select from among the several formats available the one best suited to the situation. Criteria for selecting one alternative over the others might include the following: Which format leaves the least chance for misinterpretation? Which format provides information in the way it can best be used? Can it be tabulated easily? Can it be cross-referenced to other items in the survey instrument?

9-4c **Avoiding Data-Gathering Errors**

If acceptable data-gathering techniques have been used, data will measure what they are intended to measure (have validity) and will measure it accurately (have reliability). Hopefully, a carefully designed research process will yield useful data for analysis.

SOME COMMON ERRORS AT THE DATA-GATHERING STAGE:

- Using samples which are too small
- Using samples which are not representative
- Using poorly constructed data-gathering instruments
- Using information from biased sources
- Failing to gather enough information to cover all important aspects of a problem
- Gathering too much information

9-4d **Documenting Sources of Information**

A crucial part of ethical, honest research writing is documenting or referencing sources fairly and accurately. Although time consuming and tedious, careful attention to documentation marks you as a respected, highly professional researcher.

An important first step is to pledge that you will not, for any reason, present someone else's ideas as your own. Then develop a systematic checklist for avoiding plagiarism. Carelessly forgetting to enclose someone else's words within quotation marks or failing to paraphrase another's words can cause others to question your ethical conduct. When you feel that the tedious work required to document sources fairly and accurately is not worth the time invested, remind yourself of the following reasons for documentation:

- **Citations give credit where it is due—to the one who created the material.** People who document demonstrate high standards of ethical conduct and responsibility in scholarship. Those exhibiting this professional behavior will gain the well-deserved trust and respect of peers and superiors.
- **Documentation protects writers against plagiarism charges.** Plagiarism occurs when someone steals material from another and claims it as his or her own writing. Besides suffering embarrassment, the plagiarist might be assessed fines, penalties, or professional sanctions.
- **Documentation supports your statements.** If recognized authorities have said the same thing, your work takes on credibility; you have put yourself in good company.
- **Documentation can aid future researchers pursuing similar material.** Documentation must be complete and accurate so that the researcher can locate the source.

FOLLOW THESE GENERAL SUGGESTIONS FOR PREPARING ACCURATE DOCUMENTATION:

- **Decide which authoritative style manual to follow for preparing in-text parenthetical citations or footnotes (endnotes) and the bibliography (references).** Some companies and most journals require writers to prepare reports or manuscripts following a particular style manual. Once you are certain you have selected the appropriate manual, follow it precisely as you prepare the documentation and produce the report.
- **Be consistent.** If you are carefully following a format, you shouldn't have a problem with consistency. For example, one style manual might require an author's initials in place of the first name in a bibliography; another manual requires the full name. The placement of commas and periods and other information varies among manuals. Consult the manual, apply the rules methodically, and proofread carefully to ensure accuracy and consistency.

Many style guides are available to advise writers how to organize, document, and produce reports and manuscripts. Figure 9.3 includes two of the most popular authoritative style manuals. The *Publication Manual of the American Psychological Association* has become the most-used guide in the social and "soft" sciences and in many scholarly journals. The *MLA Handbook for Writers of Research Papers* is another authoritative source used in the humanities.

CITATIONS

Two major types of citations are used to document a report: source notes and explanatory notes. Depending on the authoritative style manual used, these notes might be positioned in parentheses within the report, at the bottom of the page, or at the end of the report.

- **Source notes.** These citations acknowledge the contributions of others. They might refer readers to sources of quotations, paraphrased portions of someone else's words or ideas, and quantitative data used in the report. Source notes must include complete and accurate information so that the reader can locate the original source if desired.
- **Explanatory notes.** These citations are used for several purposes: (1) to comment on a source or to provide information that does not fit easily in the text, (2) to support a statistical table, or (3) to refer the reader to another section of the report. The following sample footnote describes the mathematics involved in preparing a table:

  **The weighted opinion was derived by assigning responses from high to low as 5, 4, 3, 2, 1; totaling all respondents; and dividing by the number of respondents.*

In this case, the asterisk (*) was used, rather than a number, to identify the explanatory footnote both in the text and in the citation. This method is often used when only one or two footnotes are included in the report. If two footnotes appear on the same page, two asterisks (**) or numbers or letters are used to distinguish the second from the first. An explanatory note that supports a graphic or a source note that provides the reference from which data were taken appears immediately below the graphic.

REFERENCING METHODS

Various reference methods are available for the format and content of source notes: in-text parenthetical citations, footnotes, and endnotes. Note the major differences among the methods in the following discussion.

- **In-text parenthetical citations.** The *APA Publication Manual*, *MLA Handbook*, and some other documentation references eliminate the need for separate footnotes or endnotes. Instead, an in-text citation, which contains abbreviated information within parentheses, directs the reader to a list of sources at the end of a report. This list contains all publication information on every source cited. It is arranged alphabetically by the author's last name or, if no author is provided, by the first word of the article title.
- **Footnote citation method.** Placing citations at the bottom of the page on which they are cited is the footnote citation. The reader can conveniently refer to the source if the documentation is positioned at the bottom of the page. Alternatively, a list of footnotes can be included in an endnotes page at the end of the document in the order they appeared. Footnotes and endnotes are not used in APA and MLA referencing, as these styles permit the use of in-text citations only.
- **References (APA) or Works Cited (MLA).** The APA and MLA styles use different terms to distinguish between these types of lists. This document is an alphabetized list of the sources used in preparing a report. Each entry contains the publication information necessary for locating the source. In addition, the bibliographic entries give evidence of the nature of sources the author consulted. The term *bibliography* (literally "description of books") is sometimes used to refer to this list. A researcher often uses sources that provide information but do not result in citations. To acknowledge that you might have consulted these works and to provide the reader with a comprehensive reading list, you might include them in the list of sources.

TOPIC 9-3 TOPIC 9-5

Even the most intelligent person cannot be expected to draw sound conclusions from faulty information. Sound conclusions can be drawn only when information has been properly organized, collected, and interpreted.

9-5a **Analyzing the Data**

Follow a step-by-step approach to the solution of your research problem. Plan your study and follow the plan. Question every step for its contribution to the objective, and keep a record of actions. In a formal research study, the researcher is expected to make a complete report. Another qualified person should be able to make the same study, use the same steps, and arrive at the same conclusion.

Suppose you have conducted a survey and collected several hundred replies to a 30-item questionnaire. Appropriate statistical analysis must be applied to interpret survey results. Statistical analysis is a complex task, involving specialized understanding that is gained through appropriate training, but some of the common terms are identified here. *Tabulation* techniques should be used to reduce quantitative data such as numerous answers to questionnaire items. For instance, you might want to tabulate the number of males and females participating in the study, along with the appropriate percentages for each gender.

For many kinds of studies, *measures of central tendency* might help in describing distributions of quantitative data. The *range* assists the researcher in understanding the distribution of the scores. The *mean*, *median*, and *mode* are descriptions of the average value of the distribution.

Other statistical techniques may be used. For example, *correlation analysis* might be used to determine whether a relationship existed between how respondents answered one item and how they answered another. Were males, for example, more likely to have chosen a certain answer to another item on the survey than were females?

The report process is one of reducing the information collected to a size that can be handled conveniently in a written message, as shown in Figure 9.7. Visualize the report process as taking place in a huge funnel. At the top of the funnel, pour in all the original information. Then through a process of compression within the funnel, take these steps:

1. Evaluate the information for its usefulness.
2. Reduce the useful information through organization of notes and data analysis.
3. Combine like information into understandable forms through the use of tables, charts, graphs, and summaries (see Chapter 10).
4. Report in written form the information that remains (see Chapter 11).

Match each of the following elements of a report according to where they fit in the process: research, condensation, combination, assimilation, or writing.

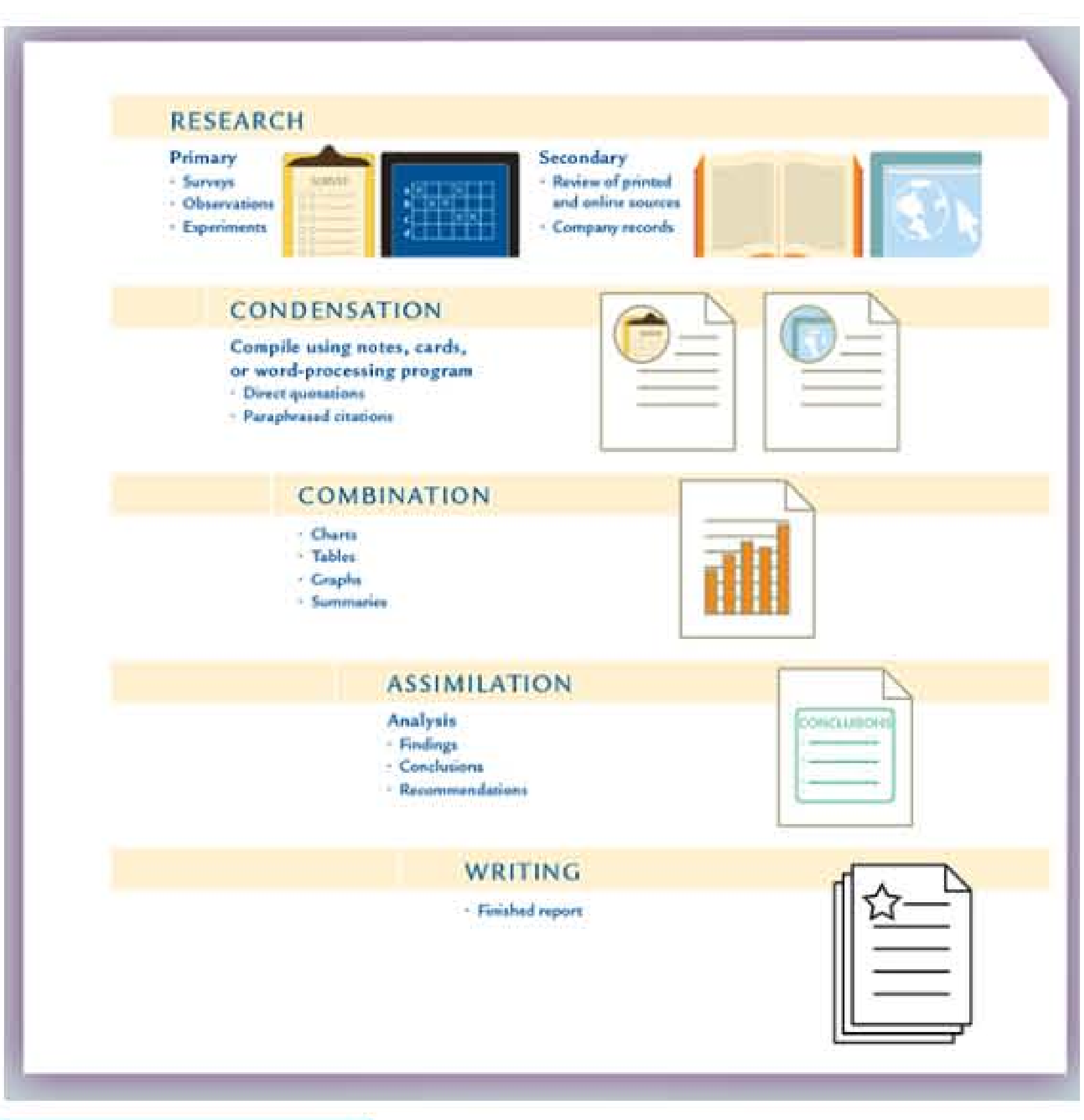
Charts
Company record
Conclusions
Direct quotations
Experiments
Findings
Finished report
Graphs
Observations
Paraphrased citations
Recommendations
Summaries
Surveys
Tables

Writing
Condensation
Primary research
Secondary research
Combination
Assimilation

SUBMIT

FIGURE 9.7.

The Report Process



COLLECT STUDYBIT

9-5b **Interpreting the Data**

Your ethical principles affect the validity of your interpretations. Through all steps in the research process, you must attempt to maintain the integrity of the research. Strive to remain objective, design and conduct an unbiased study, and resist any pressure to slant research to support a particular viewpoint.

Some common errors that seriously hinder the interpretation of data include the following:

- **Trying, consciously or unconsciously, to make results conform to a prediction or desire.** Seeing predictions come true might be pleasing, but objectivity is much more important. Facts should determine conclusions.
- **Hoping for spectacular results.** An attempt to astonish supervisors by preparing a report with revolutionary conclusions can have a negative effect on accuracy.
- **Attempting to compare when commonality is absent.** Results obtained from one study might not always apply to other situations. Similarly, research with a certain population might not be consistent when the same research is conducted with another population.
- **Assuming a cause–effect relationship when one does not exist.** A company president might have been in office one year, and sales might have doubled. However, sales might have doubled in spite of the president rather than because of the president.
- **Failing to consider important factors.** For example, although Eastman Kodak developed the digital camera in 1975, it didn't invest in the technology for fear it would undercut sales of its film business. Only when film's popularity began to wane in the mid-1990s in favor of digital photography did the company push into the digital market. But competitors entered the market faster, and Kodak was never able to fully capitalize on the product it invented.*
- **Basing a conclusion on lack of evidence.** "We have had no complaints about our present policy" does not mean that the policy is appropriate. Conversely, lack of evidence that a proposed project will succeed does not necessarily mean that it will fail.
- **Assuming constancy of human behavior.** A survey conducted in March indicating 60% of the public favors one political party over the other might not have the same results if conducted in November. Because some people paid their bills late last year does not mean a company should refuse to sell to them next year, because reasons for slow payment might have been eliminated.

LEARN THE TERMS WHEN DOING RESEARCH

Keep in mind the differences in meaning of some common research terms as you analyze your material and attempt to seek meaning from it. Most research reports include all three of the following items or sections:

Finding: A specific, measurable fact from a research study

Conclusion: Summation of major facts and evidence derived from findings

Recommendation: A suggested action based on your research

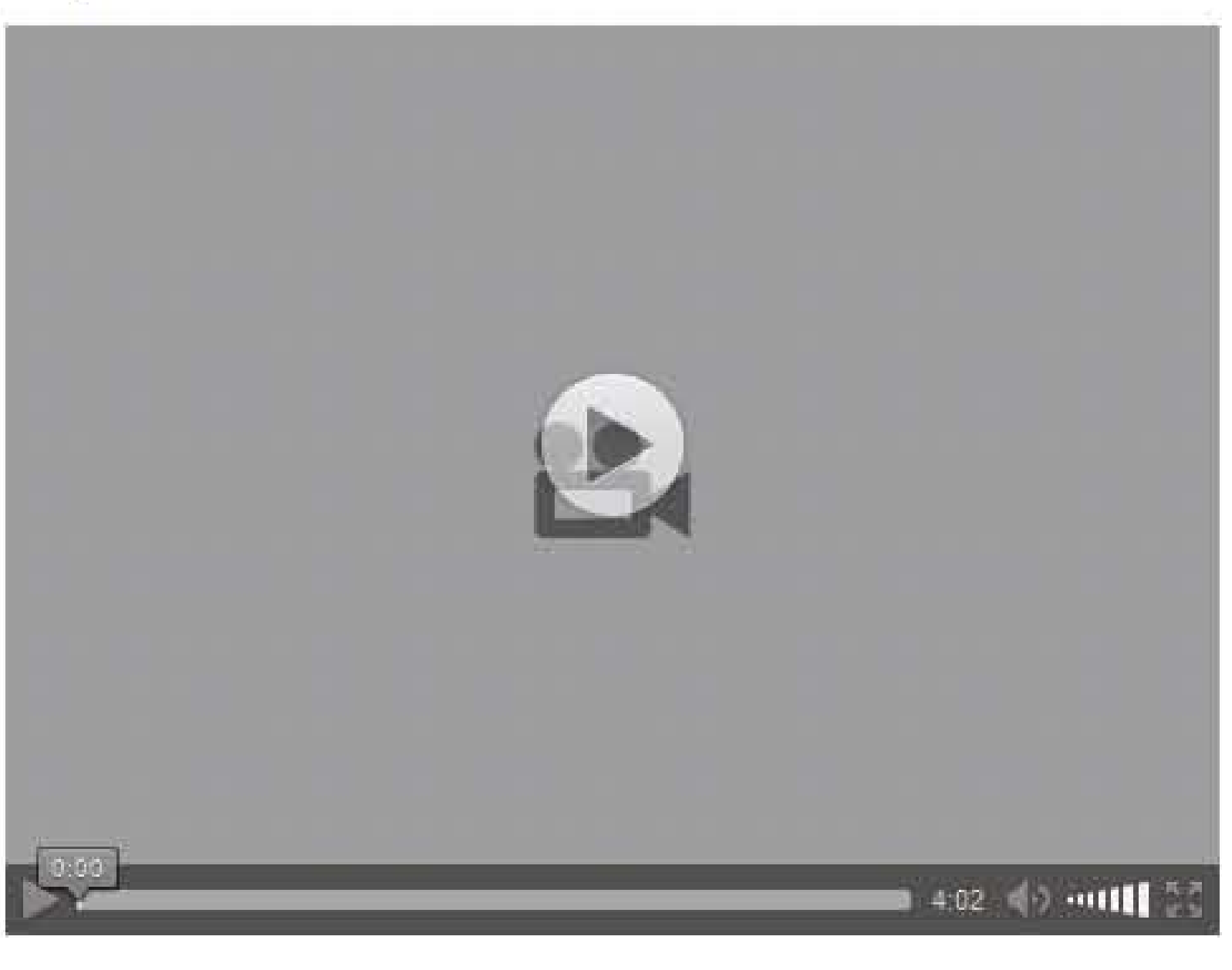
Consider the following examples of conclusions and recommendations generated by analyzing research findings:

EXAMPLE 1	EXAMPLE 2
Finding: Fully 90% of managers responded that poor writing skills are the biggest communication problem in the workplace today.	**Finding:** Only 20% of online customers rated our system as "Excellent," while nearly 40% checked "Needs Improvement."
Conclusion: Greater emphasis on the development of good writing skills is needed at all levels of education.	**Conclusion:** Our online ordering system needs improvement.
Recommendation: Schools need to ensure that more time is spent on writing instruction to ensure that employees have the requisite skills for the workplace.	**Recommendation:** Designers in charge of the online ordering system need to use the findings from our recent customer survey to improve the quality of the system.

COLLECT STUDYBIT

If you avoid common data-collection errors, you are more likely to collect valid and reliable data and reach sound conclusions. However, if you interpret valid and reliable data incorrectly, your conclusions will still *not* be sound.

Report Process



TOPIC 9-4

TOPIC 9-CR

CHAPTER 9

Understanding the Report Process and Research Methods

9-CR CHAPTER REVIEW

Learning Objectives

9-1 Identify the characteristics of a report and the various classifications of business reports.

The basis of a report is a problem that must be solved through data collection and analysis. Reports are usually requested by a higher authority, are logically organized and highly objective, and are prepared for a limited audience. Reports can be classified as formal or informal, short or long, informational or analytical, vertical or lateral, internal or external, or a proposal.

9-2 Apply steps in the problem-solving process and methods for solving a problem.

The four steps in the problem-solving process must be followed to arrive at a sound conclusion. The four steps are: (1) Recognize and define the problem; (2) select an appropriate secondary and/or primary method for solving the problem; (3) collect and organize data, using appropriate methods; and (4) interpret the data to arrive at an answer. Research methods in report preparation involve locating information from appropriate secondary sources to identify research that has already been done on the topic and then collecting the primary data needed to solve the problem. Primary data collection may include observational, experimental, or survey research processes.

9-3 Use appropriate printed, electronic, and primary sources of information.

Location of secondary sources of information involves appropriate use of printed indexes and application of electronic search techniques that can lead the researcher to books, periodicals, and other documents needed for topic exploration. Methods for collecting survey data include mailed questionnaires, email polling, telephone surveys, personal interviews, and participant observation. Collecting data through a survey involves selecting a sample that is representative of the entire population. Effective survey design and unbiased data collection are essential to ensuring the validity and reliability of the data reported.

9-4 Demonstrate appropriate methods of collecting, organizing, and referencing information.

Information from published sources should be carefully read and interpreted. To avoid plagiarism, both direct quotes and paraphrases must be referenced using an acceptable method. Surveys are a common method for collecting data. Instruments should be carefully designed to solicit needed information, avoid ambiguity and confusion, and reflect accurate information. The researcher must work to avoid various data-gathering pitfalls including using small or unrepresentative samples, using biased sources or irrelevant information, and excluding relevant information.

9-5 Explain techniques for the logical analysis and interpretation of data.

Arriving at an answer in the research process involves proper analysis using appropriate statistical techniques. To maintain the integrity of the research, the interpretation of data should be objective and unbiased. Carefully presented findings give way to sound conclusions that lead to logical recommendations.

Key Terms

9.1

formal report carefully structured report that is logically organized and objective, contains much detail, and is written in a style that tends to eliminate such elements as personal pronouns

informal report usually a short message written in natural or personal language

informational report a report that carries objective information from one area of an organization to another

analytical report a report that presents suggested solutions to problems

vertical report a report that can be upward- or downward-directed

lateral report a report that travels between units on the same organizational level

internal report a report that travels within an organization, such as a production or sales report

external report a report prepared for distribution outside an organization

periodic report a report that is issued on regularly scheduled dates

functional report a report that serves a specified purpose within a company

proposal a written description of how one organization can meet the needs of another

9.2

problem statement the particular problem that is to be solved by the research

statement of purpose the goal of the study; includes the aims or objectives the researcher hopes to accomplish

hypothesis a statement to be proved or disproved through research

procedures (or methodology) the steps a writer takes in preparing a report; often recorded as a part of the written report

longitudinal studies reports that study the same factors in different time frames

9.3

secondary research provides information that has already been reported by others

primary research data collected for the first time, usually for a specific purpose

observational studies studies in which the researcher observes and statistically analyzes certain phenomena in order to assist in establishing new principles or discoveries

experimental research the study of two samples that have exactly the same components before a variable is added to one of the samples

normative survey research research to determine the status of something at a specific time

sampling a survey technique that eliminates the need for questioning 100% of the population

validity the degree to which the data measure what the researcher intends to measure

reliability the level of consistency or stability over time or over independent samples

9.4

plagiarism the presentation of someone else's ideas or words asyour own

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Check Your Communication Report Process and Research Methods

Problem Formation

- Decide what type of report is required.
- Formulate the problem statement.
- Determine boundaries for the research.
- Define specialized terms used in the report.

Research Methodology

- Select appropriate methods of solution, including relevant secondary and primary resources.
- Gather appropriate published and electronic sources.
- Plan appropriate primary research, using observational, experimental, or normative techniques.

Data Collection and Organization

- Document all quoted and paraphrased information using the appropriate referencing method.
- Develop effective data collection instruments; pilot test and refine prior to conducting research.
- Avoid data-collection errors that can minimize your research effort.

Data Interpretation

- Analyze data accurately and ethically.
- Interpret data to reach logical conclusions.
- Make recommendations that are well supported by the data presented.
- Avoid overgeneralizing results of research conducted in one setting to another group or setting.

Grammar Quiz Hyphens

In each of the sentences below, add necessary hyphens and delete unnecessary hyphens. Write “correct” if you find no errors.

1. The Web based application was unavailable because of a denial of service attack.
2. State of the art computers provide quick access to timely business information.
3. A large portion of holiday orders are time sensitive.
4. A two thirds majority is needed to pass the 5% increase in employee wages.
5. Nearly one-half of the respondents were highly-educated professionals.

Grammar Quiz Solutions

1. Web-based; denial-of-service
2. State-of-the-art
3. Correct
4. two-thirds
5. one half; highly educated

TOPIC 9-5

TOPIC 10-CI