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Review of the Related Literature

Those who have conducted research before you belong to a community of scholars, each of whom has journeyed into the unknown to bring back an insight, a truth, a point of light. What they have recorded of their journeys and findings will make it easier for you to explore the unknown: to help you also discover an insight, a truth, or a point of light.

As noted in Chapter 2, reading the literature related to your topic of interest can help you formulate a specific research problem. There are several other ways in which related literature can help you as well. In this chapter we discuss the importance of the literature review and give you suggestions for reviewing the related literature thoroughly and efficiently.

Understanding the Role of the Literature Review

Research proposals and research reports typically have a section—in the case of a thesis or dissertation, often an entire chapter—that describes theoretical perspectives and previous research findings related to the problem at hand. Its function is to review—to “look again” at (*re + view*)—what others have done in areas that are similar, though not necessarily identical to, one’s own topic of investigation.

As a researcher, you should ultimately know the literature related to your topic *very, very well*. An extensive literature review has numerous benefits:

1. It can help you ascertain whether other researchers have already addressed and answered the research problem you are proposing (see Chapter 2) or at least some of its subproblems.
2. It can offer new ideas, perspectives, and approaches that may not have occurred to you.
3. It can inform you about other individuals who conduct work in this area—individuals whom you may wish to contact for advice or feedback.
4. It can show you how others have handled methodological and design issues in studies similar to your own.
5. It can reveal sources of data you may not have known existed.
6. It can introduce you to measurement tools that other researchers have developed and used effectively.
7. It can reveal methods of dealing with difficulties similar to those you are facing in tackling your research problem.
8. It can help you interpret and make sense of your findings and, ultimately, help you tie your results to the work of those who have preceded you.
9. It can bolster your confidence that your topic is one worth studying, because you will find that others have invested considerable time, effort, and resources in studying it.

Simply put, the more you know about investigations and perspectives related to your topic, the more effectively you can address your own research problem.

In most instances, researchers begin their review of the literature quite early in the game, and they draw on existing theories and prior research studies to help them pin down their research problem and accompanying hypotheses and questions. Only on rare occasions—when they intentionally choose *not* to let existing perspectives and research findings bias their data

collection and interpretation—do researchers postpone a thorough literature review until relatively late in the research process (e.g., see the discussion of grounded theory research in Chapter 6).

Strategies for Locating Related Literature

You might find literature related to your topic in a number of places—for instance, in books, journals, newspapers, government publications, conference presentations, and Internet websites. Obviously you cannot simply wander aimlessly through the library stacks or Internet with the hope that you will eventually stumble on items that may help you; you must focus your search from the very beginning.

A good way to start is to identify one or more **keywords**—words or short phrases summarizing your research topic—that can point you toward potentially useful resources. A prime source of such keywords is your statement of your research problem. For example, imagine that you want to investigate possible reasons why some children bully other children at school. Obvious keywords for this topic are *peer relationships*, *bullying*, and *aggression*. These are very general concepts, of course, but they should get you started. They will lead you to thousands of potential resources, however, and so you will soon want to identify more specific keywords. As you begin to look at books, journal articles, subject matter indexes, and other resources related to your topic and initial set of keywords, you should come across words and phrases that more closely capture what you want to study—for the bullying problem, these might include such terms as *social goals*, *social cognition*, and *cyberbullying*—and may also help you focus your research problem a bit more.

Armed with your initial keywords—which you will undoubtedly continue to revise—you can proceed in several directions. In the following sections, we describe seven good starting points: the library catalog, the library's index and abstract collections, online databases, reference librarians, the Internet, government publications, and other researchers' citations and reference lists.

Using the Library Catalog

The library catalog has come a long way from the tool it was in the mid-20th century. If you were a student in, say, 1960, after entering the library you would go straight to the card catalog—a set of free-standing dressers-of-sorts with many small drawers containing 3-by-5 index cards. The catalog would have three cards for every book in the library—one card each for a book's title, author, and general topic. You would rifle through the cards in search of books relevant to your topic and then write down the call numbers of books you wanted to track down in the library's numerous shelves of books (i.e., the “stacks”). If you were conducting an extensive literature review, the process might involve going through drawer after drawer in the card catalog, writing down a lengthy list of books and call numbers, and then heading to the stacks to determine whether or not each book you wanted was currently available. The whole process could be incredibly tedious and time-consuming.

In today's college library, a researcher's plan of attack is entirely different. Although you may occasionally find a small public library that still uses a physical card catalog, college and university libraries rely almost exclusively on electronic catalogs of their collections. In place of those rows upon rows of index-card drawers are computer terminals at which users can quickly locate a library's holdings related to particular authors, titles, keywords, or call numbers. The database will tell you on what floor of the library—and, if relevant, in what building or on what branch campus—a particular book can be found. (Note that some widely used books are kept in the library's reserved books section rather than in the stacks; you must read these books in the library itself, as they cannot be checked out.) The database will also tell you the status of a book—whether it's currently available or, if not, when it is due to be returned. If you have any questions about how to use the library catalog and its many features, don't be afraid of “looking stupid”—ask a librarian to show you the basics.

A good college or university library will almost certainly have a number of books relevant to your research topic. Some books will be written entirely by one or two individuals. Others may be edited collections of chapters written by a variety of experts in the field. And don't overlook general textbooks in your discipline. A good textbook can give you a broad overview of a topic, including important concepts, theoretical perspectives, a sampling of relevant research, and critical references.

The library's collection of academic journals, popular magazines, and newspapers—collectively known as **periodicals**—is another indispensable resource. The library catalog will tell you which periodicals the library owns, where each one is located, and the one or more forms (paper, electronic, microform) in which particular volumes and issues can be found. For instance, if the library has a periodical in paper form, you will find most volumes in the library stacks—usually in a section of the library devoted specifically to periodicals—but you are apt to find recently acquired, unbound issues (say, from the past year or two) on a separate set of shelves near the main desk for the periodicals section. Some university libraries organize and shelve their paper periodicals by call number; this approach enables a researcher to find periodicals about any single topic close together, but the researcher must, of course, know the call number(s) relevant to his or her discipline and topic. Other university libraries organize and shelve paper periodicals alphabetically by title; this approach enables a researcher to find any particular periodical without having to consult the library catalog, but he or she will most likely go to many different shelves to retrieve all articles relevant to a particular literature review.

University libraries typically also have access to many periodicals in electronic form, which you can retrieve from a computer terminal (more about accessing electronic copies in the upcoming section on online databases). Finally, your library may have some periodicals (especially older ones) in *microform*. The microforms area of a library is easy to spot, as it will have numerous file cabinets containing *microfilm*, *microfiche*, and the like, along with several large devices for viewing them. The devices may seem intimidating to a novice researcher, but they are quite easy to use once you have had a little practice. Don't be afraid to ask someone behind the periodicals desk to demonstrate how to use them.

As a rule of thumb, use books and periodicals with recent copyright dates. The more recently a book or article has been written, the more likely it is to give you a sense of current perspectives in your field and alert you to recent research findings that may be pertinent to your research problem. You should ignore this rule, of course, if you are specifically interested in how perspectives about your topic have changed over the years.

If you have access to the Internet from your home computer, then you already have access to countless online library catalogs around the world. You can explore how online catalogs work by visiting some of them on the Internet. Following are three examples:



Brown University

library.brown.edu

University of New Hampshire

library.unh.edu

University of Northern Colorado

library.unco.edu

Typically the Internet home page for your own institution will have a link to the library and its catalog.

A few words about call numbers. The *call numbers* referred to earlier are the unique identification codes that books and similar items are given. A book's call number provides an "address" that enables you to find it in the library stacks. Books are coded and arranged on the library shelves in accordance with one of two principal classification systems, which divide areas of human knowledge in somewhat different ways:

- *The Dewey decimal (DD) classification system.* Books are cataloged and shelved according to ten basic areas of knowledge and subsequent subareas, each divided decimally. The

Dewey decimal system is the principal classification system in most public libraries and many other libraries and is probably the most generally accepted system throughout the world.

- *The Library of Congress (LC) classification system.* Books are assigned to particular areas of knowledge that are given special alphabetical categories. This system is widely used in college and university libraries.

Table 3.1 provides a rough overview of how the two systems generally classify many traditional academic subject areas. For each subject area listed in the table, the entries in the DD column to its left and the LC column to its right provide either starting points or general ranges for the Dewey decimal and Library of Congress designations, respectively.

Please be aware, however, that neither the Dewey decimal system nor the Library of Congress system is as simple and cut-and-dried as Table 3.1 might suggest, in part because virtually any academic discipline includes many topics and draws from many research areas and—often— from other disciplines. Furthermore, we authors have found that books in our own areas of expertise are not always classified exactly as we ourselves might have classified them.

You can find descriptions of more specific categories of the Dewey decimal and Library of Congress systems on many Internet websites. A simple search on Google or Yahoo! using such phrases as “dewey decimal system chart” and “library of congress categories” can help you find these websites.

Browsing the library's holdings. Although keywords and knowledge of specific book titles and authors can get you off to a good start in locating helpful volumes in your library, they will give you *only* a start, because you probably won't be able to think of every potentially useful keyword, and you certainly won't be aware of every book and author relevant to your topic. We therefore suggest that you also browse the library, either physically by walking among the stacks or electronically by “browsing” the entries in the library's computer catalog. In many cases, when

TABLE 3.1

A general conversion chart: Dewey decimal classification system (DD) versus the Library of Congress classification system (LC) for various subject areas

| DD | Subject | LC | DD | Subject | LC |
|----------|------------------------|------------|-----|----------------------------------|----------|
| 630 | Agriculture | S | 070 | Journalism | PN |
| 301 | Anthropology | GN | 400 | Language | P |
| 930 | Archaeology | CC | 340 | Law | K |
| 700 | Art | N | 020 | Library and Information Sciences | Z |
| 520 | Astronomy | QB | 800 | Literature | P |
| 920 | Biography | CT | 510 | Mathematics | QA |
| 570 | Biology | QH | 610 | Medicine and Public Health | QS–QZ, W |
| 580 | Botany | QK | 355 | Military Science | U |
| 650 | Business | HF | 780 | Music | M |
| 540 | Chemistry | QD | 100 | Philosophy | B |
| 004–006 | Computer Science | QA | 530 | Physics | QC |
| 550 | Earth Sciences | QE | 320 | Political Science | J |
| 330, 380 | Economics and Commerce | HB–HJ | 150 | Psychology | BF |
| 370 | Education | L | 200 | Religion | B |
| 620 | Engineering | T | 500 | Science (General) | Q |
| 910 | Geography | G | 301 | Sociology | HM |
| 350 | Government | JF, JK, JS | 790 | Sports and Recreation | GV |
| 930–995 | History | D, E, F | 600 | Technology | T |
| 640 | Hospitality | TX | 590 | Zoology | QL |

one goes to a library shelf to get a particular book or journal, the information most useful is found not in the material that was originally targeted, but rather in one or more volumes nearby.

Remember, too, that most academic disciplines are becoming increasingly interdisciplinary in both their problems and their methodologies (e.g., Eisenhart & DeHaan, 2005; Miksa, 1987). For example, marketing researchers often draw on sociologists' and geographers' concepts and data collection techniques to identify the needs and shopping patterns of different populations, and psychologists can learn a great deal about human thought processes by using the positron emission tomography (PET) and magnetic resonance imaging (MRI) technologies of neurophysiologists. Thus, you are apt to find helpful sources under more than one range of call numbers. Good researchers are flexible and creative in their searches for relevant literature.

Using Indexes and Abstracts

Although the library catalog will tell you which periodicals your library owns and in what form it owns them, it won't tell you the specific articles that each volume of a journal contains. Instead, you may need to consult one or more indexes or abstract compilations in paper or electronic form. An **index** lists articles, research reports, and other documents in certain specified areas. An **abstract** is a summary of an article or research study; it also gives the source of the original study, should a reader wish to refer to it. The examples of indexes and abstract compilations presented in Table 3.2 should give you an idea of the wide variety of topics these resources address.

The paper forms of such resources are located in the library's reference section. A reference librarian can show you how to use them effectively and tell you which ones are available in electronic form as well as—or perhaps only instead of—paper form. In fact, their electronic versions, in the form of online databases, can greatly enhance the efficiency and effectiveness of your library searches.

Using Online Databases



Virtually all college and university libraries provide access to a wide variety of **online databases**—not only indexes and abstracts but also encyclopedias, dictionaries, and other general reference tools. These databases enable you to locate sources of information available either at the campus library or at other libraries and institutions around the world. Table 3.3 lists examples.

Online databases allow searches of thousands of journals and such other sources as books, chapters in edited books, dissertations, government documents, technical reports, and

TABLE 3.2

Examples of indexes and abstracts

| <i>Indexes</i> | <i>Abstracts</i> |
|--|--|
| <i>Applied Science and Technology Index</i> | <i>Biological Abstracts</i> |
| <i>Biography Index</i> | <i>Dissertation Abstracts International</i> |
| <i>Book Review Index</i> | <i>International Political Science Abstracts</i> |
| <i>Business Periodicals Index</i> | <i>Psychological Abstracts</i> |
| <i>Essay and General Literature Index</i> | <i>Sage Race Relations Abstracts</i> |
| <i>Humanities Index</i> | <i>Sage Urban Studies Abstracts</i> |
| <i>Index to Legal Periodicals</i> | <i>Women Studies Abstracts</i> |
| <i>The Music Index</i> | |
| <i>New York Times Index</i> | |
| <i>Poole's Index to Periodical Literature</i> | |
| <i>Readers' Guide to Periodical Literature</i> | |
| <i>Social Sciences Index</i> | |
| <i>United Nations Documents Index</i> | |
| <i>Wall Street Journal Index</i> | |

TABLE 3.3

Examples of online databases

| Database | Subject Area(s) Covered |
|---|--|
| Academic Search Premier | Education, humanities, multicultural issues, sciences, social sciences |
| America: History and Life | History of the United States and Canada |
| Applied Science Full Text | Applied sciences and technology (e.g., computing, engineering, resource management, telecommunications, transportation) |
| Art Full Text | Broad range of art topics (e.g., advertising, architecture, art history, folk art, graphic arts, video) |
| Biological Abstracts | Biology, medicine |
| Business Source Premier | Business, economics |
| Dissertation Abstracts International | All disciplines (dissertations) |
| EconLit | Economics |
| ERIC (Educational Resources Information Center) | Education and education-related topics |
| Historical Abstracts | World history (excluding the United States and Canada; for these, use America: History and Life) |
| IngentaConnect | All disciplines |
| JSTOR | Business, fine arts, humanities, sciences, social sciences |
| Linguistics and Language Behavior Abstracts (LLBA) | Language |
| MathSciNet | Mathematics (pure and applied), statistics |
| Medline | Dentistry, health care, medicine, veterinary medicine |
| National Criminal Justice Reference Service Abstracts | Courts, crime, justice, law enforcement, victimization |
| PAIS (Public Affairs Information Service) International | Public and social policy, social sciences |
| ProQuest Dissertations and Theses: Full Text | All disciplines |
| PsycINFO | Psychology and psychological aspects of other disciplines (e.g., physiology, sociology, anthropology, education, medicine, business) |
| Sociological Abstracts | Sociology and related topics in the social and behavioral sciences |
| SPORT Discus | Physical education, physical fitness, recreation, coaching, sports medicine |
| Web of Science | Humanities, sciences, social sciences |
| WorldCat | All disciplines |

newspapers. A typical database allows you to limit your search in a variety of ways—perhaps by keywords, title, author, year, source (e.g., journal title), language, or any combination of these. Many databases focus on particular disciplines and subject areas. As an example, let's consider PsycINFO, a database that includes information not only about sources in psychology but also about psychology-related sources in such disciplines as physiology, sociology, anthropology, education, medicine, and business. As this edition of *Practical Research* goes to press, PsycINFO works as follows:

1. When you enter the database, you type one to three words or phrases in boxes at the top of the screen. In pull-down menus to the right of the boxes, you can indicate whether each word or phrase you have typed is a keyword, author, title, word or phrase in the abstract, or some other entity.
2. In pull-down menus to the left of the second and third boxes at the top of the screen, you can tell the computer to

- a. Identify only those items that include *all* of the words/phrases you have entered (for this, you select the “and” option).
 - b. Identify items that include *any* of the words/phrases you have entered (for this, you select the “or” option).
 - c. Exclude items that have one of the words/phrases you have entered (for this, you select the “not” option).
3. Options in the lower portion of the computer screen allow you to limit your search results still further, perhaps by specifying a particular year, journal title, population, age-group, or language.
 4. Once you have limited your search to some degree (at a minimum by completing Step 1), you click on “Search” near the top of your computer screen.
 5. The next screen will either (a) give you one or more references or (b) tell you that it has come up empty-handed (“Your query did not find any matching records”). If references appear, you can click on their titles to view abstracts and, in some cases, see and download the entire articles or other texts. If your search has been unsuccessful, you probably need to eliminate one or more of the limitations you imposed on your original search—you should also check for spelling errors in what you have typed—and click on “Search” once again.
 6. Each time you identify a potentially useful source, you can “mark this record,” and at the end of your search of PsycINFO, you can “save, print, [or] e-mail” the complete list of sources you have identified.

As is true for some of the articles in PsycINFO, some databases provide entire documents. For example, the *New York Times Article Archive* allows you to search—and then also to read—news articles, editorials, letters to the editor, birth announcements, obituaries, advertisements, and virtually any other entry in any issue dating back to its first issue in 1851. Another good general resource is JSTOR (pronounced “jay-stor”), which contains electronic copies of articles from many journals in the sciences, social sciences, humanities, business, law, and education.

One easy way to access a university library’s online databases is through computer terminals located throughout the library building. Often a library’s Internet home page will provide a link to its online databases, and users may be able to access them on their home computers as well as at the library. However, because a library pays large annual fees for its online databases, it typically restricts off-site use of them to current students and employees. Hence, students who want to use a database at home may need to enter a preassigned user name and password before gaining access to it. A reference librarian at your own library can give you the details.

Researchers not currently connected to a university have other possible ways to access online databases. Many professional associations give current members access to electronic copies of articles published in the associations’ journals. Some online databases are available without charge on the Internet. An example is Google Scholar (scholar.google.com), through which you can search the general topics and contents of books, journal articles, and other scholarly works in a wide range of disciplines. Some of the websites it identifies provide complete articles and other documents you can download and print (e.g., look for sites labeled “pdf”), whereas others provide abstracts and links to companies that charge a service fee for the complete documents. Another, more specialized database—one especially helpful for researchers interested in medicine and related topics—is that of the National Library of Medicine (www.nlm.nih.gov). Also, check out Google Books (books.google.com), which provides excerpts from—and in some cases the entire texts of—out-of-print books.

One especially helpful database during a literature search is **Web of Science**, which can tell you what publications cite *other* publications. For example, imagine that you are particularly intrigued by a 1999 article in the journal *Nature Neuroscience* indicating that the human brain is not fully mature until its owner reaches adulthood in the 20-something age range (Sowell, Thompson, Holmes, Jernigan, & Toga, 1999). Given the rapid-pace advances in neuroscience in recent years, this article is a fairly “old” one, and so you want to find more up-to-date articles on the same topic. In the Web of Science database, the “Cited Reference Search” option allows you to search the reference lists of all other articles in its database and find more recently published

articles that cite the article by Sowell and colleagues. If you were to use the Web of Science for this purpose (as we did), you would find that the Sowell and colleagues' article has been cited by hundreds of other researchers and so obviously has been an influential one in neuroscience.

Another invaluable database is **WorldCat**, which combines the library catalogs of thousands of academic libraries, large public libraries, and other specialized collections throughout the world. Through this database, you can identify libraries that have particular books, periodicals, visual materials, sound recordings, and other items that might be rare and hard to come by.

Our list of databases and their features is hardly exhaustive. Databases become more sophisticated with each passing year. We urge you to consult with a reference librarian about databases that may be especially suitable for your research purposes.

Consulting with Reference Librarians

When you visit the reference section of your library—and we urge you to do this very early in your literature search—you will almost certainly see one or more librarians sitting at the reference desk. These individuals are there for one reason only: to help you and others find needed information. They can show you reference materials you never dreamed existed. They can also demonstrate how to use the computer catalog, hard-bound reference volumes, online databases, or any of the library's other resources.

Some new researchers are reluctant to approach a reference librarian for fear of looking foolish or stupid. Yet the reality is that library resources are changing so quickly that most of us cannot possibly keep up with them all. Whatever you do, do *not* be afraid to ask librarians for assistance. Even as seasoned researchers, we authors sometimes seek the advice of these individuals; by doing so, we can often save ourselves a great deal of time and aggravation.

The best way to master the library as a research tool is to use it! Go in, explore, take stock of its resources; experiment with the various search options in its computer terminals; browse in the reference room; go into the stacks and browse some more. You may be surprised at what a magnificent research tool the library really is.

Surfing the Internet



We have already mentioned the Internet as a source of such free-access online databases as Google Scholar and Google Books. With each passing year, the Internet becomes an increasingly valuable source of information to researchers. As most of our readers already know, an Internet search typically begins with a **search engine** at a website such as Google or Yahoo! These websites typically have a box in which you can type one or more keywords to start your search. Following are some general strategies to keep in mind when using search engines:

1. Use at least two keywords to limit your search. (For example, to locate research about children with autism, you might type the words *children* and *autism*.)
2. Type a plus sign (+) before any keyword you definitely want used in your search. (For example, to limit your search only to children who have autism, you should type "+children" and "+autism". Otherwise, you may get a listing of all resources involving children *or* autism, which would undoubtedly be a long list indeed.)
3. If you want to look for a phrase rather than a single word, put quotation marks around the phrase. (For example, if you are looking for the home page of the Autism Society, you should type "Autism Society" within quotation marks. This way, your search will be restricted to items specifically about that particular organization.)

Surfing the Internet will lead you to a wide variety of locations. For instance, it may lead you to government office websites that can provide helpful information, including the U.S. Census Bureau (www.census.gov), Department of Education (www.ed.gov), Department of Labor (www.dol.gov), National Aeronautics and Space Administration (www.nasa.gov), National Network of Libraries of Medicine (www.nlm.gov), and U.S. Geological Survey (www.usgs.gov). Most professional associations have websites as well, and these sites often provide a wealth of information about their areas of expertise.

One site to which an Internet search will often lead you is Wikipedia (www.wikipedia.org), an online encyclopedia that virtually anyone can add to and edit. Wikipedia contains millions of entries on a diverse range of topics, with people adding new ones every day. In our experience, Wikipedia provides good general overviews of many topics and can help a novice researcher identify key concepts and issues related to a topic. Keep in mind, however, that *its contents are not juried*—that is, there is no oversight of any entry's accuracy by experts in the subject matter at hand. Accordingly, although you might use ideas you find in Wikipedia to guide your subsequent searches, as a general rule *you should not use Wikipedia as an authoritative source about your topic*.

An Internet search may also lead you to research articles and opinion papers that individual researchers have made available on the Internet, and you can typically print such documents or download them to your own computer. We caution you to keep in mind that such articles and papers vary widely in quality. Although most academic publications have a review process that enhances the quality of the research articles they include, many research reports posted on the Internet have not yet been reviewed or judged by professional colleagues. Obviously you will want to read *any* research report with a somewhat critical eye, but you should be especially careful when you find research reports on the Internet that you cannot verify as the work of credible scholars.

In your searches of the Internet, you will probably have to wade through many listings that are not terribly helpful. On the plus side, however, if you have access to the Internet from a home computer, you can browse anytime day or night—weekends, holidays, even 3:00 a.m. if you like. Libraries are sometimes closed, but the Internet is always open.

Whenever you find information on the Internet, you should make a note of the address (**Uniform Resource Locator**, or **URL**) at which you found it and the date on which you did so. Alternatively, some online documents posted within the past few years have a **Digital Object Identifier** number, or **DOI**—a unique number that enables you to find a document even if its precise location on the Internet has changed in the meantime. (For more information, see Chapter 12, or go to www.doi.org). Given the dynamic, ever-changing nature of the Internet, you may need to include such information in your reference list (more on this point in Chapter 12).

Locating Relevant Government Publications

We have already mentioned the potential use of government office websites. Another vast source of information you should not overlook is the depository libraries of the U. S. government. The U.S. Government Printing Office is the largest publisher of printed material in the world, and its publications are available through more than one thousand federal depository libraries (including many university libraries) throughout the United States and its territories. A few examples of the many publications available are *Statistical Abstract of the United States*, *Survey of Current Business*, and *Public Papers of the President*. Other publications provide information about environment and weather, science and technology, nutrition, health care, and education. You can obtain more information about government publications and designated libraries by going to the office's website (www.gpoaccess.gov). And you can purchase paper copies at the Government Printing Office's online bookstore (bookstore.gpo.gov).

Using Citations and Reference Lists of Those Who Have Gone Before You

No library or computer search—no matter how extensive—is foolproof. Ultimately any search depends on the particular keywords you use and the particular databases you include in your search. One additional—in our minds, *essential*—resource is the literature reviews of researchers whose own writings you have consulted. Such reviews, especially if they have been published recently, can give you valuable guidance about seminal research studies and cutting-edge ideas related to your research topic. As a rule of thumb, we urge you to track down *any references you see cited by three or more other researchers*. Such references are clearly influencing current work in your field and should not be overlooked.

The preceding paragraph brings us to another important point: Don't depend on what other authors say about a particular reference. Too often we have seen two or more authors misrepresent

the work of a particular researcher in the same, particular way; apparently, they are reading one another's descriptions of that researcher's work rather than reading the researcher's own words! Whenever possible, *go to the original source and read it yourself.*

Considering all of the resources we have described in this chapter, you might be thinking that you will be spending the next ten years conducting your literature review! Don't worry. In the two Practical Application sections that follow, we describe (a) how to conduct your literature search in an organized, efficient, and time-saving fashion and (b) how to distinguish between research reports that are and are not worth taking seriously.

PRACTICAL APPLICATION Conducting a Literature Search

In Chapter 2 we discussed how to select a research problem or question. We also suggested that most problems, taken as a whole, are fairly complex and can be more easily solved when they are divided into two or more subproblems.

The main problem and subproblems provide a way to focus your attention as you read the literature. One concrete and effective approach, using either paper and pencil or brainstorming software such as Inspiration, involves the following steps:

1. Write the problem in its entirety at the top of the page or computer screen.
2. Write each subproblem in its entirety as well.
3. Identify the important words and phrases in each subproblem.
4. Translate these words and phrases into specific topics you must learn more about. These topics become your "agenda" as you read the literature.
5. Go to the library catalog, its online databases, and the Internet to seek out resources related to your agenda.
6. Read!

Let's take an example. For his dissertation research, doctoral student Arthur Benton wanted to develop a means of using an existing measurement instrument, the Strong Vocational Interest Blank (SVIB), to identify potential cartographers for the federal government. The SVIB assesses a person's interests in a wide variety of activities; the profile of interests that it generates is then compared with the interests of people in various occupations to identify career paths in which the person might find satisfaction and success. At the time the study was conducted, interest scales for 54 different occupational groups had been developed for the SVIB, but none had been developed for cartographers. The SVIB was published in two versions, the SVIB for Men and the SVIB for Women; to limit the scope of the project, Mr. Benton focused only on the SVIB for Men. In his dissertation proposal, he presented the following research problem:

This researcher proposes to identify and evaluate the existing discrete interests among Federally employed male cartographers and to develop a scale for the revised Strong Vocational Interest Blank to aid recruitment of cartographers into Federal employment.

He then divided his problem into three subproblems:

The first subproblem is to determine whether male cartographers employed by the Federal Government have a discrete pattern of interests different from those of men in general, as measured by the Strong Vocational Interest Blank for Men.

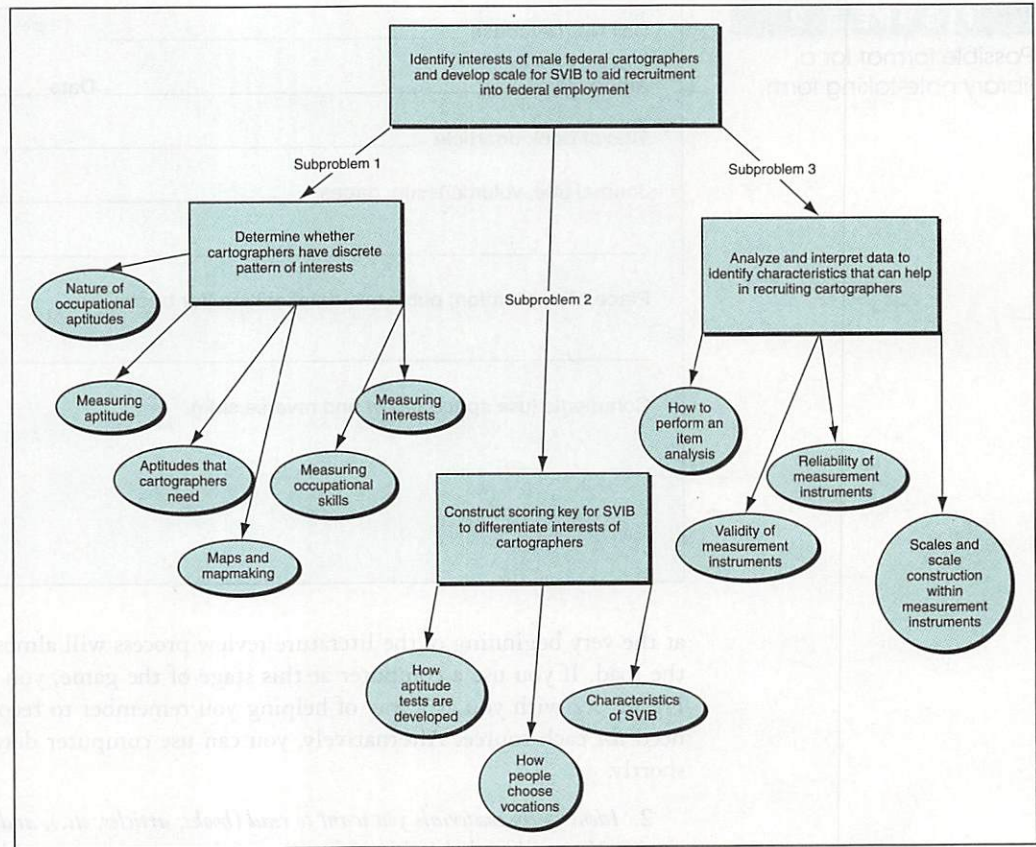
The second subproblem is to construct a scoring key for the Strong Vocational Interest Blank to differentiate the interests of cartographers from those of men in general and also from the interests of other occupational groups.

The third subproblem is to analyze and interpret the treated data so as to evaluate the discovered interests in terms of their discreteness in recruiting cartographers.

Figure 3.1 shows the literature-review agenda we have identified for the research problem and three subproblems. We used Inspiration software to create the agenda. The four rectangles

FIGURE 3.1

Using Inspiration software to prepare for a review of the literature



represent the research problem and its three subproblems. The ovals reflect the specific things we need to learn more about with respect to each subproblem.

The sequence of steps just described can help you keep your literature review within the realm of your research problem. It prevents you from wandering into other areas of the literature that, although potentially quite intriguing, may be of little or no use to you when the time comes to write your literature review.

Now that you have an idea of what to search for, let's discuss how to make your search efforts efficient and productive.

GUIDELINES Using Your Library Time Efficiently

Make no mistake about it: Conducting a thorough literature review takes a great deal of time. And almost certainly you will *not* be able to conduct your entire literature review from your home computer. So plan on going to the library—not just once but many times. Following are several suggestions for maximizing your efficiency at the library.

1. *Go to the library armed with data-gathering tools.* You will need a systematic way of recording the information you will be gathering—ideally one that will also allow you to easily organize that information. As is true for many aspects of the research process, you can use either paper and pencil or a computer (a laptop or tablet) to record what you find at the library.

A paper-and-pencil approach involves taking note paper or index cards on which to write what you find—not only information relevant to your topic but also information about the sources in which you find it: titles, authors, journal titles (if applicable), publication dates, and so on. Some people going the paper-and-pencil route have found it helpful to print up a large number of note-taking forms similar to that shown in Figure 3.2.

If, instead, you bring a laptop or tablet computer to the library, you can enter the information you gather directly into one or more computer files. Computerizing the information you obtain

FIGURE 3.2

Possible format for a library note-taking form

| |
|--|
| Call No./Database _____ |
| Author(s) _____ Date _____ |
| Title of book or article _____ |
| Journal title, volume/issue, pages _____ |
| _____ |
| Place of publication, publisher, date, edition (for books) |
| _____ |
| Comments (use space below and reverse side) |

at the very beginning of the literature review process will almost certainly save you time down the road. If you use a computer at this stage of the game, you might want to bring a copy of Figure 3.2 with you as a way of helping you remember to record all the information you will need for each source. Alternatively, you can use computer database software, to be described shortly.

2. *Identify the materials you want to read (books, articles, etc.), and determine whether your library has them.* You will probably identify many of the sources you need by consulting the library catalog and perusing indexes and abstracts in online databases or in hardbound volumes in the reference section. As you make a list of your desired sources, keep the following suggestions in mind:

- *Keep track of the specific searches you conduct (e.g., which indexes and other databases you consult, which keywords you use and in what order).* Keeping such records ensures that you won't duplicate your efforts.
- *Let computers make your lists for you whenever possible.* For instance, if you are using an online database, you will probably be able to print out the sources you identify or, if you prefer, e-mail your list (and in some cases actual journal articles) to yourself.
- *Check the library holdings for the books and journals you identify.* More specifically, find out whether the library owns the sources you need and, if so, where they are located and whether they are currently on loan to another user. In the case of journals, you should also check to see whether they are in paper, online, or on microform (e.g., microfilm, microfiche). If the library does *not* have something you need, keep the reference; we will talk about alternative strategies for obtaining such materials shortly.

3. *Develop an organized plan of attack for finding the sources you have identified.* Arrange any paper and microform sources you need to obtain according to where they are located in the library. For instance, you can organize books by call number. For articles, you can organize first by paper versus microform, and then by the specific journals in which the articles appear. If your university has multiple library buildings, you will, of course, also want to organize your sources by the specific buildings in which they are located.

4. *Track down your sources.* After you have organized your sources, you're ready to go find them and look them over. Keep a record of whether each item was (a) found and used, (b) found but determined not to be helpful, or (c) not found. As you peruse the stacks, don't forget to browse neighboring shelves.

5. *Record all basic information as you read each source.* "Make haste slowly" is a sound rule for any researcher. Be careful not to make careless, half-complete notes that—when you read them

later—are either unintelligible or so lacking in essential information that they are practically useless. If you are using paper to record your findings, write legibly or print clearly. If you can't distinguish between undotted *i*'s and closed-up *e*'s, or between carelessly made *a*'s and *o*'s, you may eventually find yourself scurrying back to sources for such details.

In addition to recording any essential bibliographic information you have not previously obtained, you will want to take sufficient notes about the content of the source to enable you to recreate its ideas when, later, you are writing your literature review. As you do so, you may find it helpful to keep track of the pages on which you have found certain ideas; furthermore, page numbers are essential if you are quoting a source word for word. In some cases, of course, a source will have so much information that you will simply want to make a photocopy of relevant pages¹ or, in the case of a book, check it out and take it home.



6. *Identify strategies for obtaining sources that are not immediately available.* We can almost guarantee that you won't find everything you need the first time around. Some books may be currently checked out to other users. Other books and a few journals may not be among the library's holdings. Following are several strategies to consider in such situations:

- *Put a hold on a checked-out book.* If you discover that a book has been checked out but is due to be returned shortly, some university catalog systems will let you put a *hold* on the book so that you are the next one in line to check it out when it comes in. If your catalog system doesn't provide this option, ask the librarian at the circulation desk to put a hold on the book for you. The library will contact you (typically by e-mail) as soon as the book is returned and will save it for you for a few days at the circulation desk.
- *Recall the book.* Many university libraries allow professors to check out books for an entire semester or academic year, but they must return them earlier if someone else wants to use them. If you discover that a book you need is checked out for a long period of time—perhaps for several months or longer—you can ask for the book to be *recalled* so that you can use it. Some university catalog systems let you recall a book yourself; for example, if you see a “request” button on the catalog page for the book, clicking on it will probably initiate a recall notice to the person who currently has it.
- *Submit a request for the source through interlibrary loan.* Almost all libraries have cooperative arrangements to exchange resources with other libraries. In all likelihood, you will be able to order a book or journal article through such *interlibrary loan* using your library's catalog system. A “low-tech” alternative is to make the request through your library's interlibrary loan office. Typically you can get books and journal articles from other libraries at little or no charge except, perhaps, for photocopying.
- *Check Google Books (books.google.com) for older, out-of-print books.* Some books available on Google Books are no longer protected by copyright and are typically available free of charge. Those still under copyright are available only to the extent that the copyright holders have given permission; in such cases, you may be able to view excerpts from the book but may need to pay a small fee to see the entire book.
- *Order books through a bookstore.* Most bookstores will order any book that is currently in print and obtain it for you within a week or two. You can also order both new and used books through such online booksellers as Amazon (www.amazon.com) and Barnes and Noble (www.barnesandnoble.com).
- *Use an online document delivery service.* Some of the online databases listed in Table 3.3 (e.g., Academic Search Premier, JSTOR, PsycINFO) provide electronic copies of articles from selected journals. Others (e.g., ERIC) provide electronic copies of conference papers and other nonpublished works. If you find one or more doctoral dissertations that pertain to your research problem, you can order complete copies through ProQuest Dissertations and Theses: Full Text (www.proquest.com). Some of these services may be available to you free through your university library; others (such as ProQuest) will charge you a fee.

¹In the United States, federal copyright law allows one copy for personal use.

As you conduct your literature review, you will undoubtedly need to repeat this cycle of steps several times. With each go-round, however, you will become more and more of an expert about the topic you are pursuing. You will also become increasingly knowledgeable about the library and its resources.

PRACTICAL APPLICATION Evaluating the Research of Others

An important skill for any researcher is the ability to review the work of others and evaluate the quality of their methods, results, and conclusions. *Never take other people's conclusions at face value; determine for yourself whether their conclusions are justified based on the data presented.* Critically examining what others have done has three distinct benefits:

- It can help you determine which ideas, research findings, and conclusions you should take seriously and which you can reasonably discredit or ignore.
- It can help you reconcile inconsistent findings obtained in previous research studies.
- It can give you some ideas about how you might improve your own research efforts.

As you proceed through the rest of this book and learn more about research methodology, you will become increasingly knowledgeable about the kinds of conclusions that are and are not warranted from various methodologies and types of data. At this point, you may be able to judge the work of other researchers only in a fairly superficial fashion. Even so, there's no better time than the present to begin examining other researchers' work with a critical eye. We suggest that you begin to sharpen your evaluation skills by locating several research articles relevant to your interests. As you read and study the articles, consider the questions in the following checklist.

✓ CHECKLIST

Questions to Consider When Evaluating Research

1. In what journal or other source did you find the research article? Was it reviewed by experts in the field before it was published? That is, was the article in a *juried* (refereed) publication?

2. Does the article have a stated research question or problem? That is, can you determine the focus of the author's work?

3. Does the article describe the collection of new data, or does it describe and synthesize previous studies in which data were collected?

4. Is the article logically organized and easy to follow? What could have been done to improve its organization and readability?

5. Does the article contain a section that describes and integrates previous studies on this topic? In what ways is this previous work relevant to the research problem?

- _____ 6. If the author explained procedures that were followed in the study, are these procedures clear enough that you could repeat the work and get similar results? What additional information might be helpful or essential for you to replicate the study?
- _____ 7. If data were collected, can you describe how they were collected and how they were analyzed? Do you agree with what was done? If you had been the researcher, what additional things might you have done?
- _____ 8. Do you agree with the interpretation of the results? Why or why not?
- _____ 9. Finally, think about the entire article. What is, for you, most important? What do you find most interesting? What do you think are the strengths and weaknesses of this article? Will you remember this article in the future? Why or why not?

Organizing the Information You Collect

Imagine entering a new library to locate some books and articles, but this library doesn't have an organized system for storing its resources. Printed materials are placed on the most convenient shelves, rather than in any designated location. The librarians leave it up to the users to look through all this material until they find what they need. Naturally you would very quickly become frustrated trying to find what you want. You will encounter similar frustration—albeit on a smaller scale—if you don't organize the information you gather from your literature search. Thus, as you begin to accumulate a substantial amount of information about your topic, you will want to begin organizing it as well.

Putting your sources and notes on a computer, either while you are at the library or at a later time, can often help you keep track of and organize your sources more quickly and efficiently than using paper-and-pencil notes. Computer databases are one extremely useful tool in this regard.

Creating a Computer Database for Your Related Literature



Earlier we spoke of the databases available through online searches. In fact, you can create your *own* database for the literature you read. In general, a **database** is a collection of information that is organized in an easily accessible manner.

A simple analogy might be helpful. Most of us have an address book or file in which we keep track of the names, addresses, and telephone numbers of friends, relatives, and other important people in our lives. For some of us it takes the form of an actual notebook or card file, whereas for others it is a digital address book on a cell phone, personal digital assistant (PDA), tablet computer (e.g., iPad), or other electronic device. Regardless of its form, an address book has specific, designated spots for each kind of information—name, address, telephone number, and so on—for every individual we include in it.

You might think of an electronic database as an electronic card file. The entire file—known as a *data file*—contains many “cards,” or *records*. There is one record for each separate entity you want to keep track of. If you wanted to use a database as an address book, you would have a separate record for each person; if you wanted to use a database to keep track of your various resources (books, articles, etc.), you would have a separate record for each resource. Each record, in turn, contains specified kinds of information (e.g., name, address, phone number, etc.; or author, title, date, etc.); the “slots” for these various pieces of information are called *fields*.

Several database software programs are available specifically for creating bibliographic databases. Some are available commercially; examples are Biblioscape (www.biblioscape.com), EndNote (www.endnote.com), OneNote (office.microsoft.com/en-us/onenote), and ProCite (www.procite.com). By searching the Internet, you can also find and download “freeware” (free software) that will serve your purpose; as this book goes to press, two examples are BiblioExpress (www.biblioscape.com/biblioexpress.htm) and Bibliography Writer (available at many Internet websites; simply google “Bibliography Writer software”).

Bibliographic database programs typically have fields for all the information you would need in order to create a reference list—author, title, date, journal title, page numbers, and so on. In fact, these programs can also *create your reference list for you!* Most programs allow you to use whatever format your institution or academic discipline requires (e.g., APA style, MLA style; more on such styles in Chapter 12). Furthermore, these programs have additional fields for call numbers, keywords, any notes you take while reading an item, and (often) any graphics you want to include.

By putting the information you collect in an electronic database, you can find anything you want in a matter of seconds. For example, perhaps you want to find books and articles written by a specific author. You can search the author field in the entire database; the program will identify every record for that author. In addition, you can rapidly sort the data by whatever field you choose. For example, if you want all sources listed by publication date, the date field on each record within the database is identified and the records are rearranged in chronological order.

Knowing When to Quit

Certainly you shouldn't read only one or two articles and think you are done. Get used to looking for and reading new research reports; for a researcher, this is a lifelong endeavor. Always, always look for additional things you can learn.

But at some point, of course, you must bring your literature review to a close. When might you know that you have completed a reasonably thorough literature review? In theory, the answer might be “Never.” As long as people continue to conduct research related to your topic, there will always be additional information that might be helpful to you. From a practical standpoint, however, you must finish your search, use what you have obtained, and get on with the study itself. How will you know when that time has arrived?

The best advice we can give you is this: *Look for repetitive patterns in the materials you are finding and reading.* As you read more and more sources, eventually familiar arguments, methodologies, and findings will start to appear. Perhaps you will see the same key people and studies cited over and over. You will get a feeling of *déjà vu*—“I've seen this (or something very similar to it) before.” When you are no longer encountering new viewpoints, you can be reasonably sure that you are familiar with the critical parts of the literature.

Organizing and Synthesizing the Literature into a Cohesive Review

Too many literature reviews do nothing more than report what other people have done and said. Such reviews, which are typically written by novice researchers, go something like this:

In 1995, Jones found that such-and-such. . . . Also, Smith (1998) discovered that such-and-such. . . . Black (2006) proposed that so-on-and-so-forth. . . .

We learn nothing new from such a review; we would be better off reading the original books, articles, and other sources for ourselves.

In a good literature review, the researcher doesn't merely report the related literature. He or she also *evaluates, organizes, and synthesizes what others have done*. A checklist earlier in the chapter gave you a taste of what the *evaluation* component involves. But in addition to evaluating what you read, you must also *organize* the ideas you encounter during your review. The subproblems within your main problem can, in many cases, provide a general organizational scheme you can use. Looking at how other authors have organized literature reviews related to your topic can be helpful as well.

Finally, and perhaps most importantly, you must *synthesize* what you have learned from your review. In other words, you must pull together the diverse perspectives and research results you have read into a cohesive whole. Here are some examples of what you might do:

- Show how approaches to the topic have changed over time.
- Compare and contrast varying theoretical perspectives on the topic.
- Describe general trends in research findings.
- Identify discrepant or contradictory findings, and suggest possible explanations for such discrepancies.
- Identify general themes that run throughout the literature.

When you write a literature review that does such things, you have contributed something new to the knowledge in the field even *before* you have conducted your own study. In fact, a literature review that makes such a contribution is often publishable in its own right. (We talk more about writing for publication in Chapter 12.)

PRACTICAL APPLICATION Writing the Literature Review

Once you have read, evaluated, organized, and synthesized the literature relevant to your research problem, you will, of course, eventually need to begin writing the section or chapter that describes the literature you have examined. We offer several guidelines to help you in the process.

GUIDELINES Writing a Clear and Cohesive Literature Review

As university professors, we authors have written many literature reviews ourselves. We have also read countless master's theses and dissertations written by novice researchers. From such experiences, we have developed the following general guidelines for writing a solid review of the related literature.

1. *Get the proper psychological orientation.* Be clear in your thinking. Know precisely what you are trying to do. The review of the related literature section is a discussion of the studies, research reports, and scholarly writings that bear directly on your own research effort.

You might think of your written review of related literature as a description for one or more peers about what others have written in relation to what you plan to do. Viewing the literature section in this way can help both you and your readers see your own effort within the context of the efforts of researchers who have preceded you.

2. *Have a plan.* Writing a review of the related literature takes planning and organization. Before beginning to write the review of the related literature, create an outline of the topics you intend to address and the points you intend to make. Perhaps one of the best guides for such an outline is the problem itself, as well as its subproblems. A careful consideration of the problem and subproblems should suggest relevant areas for discussion and the order in which they should be addressed (e.g., look once again at Figure 3.1).

Begin your discussion of the related literature from a comprehensive perspective, like an inverted pyramid—broad end first. Then, as you proceed, you can deal with more specific ideas and studies and focus in more and more on your own particular problem.

Throughout your discussion of the related literature, your organizational scheme should be crystal clear to both you and your readers. For example, start off with an *advance organizer*—an overview of the topics you will discuss and the sequence in which you will discuss them (see Chapter 1). And use headings and subheadings throughout your literature review to alert readers to the particular topics that each section addresses.

Early in the review, you will probably want to consider the classic works—those groundbreaking studies that have paved the way for much of the research about the topic. Such studies give an overall historical perspective and provide a context for your own efforts. As an example, the scientists who developed the laser built on the efforts and writings of those who explored relativistic quantum mechanics and the nature of matter and light in electromagnetic fields.

3. *Emphasize relatedness to your research problem.* Keep your reader constantly aware of how the literature you are discussing is related to your own research study. Point out precisely what the relationship is. Remember that you are writing a review of the *related* literature.

Literature reviews should never be a chain of isolated summaries of the writings of others (Jones says . . . ; Smith says . . . ; Black says . . .). Such is not a discussion of related literature; no attempt is made to demonstrate the relatedness of the literature to the problem being researched. If you cannot identify a relationship, you would do well to consider whether you should include the source at all.

As a way of helping you make frequent connections between your discussion of the literature and your own research project, we suggest the following procedure:

- a. Write your research problem prominently at the top of a sheet of paper or word processing document. In this location, it will be a constant reminder of the central axis around which everything else revolves.
- b. Divide the problem by numbering its various subparts.
- c. Divide the remainder of the page or word processing document into two columns. If you are using paper, you can simply draw a line down the middle. If you are using a word processing document, you might want to use the “insert table” function to create a table with two columns and numerous rows.
- d. In the left-hand column, list each source (book, article, etc.) in your review.
- e. In the right-hand column, opposite each source, note the particular subdivision(s) of the problem to which the source relates and your rationale for including it in the literature review.
- f. Add additional pages (for a paper list) or table rows (for a word processing document) as you need them until you have listed every source.

4. *Provide transitional phrases, sentences, or paragraphs that help your readers follow your train of thought.* If one idea, paragraph, or section leads logically to the next, say so! Furthermore, give readers some sort of signal when you change the course of your discussion. For instance, in a doctoral dissertation examining the various thinking processes that students might use when listening to a lecture, Nancy Thrailkill finished a discussion of the effects of visual imagery (mental “pictures” of objects or events) and was making the transition to a more theoretical discussion of imagery. She made the transition easy to follow with this sentence:

Although researchers have conducted numerous studies on the use and value of imagery in learning, they seem to have a difficult time agreeing on why and how it works. (Thrailkill, 1996, p. 10)

The first clause in this transitional sentence recaps the discussion that immediately preceded it, whereas the second clause introduces the new (albeit related) topic.

5. *Know the difference between describing the literature and plagiarizing it.* Our own experiences tell us—and research confirms our observations—that many novice researchers don’t fully understand the various forms that plagiarism might take (Cizek, 2003; McGue, 2000). In particular, plagiarism involves either (a) presenting another person’s work as being one’s own or (b) insufficiently acknowledging and identifying the sources from which one has drawn while writing. Reproducing another person’s work word-for-word without crediting

that person constitutes plagiarism, of course. But so, too, is making small, insignificant wording changes in someone else's sentence or paragraph a form of plagiarism. For example, early in Chapter 2 we say:

Some research projects are intended to enhance basic knowledge about our physical, biological, psychological, or social world or to shed light on historical, cultural, or aesthetic phenomena. . . . Such projects, which can advance theoretical conceptualizations about a particular topic, are known as basic research.

You would be plagiarizing our work if you said something like this without giving your source proper credit:

Basic research is intended to enhance basic knowledge about our physical, biological, psychological, or social world or to shed light on historical, cultural, or aesthetic phenomena. Such research can advance theoretical conceptualizations about a particular topic.

All you would have done here is to replace "Some research projects are" with "Basic research is" at the beginning of your first sentence and make a few tiny adjustments to the second sentence.

6. *Always give credit where credit is due.* Note the second part of our earlier definition of plagiarism: *insufficiently acknowledging and identifying the sources from which one has drawn while writing.* In writing the literature review, you must always, *always* credit those people whose ideas you are using or whose research results you are reporting. Such is true regardless of whether you are making use of printed materials, Internet resources, conference presentations, or informal conversations with others in your field. Omitting this crucial step leads your readers to infer that certain ideas are your own rather than those of someone else. Recall that all-important rule we presented in Chapter 2: *Absolute honesty and integrity are assumed in every statement a scholar makes.*

Citing other sources also means citing them *correctly*. Making major errors in citations—even if you do so unintentionally—constitutes plagiarism. For example, you must take care not to cite "Smith and Jones (2005)" when the correct citation is "Greene and Black (2007)." Sloppiness in your record keeping is no excuse. Although you haven't meant to, you are plagiarizing from Greene and Black's work.

The specific way in which you give credit to scholars whose ideas you are presenting—for instance, whether you use footnotes or, as we do, citations in parentheses within the body of the text—must depend on the particular style manual you are using, which, in turn, depends on your particular discipline. We provide more details about various style manuals in Chapter 12 (e.g., see Table 12.1).

7. *Minimize your use of direct quotations from other people's work.* Sometimes you may decide that someone else's prose captures an idea so well or so vividly that you want to present it word for word. Occasionally, too, certain excerpts provide examples of a point you are trying to make about the literature in general; such is the case when we authors present excerpts from students' dissertations and master's theses in this book. You can legitimately use other people's words if you present them within quotation marks (for a phrase or sentence) or in an indented passage (for a longer quotation). For example, we used the indentation strategy earlier when we presented Thrailkill's transitional sentence in Guideline 4. Notice that we immediately cited the source of the sentence. Consistent with our use of APA style in this book, we gave the author's last name, the date of her dissertation, and the page number on which we found the sentence. That information would be sufficient for any of our readers to find the exact source in our reference list (located near the end of the book) and, after obtaining a copy of Thrailkill's dissertation, finding the actual sentence on page 10.

You should use lengthy quotations only when you have a very good reason—for instance, when the specific words that an author uses are as important as the ideas that the author presents. The law allows what is known as *fair use* of a quotation, but some publishers have their own rules of thumb about how much material you can quote without their permission. When in doubt, check with the publisher or other copyright holder.²

²Many publishers now include on their websites their guidelines about what and how much you can use without seeking their permission. If you do need their permission for what you want to use, you can often submit a permission request online.

All too often, however, we have seen literature reviews that appear to be little more than a sequence of quoted excerpts from various published sources. *Use quotations only when you have a very good reason.* Consistently using other people's words, even when you give those researchers appropriate credit, can convey the impression that you aren't willing to take the time to write a clear, cohesive literature review on your own.

As important as what others say about their research, and perhaps even more important, is what *you* say about their research. Your emphasis should always be on how a particular idea or research finding relates to your own problem—something only *you* can discuss.

8. *Summarize what you have said.* Perhaps the most important question any researcher can ask—and *should* ask throughout the progress of the research study—is, What does it all mean? In a thesis or dissertation, every discussion of related literature should end with a brief summary section in which you gather up all that has been said and describe its importance in terms of the research problem. Under the heading "Summary," you can condense your review into a synopsis of how the literature on your topic contributes to an understanding of the problem you are trying to address.

9. *Remember that your first draft will almost certainly not be your last draft.* Here we are simply repeating a point we made in Chapter 1—a point that applies to your literature review as well as to any other part of your research report. First drafts almost inevitably leave a lot to be desired, in part because (as we also noted in Chapter 1) the human mind can handle only so much information at any single point in time.

Imperfections in a first draft are virtually unavoidable. In fact, we urge you to write a first draft even before you have completely finished your literature review. Writing a first, incomplete draft can help you identify parts of the literature that are still unclear to you and places where you may need additional information or citations. One strategy we authors use as we write a literature review is to leave blanks for information we realize we still need, mark the blanks in bold, red font or with Post-it notes, and then make a final visit to the library (either to the actual building or to its online resources) in order to fill them in.

Even when you have obtained all the information you need for a complete review, you will typically not be able to express your thoughts with total clarity the first time around. Write the review, print it out, and let it sit for a few days. Then reread it with a critical eye, looking for places where you have been ambiguous, incomplete, or self-contradictory.

10. *Ask others for advice and feedback.* In this book we frequently suggest that you seek feedback from other people, and your literature review is no exception. Talk with others about what you have found, ask others to read an early draft, and get ideas about additional avenues you may need to explore. Use e-mail to contact people who have an interest in this area of study (e.g., contact the authors of studies that have influenced your own work). Explain where you are working and what you are working on, send them a copy of what you have written, and ask for their feedback and suggestions. You will be amazed at how helpful and supportive people can be when you tell them you have read their work and would appreciate their opinion.

A Sample Research Proposal

At this point, it may be helpful to look at excerpts from what is, in our view, a well-written review of the related literature for a doctoral dissertation proposal. The author of the review, Kay Corbett, wanted to identify possible relationships between cognitive development and motor development (i.e., between the development of children's thinking abilities and that of their movement patterns), especially between ages 4 and 8. Thus, the literature review focused on both the cognitive and motor development of young children.

Two qualities of the proposal are particularly worth noting. First, the author does not present the studies she has read in a piecemeal, one-at-a-time fashion; instead, she continually synthesizes the literature into a cohesive whole. Second, the author's organizational scheme is obvious throughout; she uses an advance organizer, numerous headings and subheadings, and transitional paragraphs to help the reader follow her as she moves from one topic to the next.

Excerpts from the proposal itself appear on the left-hand side and our commentary appears on the right. The ellipses (. . .) indicate places where we have omitted portions of the text. In some cases, we have summarized the content of what we've omitted within brackets.

Dissertation ANALYSIS

1

REVIEW OF LITERATURE

The literature review will include three areas: (a) empirical studies relating motor and cognitive development, (b) motor development, and (c) the neo-Piagetian theories of development as they relate to both motor and cognitive development. The present review is limited to investigations of children within the four- to eight-year-old age range. Studies targeting children with special needs are excluded.

[The remainder of the chapter is divided into three main sections: "Motor and Cognitive Development," "The Development of Gross Motor Skills," and "The Neo-Piagetian Theories of Development." We pick up the chapter midway through the section on "The Development of Gross Motor Skills."]

The Development of Gross Motor Skills

... [T]he early childhood period is when many fundamental motor patterns are most efficiently learned. During this age period, children must have daily practice and participation in movement education programs to develop the fundamental movement skills to a mature pattern (Gallahue, 1993, 1995b, 1996; Halverson & Robertson, 1984; Haubenstricker & Seefeldt, 1986; Haywood, 1993; Miller, 1978, cited in Gallahue, 1989; Williams, 1983). If opportunity for this practice is not provided, children may move into adolescence with immature motor patterns that will hinder their ability to enter games or sports activities (Gallahue, 1995a; Haubenstricker & Seefeldt, 1986). Mature patterns can be acquired later in the developmental life span, but it requires much more time and practice to relearn the patterns.

... The fundamental patterns for the 4- to 8-year-old age range include four categories of movements: (a) locomotor movements, (b) stability movements, (c) manipulative movements, and (d) axial movements (Gallahue, 1995b).

The locomotor movements acquired and/or refined during this period of childhood are running, jumping, hopping, galloping and sliding, leaping, skipping, and climbing (Gallahue, 1995b). These movements "involve a change in location of the body relative to a fixed point on the surface" (Gallahue, 1989, p. 46).

Stability movements refer to the "ability to maintain one's balance in relationship to the force of gravity even though the nature of the force's application may be altered or parts of the body may be placed in unusual positions" (Gallahue, 1989, p. 494). Stability movements include weight transfer skills (Haywood, 1993). Weight transfer skills include inverted supports, in which the body assumes an upside-down position for a number of seconds before the movement is discontinued. "Stabilization of the center of gravity and maintenance of the line of gravity within the base of support apply to the inverted posture as well as to the erect standing posture" (Gallahue, 1989, p. 275).

Comments

The author begins with an advance organizer that outlines the upcoming chapter and describes the scope of the literature review.

Notice how the three sections correspond roughly to the "a," "b," and "c" that the author described in the first paragraph.

Notice how the author integrates and summarizes the results of several studies—an approach that is quite appropriate when researchers have all come to a similar conclusion. Several of the studies are (in 1997, the year the proposal is written) quite recent, communicating the (probably accurate) impression that the author is presenting an up-to-date perspective on the topic. A citation such as "Miller, 1978, cited in Gallahue, 1989" should be used only when the original source (in this case, Miller, 1978) is difficult to obtain.

Notice how this sentence alerts the reader to the organizational structure that follows.

To indicate that she is using Gallahue's definition of locomotor movements, the author uses quotation marks and, within the citation, lists the page on which she found the definition.

The author quotes Gallahue several times. As a general rule, you should limit your quotations to situations in which an author's presentation of ideas or information is exceptionally vivid, precise, or in some other way highly effective. Otherwise, just paraphrase what your sources have said, giving them appropriate credit, of course, for their ideas.

Other stability movements are dodging, one-foot balancing, beam walking, and rolling.

The manipulative movements involve giving force to objects and receiving force from them (Gallahue, 1989). Movements practiced during childhood are overhand throwing, catching, kicking, striking, dribbling, ball rolling, trapping (feet or body is used to absorb the force of the ball instead of the hands and arms), and volleying.

The axial movements are "movements of the trunk or limbs that orient the body while it remains in a stationary position" (Gallahue, 1989, p. 271). Bending, stretching, twisting, turning, swinging, swaying, reaching, and lifting are all axial movements. They are used in combination with other movements to execute more complex movement skills.

Researchers investigating the development of fundamental movement skills focus on qualitative changes as children's developing movement patterns become more smooth and efficient. The following section will review studies investigating the development of fundamental movement patterns in children four to eight years of age.

Development of Locomotor Skills

The locomotor skills, from earliest acquisition until mature patterns are established, develop through qualitatively different stages (e.g., Gallahue, 1995b; Haywood, 1993; Haubenstricker & Seefeldt, 1986). The studies reviewed investigated qualitative changes that occur as fundamental locomotor patterns are developed.

Walking. The mature walking pattern is achieved between the fourth and seventh years (Eckert, 1987; Guttridge, 1939; Wickstrom, 1983; Williams, 1983). At this level, there is a reflexive arm swing, narrow base of support (feet are placed no further apart than the width of the shoulders), the gait is relaxed, the legs lift minimally, and there is definite heel-toe contact (Gallahue, 1989). Although the mature pattern is achieved during the early childhood period, walking is not targeted in movement education programs as a skill needing concentrated focus (Gallahue, 1989, 1996; Werder & Bruininks, 1988).

Running. Many investigators have studied the running pattern. Robertson and Halverson (1984) document the development of running by rating arm action separately from leg action but base the documentation on earlier work (Wickstrom, 1983; Seefeldt et al., 1972, cited in Gallahue, 1989). Gallahue (1995b) proposes a whole-body sequence of development based on the same earlier work. Running patterns develop from flat-footed, uneven patterns with arms swinging outward to smoother patterns with step length increased, and a narrower base of support. The mature pattern includes a reflexive arm swing, narrow base of support, relaxed gait, minimal vertical lift, and a definite heel to toe contact. Several University of Wisconsin studies of children between 1.5 and 10 years of age have documented the qualitative changes in the running pattern (Haywood, 1993).

Jumping. Early developmentalists defined age norms for children's jumping achievements (Wickstrom, 1983). The children step down from a higher surface from one foot to the other, before jumping off the floor with both feet. Then they learn to jump from progressively greater heights onto both feet. Later, they can jump forward, and over objects (Haywood, 1993).

This paragraph helps the reader follow the author's train of thought as she makes the transition from one topic to another, related one.

Here the headings "Walking," "Running," "Jumping," and so on, under the more general "Development of Locomotor Skills" heading, communicate quite clearly how the section is organized.

Notice how, in this paragraph, the author synthesizes what previous researchers have found. She intentionally does not describe studies one by one because they all point to the same conclusion. The result is a smooth-flowing, easy-to-read, summary of work that has been done related to the topic.

In the second and third sentences of the "Running" paragraph, the verbs document, base, and proposes should be documented, based, and proposed (past tense). In general, use past tense (e.g., proposed or has proposed) to describe what has been done in the past. Use present tense to represent general ideas that are not restricted to a single time period. For instance, present tense is appropriately used in the paragraph's fourth sentence ("Running patterns develop from...").

Developmental sequences in both the horizontal and vertical jump are based on research on the standing long jump (Clark & Phillips, 1985; Hellebrandt et al., 1961; Seefeldt et al., 1972, cited in Gallahue, 1989; Wickstrom, 1983; Robertson, 1984; Robertson & Halverson, 1984). The one-footed takeoff is one salient characteristic of the earliest jump pattern and persists in some children well into their elementary school years (Robertson, 1984). The jumping motor patterns develop during the ages from two to seven years (Haubenstricker & Seefeldt, 1986). Some elements of the jumping pattern remain stable across ages and type of jump, specifically, 3-, 5-, 7-, and 9- year olds and adults all use the same pattern of leg coordination. All people do not obtain a mature pattern in childhood. In fact many immature patterns are found in adults (Haywood, 1993)....

[The author devotes additional sections to "Hopping," "Gallop and Sliding," "Skipping," and "Leaping and Climbing." She then proceeds to the development of other categories of motor skills and, eventually, to a discussion of the third major topic of the chapter—neo-Piagetian theories.]

NOTE: Excerpt is from a research proposal submitted by Katherine E. Corbett to the University of Northern Colorado, Greeley, in partial fulfillment of the requirement for the degree of Doctor of Philosophy. Reprinted with permission.

In this paragraph the author clarifies the types of studies (i.e., research on the standing long jump) on which certain conclusions have been drawn. By doing so, she helps the reader put the conclusions in perspective and, perhaps, judge the quality of those conclusions.

Throughout the chapter, various levels of headings continue to be important guideposts that reflect this overall organizational scheme.

For Further Reading

- Boote, D. N., & Beile, P. (2005). Scholars before researchers: On the centrality of the dissertation literature review in research preparation. *Educational Researcher*, 34(6), 3–15.
- Chan, L. M. (1999). *A guide to the Library of Congress classification* (5th ed.). Englewood, CO: Libraries Unlimited.
- Fink, A. (2010). *Conducting research literature reviews: From the Internet to paper* (3rd ed.). Thousand Oaks, CA: Sage.
- Galvan, J. L. (2009). *Writing literature reviews: A guide for students of the social and behavioral sciences* (4th ed.). Los Angeles: Pyrczak.
- Janes, J. (2003). *Introduction to reference work in the digital age*. New York: Neal-Schuman.
- Katz, W. A. (2002). *Introduction to reference work: Basic information sources* (Vol. 1, 8th ed.). New York: McGraw-Hill.
- Reed, J. G., & Baxter, P. M. (2003). *Library use: A handbook for psychology* (3rd ed.). Washington, DC: American Psychological Association.
- Stebbins, L. F. (2005). *Student guide to research in the digital age: How to locate and evaluate information sources*. Westport, CT: Libraries Unlimited.
- Taylor, A. G. (2006). *Introduction to cataloging and classification* (10th ed.). Westport, CT: Libraries Unlimited.

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