3

Literature Review and Focusing the Research

When asked, Why do a literature review?, a somewhat cynical answer may have popped into some of your minds: "Why do a literature review? It is required for my research class," or "I have to do a thesis or dissertation." Then, again, some of you may have more socially redeeming motivations, such as wanting to change the world or improve your practice of a profession.

Literature reviews are important as research tools, especially in emerging areas, with populations that typically yield small samples (e.g., special education research often does), or in areas that represent value-laden positions adopted by advocacy groups. Literature reviews are also valuable in light of the knowledge explosion and the consequent impossibility of reading everything. Therefore, it is good that someone does literature reviews.

A few definitions will make your progress through this chapter more enjoyable:

Preliminary sources: Databases that contain information about research articles that are published on the topic of interest to you.

Secondary sources: Literature reviews that are published on your topic of interest consisting of a synthesis and analysis of previous research published on that topic.

Primary empirical research: Reports of studies that are conducted by the researcher(s) that include a description of the methods, sampling and data collection strategies, and data analysis and results.

Reasons for Doing Literature Reviews

There are two major reasons for conducting a literature review: to conduct primary research oneself (or as a part of a team) or as an end in itself.

Literature Reviews for Planning Primary Research

Almost every primary research study begins with a review of the literature. The purpose of the literature review section of a research article is to provide the reader with an overall framework for where this piece of work fits in the "big picture" of what is known about a topic from previous research. Thus, the literature review serves to explain the topic of the research and to build a rationale for the problem that is studied and the need for additional research. Boote and Beile (2005) eloquently explain the purpose of a literature review in planning primary research:

As the foundation of any research project, the literature review should accomplish several important objectives. It sets the broad context of the study, clearly demarcates what is and what is not within the scope of the investigation, and justifies those decisions. It also situates an existing literature in a broader scholarly and historical context. It should not only report the claims made in the existing literature but also examine critically the research methods used to better understand whether the claims are warranted. Such an examination of the literature enables the author to distinguish what has been learned and accomplished in the area of study and what still needs to be learned and accomplished. Moreover, this type of review allows the author not only to summarize the existing literature but also to synthesize it in a way that permits a new perspective. Thus a good literature review is the basis of both theoretical and methodological sophistication, thereby improving the quality and usefulness of subsequent research. (p. 4)

Researchers use the literature review to identify a rationale for the need for their own study. Some of the specific rationales for your research that might emerge from your literature review include the following:

1.   You may find a lack of consistency in reported results across the studies you have chosen to review and undertake research to explore the basis of the inconsistency. For example, Berliner et al. (2008) noted inconsistencies in research on high school dropouts; they suggested that the problem might be that researchers were not differentiating between high school dropouts who reenrolled and those who did not.

2.   You may have uncovered a flaw in previous research based on its design, data collection instruments, sampling, or interpretation. For example, Borman et al. (2007) reviewed research on the Success for All literacy program and found that no randomized control studies had been conducted on its effectiveness. The quasi-experimental designs from past research left the findings open to possible criticism based on uncontrolled extraneous variables.

3.   Research may have been conducted on a different population than the one in which you are interested, thus justifying your work with the different population. For example, Schirmer and McGough (2005) reviewed research literature on reading development and reading instruction and found that there was a lack of research of this type on students who are deaf. Therefore, they proposed a need for research on reading instruction that

has been found to be effective with hearing students to be conducted with deaf students. Another justification for the conduct of research with deaf students when the previous research is based on hearing children might be to devise a very different innovative method of reading instruction that is based on sign language and deaf culture.

4. You may document an ongoing educational or psychological problem and propose studying the effect of an innovative intervention to try to correct that problem. For example, Burnard (2008) wanted to explore innovative pedagogical practices to engage students who were facing challenges stemming from poverty, class, race, religion, linguistic and cultural heritage, or gender. In particular, she was interested in how music teachers engaged students who were disaffected.

5. Uncertainty about the interpretation of previous studies' findings may justify further research. For example, prior research with people with schizophrenia indicated that participants sometimes continued to feel bewildered about their condition and treatment, even after meeting with a health care professional. Schneider et al. (2004) undertook a study from the perspective of people with mental illness to determine what contributed to their perceptions of effective and ineffective relations with professionals.

As mentioned previously, a literature review can be used at the beginning of the study to explain what is known about your topic and provide a rationale for the study you are planning. In addition, the literature review can be used to help in the design of the study by providing guidance as to appropriate sample size or identifying promising data collection practices or instruments that can be used in your study. Familiarity with the literature is useful for both quantitative and qualitative studies no matter what the researcher's paradigm. Everyone who prepares a literature review should do so with a critical eye: What are the strengths and weaknesses of the prior research? What is missing from the formal body of scholarly literature that might be necessary in order to formulate an appropriate research focus and method of investigation?

When your purpose is to plan your own research study, the number of studies that you actually cite in your literature review may be fairly limited because of space limitations (for authors who publish in journals) or because the review is considered a learning activity (in your own course work). Typically, primary research articles published in journals contain 20 to 30 references to primary research. The number of citations may be quite limited for a course activity or more extensive if you are preparing a proposal for a thesis or dissertation. The exact number varies, depending on the purpose of the literature review and the extant literature. The primary criterion for inclusion should be centrality to your topic, within whatever constraints are imposed by instructors, advisers, or publishers.

Use of the literature review to plan and conduct a study requires that you critically evaluate the research that you read. This critical analysis can form the basis for your rationale or for your choice of data collection procedures. Criteria for evaluating primary research studies are provided at the end of each chapter.

Review of Literature as an End in Itself

The review of literature can be seen as an end in itself, either to inform practice or to provide a comprehensive understanding about what is known about a topic. The process for conducting this type of literature review varies, depending on your purpose. If your purpose is to *improve your professional practice,* you will want to base your literature review on the problem you encountered in your profession. Therefore, when you look to the literature for a solution, you may rely on other people's literature reviews, or you

may seek out primary research reports until you find one that seems to fit your situation. For example, Mayo (2007) reviewed literature from the LGBTQ community with a specific focus on the act of "coming out" as it is researched in schools from the perspective of obstacles that the youth encounter, as well as in terms of the agency and resiliency demonstrated by some youth. Mayo uses the literature review to suggest promising strategies for school leaders, youth, and researchers to make progress on this issue.

When a literature review is conducted to provide a *comprehensive understanding* of what is known about a topic, the process is much longer. For example, Mckinley et al. (2007) included over 300 references in their literature review of race as a construct in educational research, examining such topics as the meaning of equity, inequality, whiteness, and race as social constructs, and implications of desegregation and placement in special education for members of racial minority groups. Gadsden (2008) included almost 200 references in her review of arts education in order to examine the changing place of the arts in education through a lens of power, culture, and representation. She draws conclusions for researchers and educators in terms of future directions suggested by the current body of scholarly knowledge in this area.

Extending Your Thinking:
Literature Review Uses

• When writing a literature review for the purposes of planning a research study, what are some of the uses that the literature review can serve for you?

• Why is a literature review especially important in areas that (a) are emerging, (b) typically have small samples (e.g., special education research), or (c) represent value-laden positions adopted by advocacy groups (e.g., gender differences)?

• Students receive different kinds of advice as to how much literature to review and at what stage of the research process this should occur. What is your reaction to the following pieces of advice:

> When you have enough sense of the conversation to argue persuasively that the target for your proposed study is sound, and that the methods of inquiry are correct, you know enough for the purpose of the proposal. (Locke, Spirduso, & Silverman, 1993, p. 68)

J. M. Morse (1994) recommends reading in the general area of the inquiry once a topic has been selected:

> At this stage, the researcher should become familiar with the literature, with what has been done generally in the area, and with the "state of the art." He or she should develop a comfortable knowledge base without spending an extraordinary amount of time on minute details or chasing obscure references. (p. 221)

The Search Process

No matter what the reason for the literature review or the paradigm within which the researcher is working, many aspects of the literature review process are the same. A general outline for conducting a literature review is provided in Box 3.1. Some of the differences in the process that emanate from paradigm choice include the following:

1. With the postpositivist paradigm, the researcher who plans to conduct experimental research needs to be able to develop a hypothesis (a best guess as to the outcome of the planned research) based on previous research. Quantitative researchers examine research in order to build a knowledge base of a topic that is sufficient to develop a hypothesis that can be tested and to benefit from guidance in terms of methodology found in prior studies.

2. With a constructivist orientation, the researcher should have a good understanding of previous research but remain open to possible emerging hypotheses that would require examination of additional literature during the study (Marshall & Rossman, 2006). Qualitative researchers (Corbin & Strauss, 2008) note that a literature review can be useful in order to decide on a research topic, to formulate a research plan, and to enhance the researcher's awareness of subtleties uncovered in previous research. They do caution both novice and experienced researchers to be careful so that their perceptions of their findings emanate from their own data and not on expectations generated by reading extant literature.

3. In addition to review of scholarly literature, researchers working within the transformative paradigm should consult with persons who have experienced oppression and seek out literature that represents their viewpoints (Mertens, 2009). In order to do this, researchers need to develop an understanding of themselves as individuals with potential biases, as well as understand themselves in terms of their relationships with the community of interest. Hence, transformative researchers are more inclined to work with community members to develop the focus of the research, rather than rely solely on extant literature.

Extending Your Thinking:
Literature Reviews and Qualitative Research

When conducting qualitative research, some texts advise against conducting a comprehensive literature review because it may bias the researcher to see "what others say they saw" instead of looking with fresh eyes. What do you think?

Box 3.1	Steps in the Literature Review Process

1. Identify a research topic.

2. Review secondary sources to get an overview of the topic: For example, look at the *Review of Educational Research, Harvard Educational Review, Psychological Bulletin, Review of Research in Education,* or the *Annual Review of Psychology.*

3. Develop a search strategy and use appropriate preliminary sources and primary research journals (see Boxes 3.2, 3.4, and 3.6), check the references at the end of relevant research publications, access personal networks, and/or build relationships with appropriate community representatives.

4. Conduct the search and select specific articles to review.

5. Obtain full text references (e.g., journal articles or books).

6. Read articles and prepare bibliographic information and notes on each article.

7. Evaluate the research reports.

8. Synthesize your findings.

9. Use the literature review to gain a conceptual framework and to formulate research questions, hypotheses, or both.

In the following sections that describe the steps in the literature review process, the commonalities in the search process are described, along with recognition of appropriate caveats that differentiate work within alternative paradigms.

Step 1: Identify Research Topic

A few pieces of advice should guide (novice) researchers as they begin their literature review process. They should be flexible in their conceptualization of the research problem being investigated, and they should begin with a broad idea and be prepared to narrow it down as they progress through the search. Sometimes, students choose topics for research that turn out to be not very researchable (in that no one else has conceptualized the problem quite that way), and as they begin reading and seeing what is available, their ideas change as to what they want to investigate. Also, if the topic definition is too narrow, it may not be possible to identify any previous research that addressed that specific topic. Therefore, be flexible and start broadly. In my experience with students who are beginning a literature review, their topics shift as they become more familiar with the topic. Some students write me desperate e-mails explaining that they want to change their topics and they hope that this is OK. In most cases, I write them back to assure them that this is a normal part of an evolutionary process of developing the topic. (Only rarely do I think, what in the world is that student thinking!)

Sources of Research Topics

A research topic can emerge from a wide variety of sources, including the researcher's interests, knowledge of social conditions, observations of educational and psychological

problems, challenges that arise in one's professional practice, readings in other courses, talking to other researchers, and the availability of funds to conduct research on a specific topic (sponsored research). Any of these is appropriate as a source to help identify the primary research topic. For researchers interested in conducting a comprehensive review of literature for its own sake, another criterion must be met: They must study topics that appear in the literature.

For sponsored research, the researcher needs to clarify with the funding agency what the research problem is (Mertens, 2009). Often, students can apply for funding to support their own research, usually with a faculty sponsor. When applying for funds, it is important to know what the agency is interested in sponsoring and to tailor one's research interests to match those of the agency. Other students might work as research assistants to faculty members who have received financial support from an outside agency.

Scholars working in the transformative paradigm have been instrumental in stimulating research on a variety of topics that had previously received little attention, such as spousal abuse, sexual abuse, sexual harassment, homophobia, unpaid labor, and motherhood and child care. For transformative research, S. Harding (1993) recommends beginning with marginalized lives. To define the research problem, the researcher might want to involve persons affected by the research through informal or formal means such as focus groups (Mertens, 2009). The following quotation from Schneider et al.'s (2004) study of people with mental illness illustrates the transformative effect of engaging participants in the process of developing a research topic.

> There was also a real transformation in group members' sense of themselves as people who could accomplish something. They had all been subjects in many research projects and, at the beginning of the project, could not conceive of themselves as people who could do research. By the end of the project, they had taken on a sense of themselves as researchers. They saw that they could articulate problems, come up with ways to investigate the problems, and produce solutions. This experience increased their awareness of themselves as people with resources and strengths who could make a significant contribution to society. (p. 575)

Extending Your Thinking:
Selecting Your Research Topic and Setting

Students of research are sometimes given conflicting advice about the topic and site for their own research. The following quotations exemplify such conflicts. Where do you stand on these two issues (i.e., choice of a research topic and setting) and why?

> The key to selecting a qualitative research topic is to identify something that will hold one's interest over time. New investigators can best identify such a topic by reflecting on what is a real personal interest to them. (J. M. Morse, 1994, p. 220)

> Using. . . personal experiences as the impetus for a research study is not wrong, but it is best if the researcher is aware of his or her possible

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motives for conducting the study, as such experiences may give the study a particular bias. Of even more concern is the possibility that the researcher, when meeting and interviewing participants who have had the same experience, may have many unresolved feelings emerge and may be emotionally unable to continue with the study. (J. M. Morse, 1994, p. 221)

One common instance of the problem of investigator biography occurs when graduate students . . . design a study that requires them to return to the context of public education and play the role of unbiased spectator. . . . This particular problem is difficult to overcome and is precisely why it sometimes is best to select problems in a context with which the investigator has had little previous experience. (Locke et al., 1993, p. 114)

When injustice persists with no evidence of unhappiness, rebellion, or official grievance, we need to study the reasons why. . . . Faculty, staff, and students in the feminist and African-American communities have argued…that the *absence* of grievance substantiates the very depth of and terror imposed by harassment. Feminist research must get behind "evidence" that suggests all is well. (M. Fine, 1992, p. 23)

Step 2: Review Secondary Sources to Get an Overview

A good literature review written by someone else can provide you with an overview of what is known about your chosen topic. Specific places that you can look for literature reviews include journals that typically publish literature reviews, such as the *Review of Educational Research, Harvard Educational Review,* and the *Psychological Bulletin,* and books that contain literature reviews, such as the following:

- *Review of Research in Education:* This series is published annually by the American Educational Research Association. Each volume contains a series of chapters on various topics, such as implications for socially just education rooted in discipline-specific areas such as literacy and science for diverse groups of students (Vol. 31, Parker, 2007). What is counted as knowledge is examined in Volume 32 of this series from the perspective of discipline (arts, English, foreign languages, history, literacy, mathematics, and science) with specific focus on assessment of English Language Learners, and implications across cultural, linguistic, and social class lines (G. J. Kelly, Luke, & Green, 2008).

- *Yearbook of the National Society for the Study of Education:* The NSSE yearbook was published as both a book and a journal until 2005; since then, it has been available only as a journal subscription. Two volumes are published on a specific topic annually. Recent topics include examining the reasons for education in the contemporary world, with emphasis on democracy, globalization, and culture (Coulter, Weins, & Fenstermacher, 2008). The three yearbook volumes that preceded Coulter et al.'s are Moss (2007), an edited volume on evidence and decision making; Smolin, Lawless, and Burbules (2007), on information and communication technology; and Ball (2006), on achieving equity and excellence as a way to realize the potential of the *Brown v. Board of Education* decision.

- *The Annual Review of Psychology* contains literature reviews on topics of interest in psychology and education, such as counseling or learning theory.

- *Research in Race and Ethnic Relations* is published annually to address race relations and minority and ethnic group research.

- Other handbooks have been published on specific topics:

    Banks, J. A., & McGee-Banks, C. A. (Eds.). (2003). *Handbook of research on multicultural education* (2nd ed.). San Francisco: Jossey-Bass.

    Bursztyn, A. (2006). *Praeger handbook of special education.* Westport, CT: Greenwood.

    Kitayama, S., & Cohen, D. (Eds.). (2007). *Handbook of cultural psychology.* New York: Guilford.

    Klein, S. (2007). *Handbook for achieving gender equity through education* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum.

    Ponterotto, J. G., Casas, J. M., Suzuki, L. A., & Alexander, C. M. (Eds.). (2001). *Handbook of racial/ethnic minority counseling research* (2nd ed.). Thousand Oaks, CA: Sage.

    Richardson, V. (Ed.). (2001). *Handbook of research on teaching.* Washington, DC: American Educational Research Association.

Step 3: Develop a Search Strategy

Four paths for search strategies are described in this section: (a) identify preliminary sources, (b) identify primary research journals, (c) access personal networks, and (d) involve community members. These are explained below. Decide which are the best strategies for you to follow in your search process, and remember, stay flexible.

Identify Preliminary Sources[1]

Preliminary sources include databases and indexes that contain a compilation of bibliographic information, abstracts, and sometimes full text articles for a wide range of topics and are accessible in print form, on compact disks (CD-ROM), or through online services. Examples of the most frequently used preliminary sources are listed in Box 3.2. Additional abstract and index services that specifically target marginalized groups include *African Urban and Regional Science Index, Women's Studies Abstracts,* and *Women's Studies Index.*

Box 3.2   Most Frequently Used Preliminary Sources

- ERIC: The Educational Resources Information Center (ERIC) contains more than 1.2 million abstracts of journal articles and research reports on education-related topics. The database can be searched by going to www.eric.ed.gov, or by using ERIC in commercial databases provided in many libraries. Most ERIC documents are available electronically, in print, or on microfiche in libraries. Many non-journal materials are available, at no charge, as PDF documents or via links to publisher Web sites. Check with your local library (academic, public, etc.) to find out if they can provide journal articles or documents that are not available online. If the library cannot do this for you, print copies of journal articles can be purchased through such article reprint services as Ingenta (www.ingentaconnect.com).

(Continued)

Box 3.2	(Continued)

- ProQuest® Education Journals: The database includes more than 750 journals in primary, secondary, and university-level education. More than 600 of these titles include full texts of the articles. This and similar ProQuest products are available at many libraries.

- JSTOR: This is a database of academic journals, monographs, and other academic papers from multiple disciplines, including the social sciences, humanities, and the sciences. It is available from libraries that subscribe to the service. Individuals in the United States can subscribe for a modest amount; JSTOR made special arrangements for individuals in Africa to have access to this database for free (www.jstor.org).

- PsycINFO: This is a product of the American Psychological Association (APA) that contains indexes and abstracts from 1,300 journals, as well as books and book chapters related to psychology. Both members and nonmembers can search the database and purchase articles. Information about that is at http://psycnet.apa.org/index.cfm?fa=main.landing. As with other databases, you can check on its availability at your local library.

- PsycARTICLES: This is another product of the APA, but it includes the full text articles of 42 journals related to psychology that APA publishes. Information about this database can be found at http://psycnet.apa.org/index.cfm?fa=main.landing. The database can be searched by APA members and by nonmembers (for a small fee).

World Wide Web (WWW) sites are easily and pervasively available to assist you in your literature searching. There are many search sites on the Web, and new ones appear with some regularity. In October 2008, the Consumer Search Web site (www.consumersearch.com) listed the top two choices for search engines as Yahoo! and Google.[2] These two search engines were recognized because of the size of their databases, ability to search HTML and PDF files, accuracy in results, and advanced searching power using Boolean logic. The search process on Web sites generally employs Boolean logic (explained later in this chapter) but can differ a bit from site to site. Because this is such a dynamic area, it is best to check *PC Magazine* or some other computer source to find out what sites are recommended and to determine appropriate search strategies for those sites. One word of caution: The WWW sites do not have a peer review system to screen what is accepted (as most professional journals do); therefore, scholars raise questions about the quality of information available from those sources. In addition, the Web sites are not designed to contain information specifically about research in education and psychology as are the other databases described in this chapter.

The computerized databases are a tremendous resource for the researcher in the literature review phase of a project. A researcher can identify thousands of references by only a few keystrokes on the computer. Because of the tremendous coverage provided by the databases, the researcher should plan to include a search of appropriate databases in the literature review process. Box 3.3 provides an example of how one researcher described his method of searching the literature.

| Box 3.3 | Description of Literature Review Search Method |

The studies were gathered from a search completed in June of 2006 using the Educational Resources Information Center (ERIC), Academic Search, and Education Full Text databases, as well as the library book database at the University of Wisconsin, Madison. Initially, the search terms "high stakes testing" and "state-mandated testing" were used to identify potential studies for use in my qualitative meta-synthesis.

—Au, 2007, p. 259

One important limitation should be noted about the available databases. You can get out of them only what was put into them. In other words, the databases are selective about the journals they include. For example, many of the best-known feminist journals are not included in the databases. A survey of 17 feminist journals indicated that only 6 are included in ERIC[3] (see Box 3.4). Some of the feminist journals listed in Box 3.4 might not be considered appropriate for inclusion in ERIC because their content is not directly related to education or psychology. However, readers who are not familiar with feminist journals might find the list helpful as a way of broadening their resource base. For example, *Hypatia* publishes mainly philosophical work and thus would be of interest to those who want to delve more deeply into that aspect of feminist theory. *Camera Obscura* publishes work that could be of interest to scholars in educational media or social learning theory (e.g., the study of the power of media to shape cultural expectations by gender).

| Box 3.4 | Feminist Journals |

Camera Obscura A journal of feminist perspectives in film, television, and visual media.

Feminist Studies The first feminist academic journal (started in 1972) is based at the University of Maryland. It publishes an interdisciplinary body of feminist knowledge and theory that makes visible assumptions about gender and sexual identity and the experiences and contributions of women across a wide range of difference.

Feminist Teacher[a] Since 1984, *Feminist Teacher* has published discussions about how to fight sexism, racism, homophobia, and other forms of oppression in classrooms and in educational institutions. A peer-reviewed journal, it provides a forum for interrogations of cultural assumptions and discussions of such topics as multiculturalism, interdisciplinarity, and distance education within a feminist context.

Gender and Education[a] Published in England, *Gender and Education* is an international forum for discussion of multidisciplinary educational research and ideas that focus on gender as a category of analysis.

(Continued)

Box 3.4 (Continued)

Gender & History An international journal for research and writing on the history of gender relations, sexuality, and the semiotics of gender in a wide geographical and chronological scope. *Gender & History* examines changing conceptions of gender and maps the dialogue between femininities, masculinities, and their historical contexts.

Gender & Society This journal emphasizes theory and research from micro- and macrostructural perspectives. It aims to advance both the study of gender and feminist scholarship.

Genders Based at the University of Colorado, *Genders* publishes innovative work about gender and sexuality in relation to social, political, artistic, and economic concerns.

Hypatia This journal publishes scholarly research at the intersection of philosophy and women's studies.

Initiatives[a] Published by the National Association for Women in Education, this journal covers topics of interest to women in all aspects of higher education since 1937.

Journal of Women's History An international journal that covers new research on women's history, it includes scholarship about women in all time periods that is broadly representative of national, racial, ethnic, religious, and sexual grouping.

Meridians A feminist, interdisciplinary journal with the goal of providing a forum for scholarship and creative work by and about women of color in U.S. and international contexts.

NWSA Journal An official publication of the National Women's Studies Association (NWSA), it publishes up-to-date interdisciplinary, multicultural feminist scholarship linking feminist theory with teaching and activism.

Psychology of Women Quarterly[a] A scientific journal that reports empirical research and critical reviews, theoretical articles, brief reports, and invited book reviews related to the psychology of women and gender.

Sex Roles: A Journal of Research[a] *Sex Roles* publishes original research articles and theoretical papers concerned with the underlying processes and consequences of gender role socialization, perceptions, and attitudes.

Signs: Journal of Women in Culture and Society[a] An international journal in women's studies that publishes articles from a wide range of disciplines in a variety of voices—articles engaging gender, race, culture, class, sexuality, and/or nation.

Women's Studies International Forum The goal of this journal is to aid the distribution and exchange of feminist research in the multidisciplinary, international area of women's studies and in feminist research in other disciplines.

Women's Studies Quarterly This journal focuses on teaching in women's studies. Thematic issues include such features as course syllabi, discussions of strategies for teaching, and bibliographies.

a. Journals are indexed in ERIC.

Identify Primary Research Journals

Additional primary research articles can be identified by examining the reference lists found at the end of relevant journal articles or books. You can also go directly to journals that you know publish articles related to your topic. This is especially important in light of the selectivity of the databases discussed in the previous section. Researchers who are working from a transformative paradigm should be aware of the journals that deal with issues specific to marginalized groups, such as those in Box 3.4 for feminists, as well as journals such as *Latin American Perspectives, Hispanic Journal of Behavioral Sciences, Journal of Multicultural Counseling and Development, Journal of Negro Education,* and *Journal of Black Studies. Disability, Handicap & Society* is a journal that frequently focuses on the transformative paradigm in research with people with disabilities, and *The Counseling Psychologist* (2008) devoted an entire issue to the topic of multicultural counseling for psychologists and educators (Vol. 36, No. 2). A more extensive list of special education journals can be found in Box 3.5.

Box 3.5 **Selected Journals Containing Special Education Resource Information**

American Annals of the Deaf

American Journal on Mental Retardation

Annals of Dyslexia

Australasian Journal of Special Education

Behavioral Disorders

British Journal of Special Education

Career Development for Exceptional Individuals

Education and Training in Mental Retardation

Exceptional Children

Exceptionality: A Research Journal

International Journal of Disability, Development and Education

Journal of Autism and Developmental Disorders

Journal of Deaf Studies and Deaf Education

Journal of Early Intervention

Journal of Learning Disabilities

Journal of Special Education

Journal of Speech and Hearing Research

Journal of the Association for Persons With Severe Handicaps

Learning Disability Quarterly

Mental Retardation

Remedial and Special Education

Research in Developmental Disabilities

Volta Review (deafness)

Personal Networking

Additional resources can be found by talking to people who are doing work in areas related to your interest. This can include people at your own institution or those you meet through professional associations, such as the American Educational Research Association, the American Evaluation Association, the American Psychological Association, the Council for Exceptional Children, or the National Association of the Deaf. Talking to people who have completed related work can reveal sources that you were unaware of, such as unpublished research reports, and provide you with leads from work that is in progress for that researcher.

Two examples of well planned and documented searches are provided in Boxes 3.6 and 3.7. As a researcher, it is always a good idea to carefully document your search strategy. In this way you can backtrack to helpful strategies if you need additional information and indicate to the reader how thorough you were in your search process.

Box 3.6 ▸ Method Used in Literature Review: Example 1

The primary purpose of the accommodations research conducted over the past 3 years has been to determine the effect of accommodations use on the large-scale test scores of students with disabilities.

Method

Four major databases were searched to identify research on test accommodations published from 1999 through 2001: ERIC, PsycINFO, Educational Abstracts, and Digital Dissertations. Research papers were also obtained at major conferences. Additional resources for identifying research included

• Behavioral Research and Teaching at the University of Oregon (brt.uoregon.edu/)

• Education Policy Analysis Archives (epaa.asu.edu)

• National Center for Research on Evaluation, Standards, and Student Testing (www.cse.ucla.edu/)

• Wisconsin Center for Educational Research (www.wcer.wisc.edu/testacc/)

Several search terms were used. The terms were varied systematically to ensure the identification of all research on changes in testing, published from 1999 through 2001. Search terms included

• accommodation
• test adaptation
• test changes
• test modifications
• test accommodations
• state testing accommodations
• standards-based testing accommodations
• large-scale testing accommodations

A decision was made to limit the selection of publications to empirical research. Included within this realm are studies with samples consisting of preschool, kindergarten through high school, and postsecondary students. The focus of the empirical research was not limited only to large-scale testing, but also included studies that incorporated intelligence tests and curriculum-based measures (CBM). We decided to focus on testing accommodations as opposed to instructional accommodations, although there is some overlap between these purposes in the literature. We did not include any conceptual or opinion pieces in this analysis.

SOURCE: S. Thompson, Blount, & Thurlow (2002, pp. 2–3).

| Box 3.7 | Literature Review in Science Education With English Language Learners (ELLs): Example 2 |

In selecting research studies for inclusion in this synthesis, a systematic review of the relevant literature was conducted according to the following parameters:

1. Studies with direct relevance to the topic, i.e., those involving ELLs in science education and those addressing the intersection between science education and English language acquisition. To the extent that language and culture are interrelated ("languaculture" according to Agar, 1996), this review includes studies examining cultural beliefs and practices that ELLs bring to the science classroom.

2. Studies published from 1982 through 2004. The landmark for science education reform was the release of the *Science for All Americans* document (American Association for the Advancement of Science, 1989). The period between 1982 and 2004 spans the years leading up to the release of this document (1982–1989) and more than a decade afterward (1990–2004).

3. Studies conducted within the United States and abroad, but limited to those published in English and focusing on settings where English is the main medium of science education.

4. Studies focusing on science education at the elementary and secondary levels, K–12. Studies involving postsecondary or adult learners are not included.

5. Empirical studies from different methodological traditions, including (a) experimental and quasi-experimental studies; (b) correlational studies; (c) surveys; (d) descriptive studies; (e) interpretative, ethnographic, qualitative, or case studies; (f) impact studies of large-scale intervention projects; and (g) demographics or large-scale achievement data.

6. Literature reviews and conceptual pieces.

Within these parameters, the process of gathering studies from the various sources was carried out as follows. First, a search of the ERIC database was conducted using

(Continued)

| Box 3.7 | (Continued) |

the terms "science education" and "school" combined with the following keywords: "bilingual," "limited English proficient (LEP)," "English Language Learner (ELL)," "English to Speakers of Other Languages (ESOL)," "English as Second Language (ESL)," "equity," "diversity," "minority," "culture," "language," "multicultural," "at-risk," "race," "immigrant/immigration," and "urban education."

Second, selected journals were reviewed manually, including the journals supported by the American Educational Research Association *(American Educational Research Journal, Educational Researcher, Review of Educational Research,* and *Review of Research in Education),* as well as other well-known journals focusing on science education *(Journal of Research in Science Teaching* and *Science Education)* and bilingual/TESOL education *(TESOL Quarterly* and *Bilingual Research Journal).*

From the sources named above, only peer-reviewed journal articles were included. Among these, articles, empirical studies, literature reviews, and conceptual pieces were included. Empirical studies were used to report research results, whereas literature reviews and conceptual pieces were used to frame key issues.

Neither practitioner-oriented articles (e.g., teaching suggestions or descriptions of instructional programs, materials, or lesson plans), nor opinion or advocacy pieces unsupported by empirical evidence were included.

SOURCE: O. Lee, (2005, p. 495).

Involvement of Community Members

The combination of self-knowledge with cultural knowledge and skills in effective partnering facilitates the development of the research or evaluation focus and identification of questions, development of interventions, and making decisions about design, measures, samples, data collection, analysis, interpretation, and use that are in keeping with the philosophical assumptions of the transformative paradigm (Mertens, 2009). Following proper channels to enter a community is important, and strategies for doing this will vary by context. Some Native American Indian communities have developed specific protocols for anyone who wants to conduct research in their communities (LaFrance & Crazy Bull, 2009); Maori people from New Zealand have also developed similar protocols for research in their community (Cram, 2009). Deaf researchers have adapted the Maori Terms of Reference to suggest a protocol for research in that community (Harris, Holmes, & Mertens, 2009). These protocols will be discussed in more depth in the chapter on sampling. However, it is important for researchers to know how to enter a community with respect, to communicate their intentions to members of the community in the appropriate way, and to make clear what benefits will accrue to themselves and to the community. Schneider et al.'s (2004) method of involving people with mental illness is one example of how community members can be involved in the decision process about what topics to study in the research.

Step 4: Conduct the Search

In conducting the search, you should make a plan to search preliminary sources, check the table of contents, abstracts, and lists of references in primary research journals, access your personal network, and involve community members as appropriate. The remainder of this section focuses on the search strategy as it applies to accessing preliminary sources.

Prepare to Search Preliminary Sources

Select the preliminary sources that you think contain the best information on your topic (see Box 3.2). Then identify key terms that will help you locate the literature included in the database of choice. One way that researchers select key terms is to find one primary research article that is "exactly" on target and identify the terms used to describe that article.

A search strategy based on using the ERIC online system is used to illustrate this process. The search strategy is similar when using other databases and indexes, such as PsycARTICLES and PsycINFO. Most databases give you many choices for searching, such as title, author, abstract, subject, or full text. The title, author, and abstract choices are fairly self-explanatory. Author and title are not usually used in the beginning of a literature review because you usually are not seeking a specific article during the early stages of searching. The subject choice needs a bit of explanation. *Subject* words are those that were used by the people who work for the database to categorize that item. These words are contained in a thesaurus, usually available in the online system. Each item in the database has a field associated with it that contains subject words that an indexer selected, and that is the field that is searched when you choose a subject word strategy. Full text searchers, on the other hand, allow researchers to choose words that reflect their own vocabulary in the description of the topic. *Full Text* means the computer searches for these terms using a "free text" strategy; that is, it searches anywhere in the document for the words that you enter. Advantages and disadvantages accrue to whichever search strategy is chosen.

The easiest way to start is to use a key word strategy to determine if the words that you think are appropriate produce references that match your conceptualization of the problem. For example, for the topic of sexual abuse of deaf students, I started in ERIC using *sex abuse deaf* as key words. The computer said there were no articles available that combined those three terms. I took a few minutes to read the directions in ERIC and found that I could use a multifield search strategy, separating the terms. So I used sex? AND abuse AND deaf?. (There is a good reason, explained later, for the inclusion of the *?* and the word *and* in this search specification.) This resulted in 19 entries. One of the entries was Black and Glickman (2006), "Demographics, Psychiatric Diagnoses, and Other Characteristics of North American Deaf and Hard-of-Hearing Inpatients" (see Box 3.8).

If you have difficulty finding references using your own key word vocabulary, check a thesaurus of terms to determine how the indexers might have conceptualized your topic. Use of subject descriptors can be helpful in narrowing down a search, as long as the descriptors are defined in a way that is compatible with your topic. They can also be helpful in broadening a search by suggesting other terms that could prove fruitful in searching.

Box 3.8	Journal Citation Entry From ERIC

Black, Patricia A. Glickman, Neil S. Demographics, Psychiatric Diagnoses, and Other Characteristics of North American Deaf and Hard-of-Hearing Inpatients [Journal Articles. Reports—Research] Journal of Deaf Studies and Deaf Education. v11 n3 p303–321 2006 AN: EJ738331

Abstract: This study examined demographic and clinical data from a specialty deaf inpatient unit so as to better understand characteristics of severely and chronically mentally ill deaf people. The study compares deaf and hearing psychiatric inpatients on demographic variables, psychiatric discharge diagnoses, a language assessment measure, a cognitive ability measure, and a measure of psychosocial functioning and risk of harm to self and others. Overall, findings indicate a broader range of diagnoses than in past studies with posttraumatic stress disorder being the most common diagnosis. Compared with hearing patients in the same hospital, deaf patients were less likely to be diagnosed with a psychotic or substance abuse disorder and more likely to be diagnosed with a mood, anxiety, personality, or developmental disorder. Psychosocial functioning of the deaf patients was generally similar to hearing psychiatric patients. Deaf patients presented significantly higher risks than hearing patients in areas of self-harm and risk of sexual offending. Cognitive scores show that both the deaf and hearing inpatient population is skewed toward persons who are lower functioning. An additional surprising finding was that 75% of deaf individuals fell into the nonfluent range of communication in American Sign Language. (Author)

Now, why include a *?* in the search terms, and what is the importance of the *and* in the list? You can refine your search in the following ways:

1. Truncate the terms you use. This has the effect of broadening the search to include any terms that begin with the letters that you enter, no matter how they end. In ERIC (the Educational Resources Information Center), the truncating symbol is a *?* Therefore, entering *sex?* would include *sex, sexual, sexes,* and so on, and *deaf?* would include *deaf, deafness, deafened,* and so on.

2. Use Boolean or positional operators to combine terms. Boolean logic allows you to use the words *and, or, not,* and *nor* (one but not both words are in a record). Thus asking for *sex? and abuse and deaf?* yields references in which the three terms appear in the same record. The *or* operator yields references that have either or both words in the same record. So, I could have asked for *sex? abuse or child abuse and deaf?.* This would have given me all the records that contain *sex? abuse* or *child abuse* and *deafness.* In addition, I could have broadened my search by including *deaf? or hearing-imp?.* This would have resulted in all references that had either *deaf, hearing-impaired, hearing impaired,* or *hearing impairment* in their records.

Positional operators include *same, with, adj,* and *near,* and they limit retrieval by specifying how near key words must be to each other. *Same* means that both words must be in the same field of the same record; *with* means both words are in the same section of the same field of the same record; *adj* requires that the words must be next to one another (adjacent) in the order specified; and *near* finds references in which words are next to one another in any order (e.g., *sex abuse* or *abuse sex*).

3. There are other ways to limit the search, such as by year of publication or limiting the field that is searched (e.g., title only). Certain *stop* words are not allowed to be used as key words (e.g., *about, all, its),* but all of these things can be learned by reading the online instructions. As you get into using a database, it is always a good idea to read the online instructions to see what can be accomplished and how.

4. Obviously, the search process can be broadened by inclusion of additional databases or indexes. For example, when I searched PsycARTICLES using the same descriptors (i.e., *sex? and abuse and deaf?),* I identified 57 additional references that did not overlap with those found in ERIC.

A final word of advice: Cultivate a good relationship with your librarian. I invite the research librarian to my research classes to make a presentation on databases, search strategies, and documentation of findings from the search. Students report that visiting the research librarian is extremely helpful.

Interpret What You See

You can locate at least two types of documents in ERIC: journal articles and other references that are available through ERIC. Journals may be obvious because they have the name of the journal, but if you are not sure look for an EJ code in the ERIC citation. Other references are noted with the abbreviation ED (education document) and are typically presentations made at professional meetings, curriculum guides, research reports, or other similar materials. An example of an ERIC full text abstract for a journal article was presented in Box 3.8 and one for an ERIC document is in Box 3.9.

Box 3.9   ED Document Citation From ERIC

Accession Number	ED477969
Author	Karcher, Michael J.
Title	The Hemingway: Measure of Adolescent Connectedness—Validation Studies.
Page Count	59
Peer Reviewed	No
Date of Publication	2001
ERIC Subject Headings	*Adolescent Development
	Adolescents
	Age Differences
	Behavior Problems
	Delinquency
	*Interpersonal Relationship
	*Psychometrics
	*Social Environment
	Substance Abuse
	Test Validity

(Continued)

Box 3.9	(Continued)

Identifiers	*Social Connectedness.
Abstract	This investigation reports the development of a measure of adolescent connectedness and estimates of its psychometric properties. A measure was developed to assess the ecological and developmental dimensions of adolescent connectedness, defined as adolescents' caring for and involvement in specific relationships and contexts within their social ecology. Exploratory and confirmatory factor analyses in studies one and two yielded theoretically consistent factor solutions. These models were cross-validated in studies three and four with three geographically and ethnically diverse adolescent samples totaling 1454 adolescents. The measure of adolescent connectedness demonstrated satisfactory inter-item and test-retest reliability and convergent validity across samples. Consistent with social control and problem-behavior therapy, two higher order factors emerged across all of these samples: conventional vs. unconventional connectedness. These two dimensions of connectedness were found to differentially explain substance use for delinquent and non-delinquent adolescents. Using this ecological assessment, adolescent connectedness appears to differ as a function of age, sex, and problem-behavior status; varies across relationships and contexts; reflects either conventional or unconventional behaviors and attitudes; and can explain engagement in risk-taking behaviors. (Contains 62 references and 6 tables.) (Author)
Notes	Paper presented at the Annual Conference of the American Psychological Association (109th, San Francisco, CA, August 24–28, 2001).
Level of Availability	1
Publication Type	Information Analyses. Reports—Research. Speeches/Meeting Papers.
Language	English
Entry Month	200402

Select Titles

Most databases provide an abstract of the articles listed. By scanning these abstracts, you can make a decision as to the worth of obtaining the complete article. Advances in technology now also make it possible to view many full text articles while you are engaged in the search process. Hence, researchers are faced with a bit of a paradox concerning the amount of time it takes to do a literature review. If you only have the abstract, you read it quickly and make a determination if it is what you want. If you think it is and full text is not available, then you need to go to the library or order the article

through interlibrary loan or some other mechanism. If the full text is available, you may find yourself (like me) reading many articles because they are interesting and then you wonder how the day is done and you have not made the progress that you expected. Intellectual curiosity is good; focus is also good.

Step 5: Obtain Full Text Resources

As mentioned previously, many journal articles and books are now available online in full text versions. If you cannot obtain the article in this manner, then it would be good to check the list of holdings at your library. If the journal you seek is held by your library, you are in luck: Go to the shelves (or the librarian at the help desk) and read the article. However, if your library does not have the item, you may avail yourself of an interlibrary loan service. If you provide complete bibliographic information, the librarian can determine which other library has the article and make a request to have it sent to you. There is often a small charge for this service. In some libraries, obtaining a copy of the article is available by an online request as you are doing your search. The computer may ask you if you want to order the document, and then it will tell you how much it costs to obtain. You have the option of agreeing to pay the cost, and, if you agree, the library that holds the reference is electronically contacted and asked to transmit the article to your library. Amazing! (The researcher's equivalent to Home Shopping Network.)

If you have chosen to review an ED document from an ERIC search, that document may also be available in full text online. However, if it is not, then the document should be available for your review on microfiche in the library. The microfiche are organized in ascending order according to their ED numbers, so they are usually easy to find.

Extending Your Thinking:
Primary and Secondary Sources

What is the difference between a primary source and a secondary source? When and why would you choose to use one or the other? Have you been able to locate a secondary source on your topic of interest?

What search strategies have you found to be particularly effective in locating research on your topic of interest? Have you used networking? Professional associations? Why would these be important resources? What computerized databases have you used? Do you feel comfortable in using the computer to search for articles of interest for your research topic? Have you sought out journals or other sources of information (e.g., direct dialogue with individuals who are experiencing oppression) that represent the "transformative perspective" in research?

H. M. Cooper and Hedges (1994) recommend that researchers limit their literature review efforts to "mainstream" journals on the grounds that these represent the "cream of the crop" of research efforts. Transformative researchers might contend that this would result in a bias because the viewpoints of oppressed people might not be represented in those journals. Where do you stand on this issue?

Step 6: Read and Prepare Bibliographic Information and Notes

Once you have the article in hand, read the document to determine if it is really what you want. If you decide that it is relevant to your topic, you will want to record bibliographic information and notes on each article. This can be done electronically or manually, using old-fashioned note cards.

Bibliographic Information

If you are searching such databases as ERIC or PsycARTICLES, you can use a new digital resource called RefWorks to electronically save the bibliographic information about all the references that you select. When you are ready, RefWorks will print out a reference list in APA format (or the format that you select). That is not all: If the article is available in full text, you can save it in RefWorks with the bibliographic information. If you do not have access to this electronic resource, then you can save the bibliographic information on note cards or in a word processing document. The important thing is to make sure you get ALL the information you need when you are working with the document so you do not have to try to find it later when you are writing up your literature review. Words of wisdom—painfully learned.

The most important thing to remember in recording bibliographic information is to be complete and accurate. Some of the problems associated with recording bibliographic information have been reduced because of the ability to print such information directly from the computer screen. However, if you have hundreds of printouts, you may want to record the information on index cards or in some other easily retrievable electronic format. (I do not always have a computer with me when I want to record bibliographic information, so index cards are handy. My secret at the moment: I cut and paste from the full text documents and then type up the references later; next time I write a book, I plan to use RefWorks.)

Although several options are available for the format of recording bibliographic information, the most common style for education and psychology is based on the American Psychological Association's (2001) *Publication Manual* (5th ed.). This is the basic format for a journal citation:

Author's Last Name, Initials. (date). Title of journal article. *Title of Journal, volume number*(issue number), page numbers.

For example:

Sullivan, P. M. (1992). The effects of psychotherapy on behavior problems of sexually abused deaf children. *Child Abuse and Neglect: The International Journal, 16*(2), 297–307.

Book:

Author's Last Name, Initials. (date). *Title of book.* Place of publication: Publisher.

For example:

Mertens, D. M. (2009). *Transformative research and evaluation.* New York: Guilford.

Book chapter:

Author's Last Name, Initials. (date of publication). Title of chapter. In Name of Editor (Ed.),

Name of book (page numbers of chapter). Place of publication: Publisher.

For example:

LaFrance, J., & Crazy Bull, C. (2009). Researching ourselves back to life: Taking control of the research agenda in Indian Country. In D. M. Mertens & P. Ginsberg (Eds.), *Handbook of social research ethics* (pp. 135–149). Thousand Oaks, CA: Sage.

There are differences in citation style associated with different types of documents (e.g., books, chapters in books, government reports, etc.), so you are advised to obtain a copy of the APA *Publication Manual* to guide the compilation of bibliographic information. In addition, APA has added a great deal of information about how to handle Web-based information. Some of that is reflected in the *Publication Manual,* but you can go to the APA's Web site (www.apa.org) for an update on changes that they recommend and click on their publications link.

Notes on Each Study

Exactly what notes to write for each study varies greatly and depends on the nature of the study, the purpose of the review, and the intended use of the data. If the researcher intends to conduct a comprehensive literature review of studies that report their results in statistical form, the use of coding forms and computerized databases is recommended.

For empirical research studies, the following outline can be helpful:

1. Area of interest; literature cited; need addressed; theoretical framework; research questions/hypothesis

2. Paradigm of researcher(s)

3. Design, including
   a. Specific research approach
   b. Sampling strategy
   c. Characteristics of participants
   d. Data collection instruments and procedures

4. Data analysis strategy

5. Results

6. Conclusions

7. Your own evaluation (including strengths and weaknesses and ideas for your own research, such as promising methodological or conceptual suggestions).

The evaluation of research reports is Step 7 (discussed below). Once you have evaluated the research report, you should return to your note cards or files and enter your own assessment of the strengths and weaknesses of the research.

Step 7: Evaluate the Research Reports

You will be learning how to evaluate research as you progress through this text. A listing of critical analysis questions for evaluating primary research is provided at the end of each chapter. The questions are organized according to the sections of the research report (e.g., introduction, method, etc.), with additional specific questions relevant to each approach to research (e.g., experimental, quasi-experimental, etc.).

Step 8: Synthesize the Studies

Before you actually begin the synthesis of the research, there are a few things to keep in mind. Organization is a plus. If you can develop a flexible framework for organizing the studies as you find them, it will be easier for you to approach the synthesis stage. I say flexible because the framework might add, delete, or redefine categories as you move through the review process. For example, for the revisions to the third edition of this book, I had categories for relevant studies I found in the early stages that related to each chapter title. As I found studies, I saved them into those files. As I began writing, I moved some of the files to more differentiated categories; for example, what started as the Chapter 1 introduction became paradigms, and paradigms became postpositivist, constructivist, transformative, and pragmatic. So, as I approached writing I had studies that were relevant to each part of the chapter. Of course, you sometimes run into problems in that one study may have applicability for more than one topic, but no one said this would be simple. Some of my students like to keep tables of the studies they find and then organize the studies in tables under headings that make sense for their writing; some like to keep note cards on their studies that they can rearrange manually. Other students like to use a qualitative software package to save the articles as "data files" that can be coded and searched when it is time to write. This approach has merit but demands technical skills with the software and diligence to do the coding. However, once you get to the search and retrieve part, it may all seem worth it.

An example of a thematic organizational approach can be seen in Billingsley's (2004, p. 39) study of teacher attrition and retention in special education. She addressed four major themes: teacher characteristics and personal factors, teacher qualifications, work environments, and teachers' affective reactions to work. She included a critical analysis of definitions, concepts, and methods used to study special education attrition. In another example, Au (2007) included the following themes in his literature review about high stakes testing: Subject matter content, pedagogy, and structure of knowledge. Au offers some important insights into the flexible and evolving nature of coding systems. He writes,

> The full elaboration of my coding template evolved during the course of the research. For instance, it has been widely asserted over the past 20-plus years that high-stakes tests cause a narrowing or contraction of nontested subject areas. I was aware of research substantiating this assertion prior to beginning the template analysis and thus assumed that I would need to code the studies that reported the theme of contraction of subject matter content. (p. 259)

Two main options exist for the synthesis of research studies: narrative and statistical methods. The choice of the type of synthesis depends on the type of extant research literature on a topic and on the purpose of the researcher. In this chapter, I focus on the narrative approach to synthesizing literature. The statistical approach (meta-analysis) is explained in Chapter 13.

Narrative Synthesis

The narrative approach to literature synthesis is most commonly used in primary research studies. It is appropriate for studies that use a qualitative design as well as for quantitative studies. In a narrative synthesis, the writer must organize the studies in a conceptually logical order and provide sufficient detail about the studies to support relevant critical analysis of them. The amount of detail provided (as well as the number of studies cited) will be influenced by the purpose of the literature review:

1. Typically, the literature review section of a journal article includes a limited number of references that are selected on the basis of relevancy to the problem at hand, presenting a balanced picture, and establishing a rationale for the reported research.

2. A literature review for a research proposal is usually more extensive. If the research proposal is for a thesis or dissertation, it is expected to be quite comprehensive in most universities.

If you organized your literature into meaningful categories as you collected it, then this makes your writing easier. Provide an overview of your topic and describe the methods you used to search the literature. Then provide an advance organizer for the reader of the subtopics that you will address. For each study make a determination if it is important to report details of its strengths and weaknesses in order to establish the overall picture of knowledge in the field or to provide support for your choice of methods. It is possible to explain several studies in detail and then cite other studies that agree or disagree with the findings of those studies, rather than a detailed critique of every study in your literature review. Sometimes literature reviews include a separate section on the proposed study's theoretical framework based on prior research. The literature review should lead to a statement of the need and purpose for the study, research questions, and hypotheses.

Step 9: Use the Literature Review

The narrative or statistical synthesis serves as a basis for the literature section of a research proposal or report. The Appendix contains an outline for a research proposal for a thesis or dissertation. It is important for the proposal writer to realize that each institution and sponsoring agency has its own requirements for proposal writing, so it is best to check with those sources before proceeding with writing. Proposal writers must also realize that in this synthesis of research they are "selling" their ideas to a research committee, institutional review board, or funding agency. So above all, make it clear why the research is important (based on what is known from the extant literature).

Conceptual Framework and Program Theory

In some ways, the conceptual framework is like the chicken-or-the-egg controversy. A researcher's original conceptual framework influences the planning and conducting of the literature review. However, if a researcher keeps an open mind throughout the literature review process, a more sophisticated and (often greatly) modified conceptual framework should emerge. Table 3.1 displays the influence of the theoretical framework on the choice of research questions and its implications for action. On the basis of work by Villegas (1991) on theoretical frameworks used to explain differential achievement by ethnic minority students, four different research questions are used to illustrate this point. The IQ deficit theory and the cultural deficit theory reflect a theoretical stance that suggests the problem is either "in the child" or "in the cultural group from which the child comes." The cultural difference theory reflects the constructivist paradigm, and the power inequity theory reflects the transformative paradigm.

These various explanations for poor academic achievement by ethnic minority children exemplify alternative theories that might be held by the researcher or by the research sponsor or participants. Researchers must be aware of their own personal theoretical base as well as that of the sponsors and the participants. For example, J. E. Davis (1992) noted that research on African American families often depicts them as deviant, pathological social organizations unable to fulfill the major responsibilities of socializing their members for productive roles in society (the *deficit model).* The conclusion based on this model, then, is that this undersocialization leads to negative outcomes, such as low academic

Table 3.1	Influences of Different Theoretical Frameworks on Research	
Theory	*Sample Research Question*	*Recommendations for Action*
IQ deficit theory	Are minorities genetically inferior to White students?	Remedial education, but the problem is really "in" the child.
Cultural deficit theory (sociocultural deficits in home life)	Is there a higher rate of single-parent families among minorities? How do Black and White parents compare in discipline techniques?	Remedial education, but the problem is really "in" the family.
Cultural difference theory	What is the nature of language use at home and at school in terms of asking and answering questions or in seeking help?	Build on students' prior experiences; increase their language use structures.
Power inequities (school failure is rooted in a struggle for power; schools play a role in the preservation of the socioeconomic order)	How can we teach minority students so they do not continue to be oppressed?	Explicitly teach minority children the means to access power, including linguistic forms and ways of talking, writing, and interacting. Teach them to value ethnic characteristics and that the culture of the dominant group is not necessarily superior.

achievement, juvenile delinquency, drug abuse, and teenage pregnancy. This conclusion is reached by ignoring the data that "inform us of the unique and often precarious position of African Americans" (J. E. Davis, 1992, p. 59). More than one third of the African American population in the United States lives at or near the poverty level. It is the economic condition and its implications (e.g., inadequate housing and food, poor sanitation, overcrowding) that bring about negative consequences, such as poor health, family violence, and delinquency. Ladson-Billings (2006) presents data that suggest that conditions have not improved for African American students since Davis wrote her work in 1992. Ladson-Billings suggests that there is a more insidious reason that underlies both economic and education deprivation: racism. Thus, the use of a theoretical framework that starts with the marginalized lives allows researchers to understand the experiences of oppressed groups.

In the past, much of educational and psychological research on racial or ethnic minorities, women, people with disabilities, and other marginalized groups derived from a deficit perspective that located the problem in individuals and focused on the negative reasons that they did not achieve or perform certain functions or activities. More recently, researchers have shifted to a social-cultural perspective that focuses on the dynamic interaction between the individual and environment over the life span (Seelman, 2000; A. T. Wilson, 2001). This focus on strengths and modifications of contextual factors has emerged under a variety of names such as *positive psychology* (Aspinwall & Staudinger, 2003; S. J. Lopez & Snyder, 2003; Seligman & Csikszentmihalyi, 2000) and *resilience theory* (J. H. Brown, D'Emidio-Caston, & Benard, 2001; R. Cooper, 2000). Such a theoretical framework has led to reframing research questions to focus on strengths. For example,

What are the positive aspects of parenting a deaf child? (Szarkowski, 2002)

What are the variables that contribute to successful transition from high school to college for deaf African American students? (Williamson, 2002)

J. M. Morse (2003) also notes that the theoretical framework in qualitative research is used to focus the inquiry and give it boundaries rather than to serve as *the* guide for data collection analysis. Deductive analysis based on a static theoretical framework violates the assumption of constructivist qualitative inquiry. The theoretical framework should be viewed as a conceptual template with which to compare and contrast results, not seen as establishing a priori categories for data collection and analysis.

Research Questions and Hypotheses

The literature review serves as a foundation for forming research questions. Hedrick, Bickman, and Rog (1993) suggest that the research questions operationalize the objectives of the proposed research. They focus the research hypotheses and clarify what information needs to be collected from what sources under what conditions.

Framing the research questions can be a difficult task for beginning researchers. Hedrick et al. (1993) present a taxonomy for categorizing research questions that includes four categories of questions: descriptive, normative, correlational, and impact. Each is briefly discussed in the following paragraphs.

Descriptive research questions are designed to produce information about what is or has been happening in relation to the target of the research. For example, the researcher might want to describe certain characteristics of the participants in an intervention. Alternatively, the researcher might be interested in describing the prevalence of a particular disability within an identified domain (e.g., What is the prevalence of mental retardation in Black middle school children?).

Normative research questions go beyond description and require that the information generated in response to the descriptive research question be compared with some standard or expected observation. For example, in special education, there are minimum requirements regarding most aspects of the service delivery system. A normative research question might ask, Were individual education plans (IEPs) in place before the placement was made, in accordance with the minimal service delivery requirements?

Correlative research questions are used to identify relationships to enable the explanation of phenomena. As Hedrick et al. (1993) point out, data derived in response to such questions indicate the strength and direction of a relationship between two or more variables, not causality. For example, the special education researcher might ask, What is the relationship between the size of family and the presence of emotional disturbance in siblings? If a strong, positive relationship is found, this would not lead to the conclusion that large families cause emotional disturbance in siblings. Such a relational finding would suggest the need for further study to uncover the causal relationships.

Impact research questions represent the last category offered in the Hedrick et al. (1993) taxonomy. Here, the researcher's aim is to identify effects, to establish causal links between an independent variable (the intervention) and a dependent variable (the anticipated change). According to Hedrick et al.'s framework, the researcher might investigate two types of effects: simple and relative. Research on the impact of an intervention (literacy intervention) on a behavior (reading) is one example of an impact study. The research question might ask, do students who participate in the literacy intervention perform better on end-of-year assessments in reading than students who do not participate? If the researchers choose (and this is good practice) to explore the impact of the intervention on other related outcomes (e.g., math, self-confidence), additional questions could address relative effects.

Impact questions can then be reformulated and stated as hypotheses. A hypothesis is an "if . . . , then . . ." statement. For example, a hypothesis might state this: "If students are exposed to a particular intervention, they will behave in a certain, predictable manner." A sample hypothesis for the literacy study cited above might read this way: "If students

participate in the literacy intervention, then their scores on the end-of-year reading assessments will be higher than the scores for students who do not participate." This is known as a *directional hypothesis* because it is stated in the direction of the expected outcome. A researcher could choose to state a *null hypothesis*—that is, a statement that did not specify the expected direction of the outcome. The previous hypothesis could be restated as a null hypothesis: "There will be no difference in end of year reading assessments for students who do participate in the literacy intervention as compared to those who do not."

In summary, the literature review serves many purposes. It establishes a historical perspective on the intended research, provides a vision of the need for additional research, and enables the researcher to develop a conceptual framework for the research. This framework allows the researcher to generate research questions and hypotheses to guide the design and conduct of the research. In qualitative research, typically, the researcher will refine, modify, add, and even discard questions throughout the progress of the study (J. M. Morse, 1994). Therefore, qualitative researchers are advised to begin with broader questions that can be modified in response to discoveries made during the study. No matter which research paradigm or approach is used, the literature review is an essential ingredient in the research process.

Critical Analysis of Literature Reviews

The criteria for critically analyzing literature reviews depends (again) on the nature of the review being analyzed. A literature review that serves as an introduction to a primary research study reported in a journal would be subject to a different type of scrutiny than would a comprehensive literature review on a topic. Nevertheless, a framework initiated by Hart (1999) and extended by Boote and Beile (2005) provides a way to assess the quality of a literature review. (Their rubric of these categories is included as Table 3.2.) Boote and Beile included five categories for their framework.

- Coverage refers to the adequacy of the coverage of the topic, as well as making explicit criteria for exclusion and inclusion of studies for the review. Does the reviewer include relevant works and exclude irrelevant ones? Writing a dissertation does not mean citing every study ever written on your topic. Coverage should be judged in terms of comprehensiveness, breadth, exclusion, relevance, currency, availability, and authority (Bruce, 2001). Researchers can bias the results of a literature review by excluding data that is methodologically questionable, based on their own personal, subjective judgment (Ogawa & Malen, 1991). Or they may present conclusions that are more firm and clear-cut than is justified because of the exclusion of studies with "murky" results. Without a clear specification of the method used to search for research and of the criteria used for inclusion or exclusion, it is difficult to judge the quality of a review. Au's (2007) review of high stakes testing literature provides an example of decision rules for inclusion/exclusion when a large pool of studies is initially identified. He narrowed the studies to those

(a) based on original, scholarly research,

(b) using qualitative methods,

(c) taking place in the United States, and

(d) specifically addressing the relationship between high-stakes tests and either curriculum or instruction or both (p. 259).

Table 3.2	Literature Review Scoring Rubric				
Category	**Criterion**	**1**	**2**	**3**	**4**
1. Coverage	a. Justified criteria for inclusion and exclusion from review	Did not discuss the criteria inclusion or exclusion	Discussed the literature included and excluded	Justified inclusion and exclusion of literature	
2. Synthesis	b. Distinguished what has been done in the field from what needs to be done	Did not distinguish what has and has not been done	Discussed what has and has not been done	Critically examined the state of the field	
	c. Placed the topic or problem in the broader scholarly literature	Topic not placed in broader scholarly literature	Some discussion of broader scholarly literature	Topic clearly situated in broader scholarly literature	
	d. Placed the research in the historical context of the field	History of topic not discussed	Some mention of history of topic	Critically examined history of topic	
	e. Acquired and enhanced the subject vocabulary	Key vocabulary not discussed	Key vocabulary defined	Discussed and resolved ambiguities in definitions	
	f. Articulated important variables and phenomena relevant to the topic	Key variables and phenomena not discussed	Reviewed relationships among key variables and phenomena	Noted ambiguities in literature and proposed new relationships	
	g. Synthesized and gained a new perspective on the literature	Accepted literature at face value	Some critique of literature	Offered new perspective	
3. Methodology	h. Identified the main methodologies and research techniques that have been used in the field and their advantages and disadvantages	Research methods not discussed	Some discussion of research methods used to produce claims	Critiqued research methods	Introduced new methods to address problems with predominant methods
	i. Related ideas and theories in the field to research methodologies	Research methods not discussed	Some discussion of appropriateness of research methods to warrant claims	Critiqued appropriateness of research methods to warrant claims	
4. Significance	j. Rationalized the practical significance of the research problem	Practical significance of research not discussed	Practical significance discussed	Critiqued practical significance of research	
	k. Rationalized the scholarly significance of the research problem	Scholarly significance of research not discussed	Scholarly significance discussed	Critiqued scholarly significance of research	
5. Rhetoric	l. Was written with a coherent, clear structure that supported the review	Poorly conceptualized, haphazard	Some coherent structure	Well developed, coherent	

Au (2007) excluded studies that examined the

relationship between high-stakes testing and retention, studies that focus on the role of high-stakes testing and access to teacher education programs (e.g., Praxis II), studies that focus on the tests themselves (e.g., discourse analyses of the actual test content), and policy studies that use qualitative methods to compare pressures between states. In addition, because of their ambiguous and complicated positions in school hierarchies, studies that focus on student teachers are also excluded. (p. 259)

• Synthesis is the second category, and it refers to how well the author summarized, analyzed, and synthesized the selected literature on a topic. The criteria include how well the author

   (a) distinguished what has been done in the field from what needs to be done,
   (b) placed the topic or problem in the broader scholarly literature,
   (c) placed the research in the historical context of the field,
   (d) acquired and enhanced the subject vocabulary,
   (e) articulated important variables and phenomena relevant to the topic, and
   (f) synthesized and gained a new perspective on the literature. (Boote & Beile, 2005, p. 7)

To satisfy these criteria, the writer needs to identify tensions and inconsistencies in the literature, provide clarity discussing the strengths and weaknesses of the individual studies as factors that influence the interpretation of their results, and use the extant knowledge base to suggest directions and topics for additional empirical investigations.

• Methodology as a criterion for judging a literature review refers to the author's accurate inclusion of details about method that have relevance for identification of methodologies and research techniques, and their strengths and weaknesses, and discussion of the relationship between theories and ideas in the field to the research methodologies (Boote & Beile, 2005).

Literature reviews should not be simple summaries of findings of previous research; they should be critical analyses of previous research. In order to critically analyze the strengths and weaknesses of prior research, several skills are necessary. One is the ability to accurately identify the methodologies; a second is the ability to identify strengths and weaknesses in the methodologies and how they impact the interpretation of results. Unless you have had prior experience critiquing research, you are probably wondering how you can do this type of critical analysis. You can continue through this book, and by the end you'll be able to critically analyze the major approaches to research in education and psychology. At the present moment, we will focus on your being able to critically analyze the literature review section of a research study, and then you can add to your skill set as you progress through subsequent chapters. What you can do for the moment is know that when you take notes about your studies, you want to include information about the methodology, not just the results.

• Significance is the fourth category and includes establishing both the practical and the scholarly significance of the research problem (Boote & Beile, 2005). While some research studies will focus more or less on one of these aspects, it is useful to provide implications for both the practical and scholarly significance of research.

• Rhetoric is the final category and it refers to the writers' ability to organize and write cogently about the literature in such a way that they can articulate and support their claims about the knowledge in the field (Boote & Beile, 2005).

Several caveats are in order at this point:

- The points made in this chapter are relevant to almost all types of educational and psychological research, whether it is a single empirical study, cyclical study, master's thesis, or doctoral dissertation.

- The act of reviewing the literature does not just occur in the beginning of a research study and is not completed once the introduction to the article or the proposal for the research is completed. Literature review should be an ongoing process, and the results of that review should be integrated into the body of the report at appropriate points, but especially in the discussion and conclusions sections.

- The researcher should be aware of potential biases in literature reviews. There is a greater tendency for research with statistically significant results (i.e., those showing group differences larger than chance) to be published. Research studies that show no differences either are not submitted by the authors or are rejected more frequently by journal editors (Begg, 1994; P. B. Campbell, 1989). Campbell suggested that this publication bias leads to an exaggerated concept of differences between males and females. Begg recommended tracking down (or determining if authors of literature reviews tracked down) unpublished studies on the topic to correct for this bias. However, Begg also cautioned that the quality of the unpublished data may be suspect because they have not been through a review process. For this reason, he recommended a conservative interpretation of literature review results (especially meta-analyses).

- Matt and Cook (1994) focus on threats to inference from research syntheses based on the quality (or lack thereof) of the primary research studies included in the review. They point out weaknesses commonly found in quantitative research studies that could be used in a statistical synthesis of previous research findings. In assessing the conclusions reached in any literature review, the reader should be cognizant of the quality of the studies included.

Questions for Critically Analyzing Literature Reviews

The following questions can be used to determine if a literature review is satisfactory. In preparing your answers to these questions, cite evidence in the article to support your answers.

1. The purpose of the literature review is to place the current research into the "big picture" of what is known and not known about a specific topic. What is the big picture into which this study fits? What is the central topic? How is the researcher conceptualizing the problem?

2. What is the nature of the literature cited?

   a. Is the review current, using research that is recent enough to have applicability to the proposed research?

   b. Is the review based predominately on primary research rather than on secondary or opinion pieces?

   c. Does the review provide a critical analysis of existing literature, recognizing the strengths and weaknesses of previous research? Or, is the review just a summary of prior research?

   d. Is the literature review well balanced, presenting evidence on both (or all) sides of the issue?

3. Is the review free from the biases of the reviewer? Is there any evidence in terms of emotional language, institutional affiliation, funding source, and so on to suggest that the reviewer might be biased?

4. To what extent does the review establish a need for the study? What is the author's rationale for why this study is needed? What do we know? What do we need to know? Why is this study important (practically and in terms of scholarship)?

5. What is the theoretical framework and what are the research questions? Does the review provide enough information to support the researcher's theoretical framework and research questions posed?

6. Does the review provide sufficient information to guide the research procedures, including the identification of subject participants, selection of data collection and analysis processes, and use of appropriate reporting strategies? After you read the review and you see what research questions and methods are used, do you think they are logically connected? Does what the researchers do in terms of method make sense in terms of what is presented in the literature review?

7. Are sources cited inclusive of "marginalized" voices? Are citations made that reference viewpoints of those with the least power?

To really have a basis for critically analyzing research, it is helpful to have broad experience with different types of research as well as with a number of studies that represent the same research approach. Of course, such breadth and depth takes time to achieve. Nevertheless, a long journey begins with a single step. Throughout this text, you will be encouraged to identify full text research articles that relate to your area of interest and to critically analyze those studies. The ability to critically analyze research is also a skill that becomes more holistic with experience.

When you are in the beginning stages of learning critical analysis, it is helpful to look at each section of the research study. So, in this chapter, we focus on the introductory section that includes the literature review and research problem, hypothesis, questions, or objectives. Later, you will be able to look at other aspects of the article, such as how the author handled certain aspects of data collection, analysis, credibility building, or ethics. You can then do comparisons across studies on these dimensions, analyzing how and why texts differ, how they relate to theoretical readings, whether the authors are justified in their methods or presentations, and how they can help you in your own decisions about research. With each research article that you review, you will increase your ability to determine the quality of the author's work and the validity of the findings.[4]

Extending Your Thinking:
Critically Analyzing Literature Reviews

- Locate several empirical research studies. Identify the following features of the studies: (a) the paradigm that the researchers used, (b) the research problem, (c) the theoretical framework that underlies the study, and (d) the research questions or hypothesis.
- Using the questions at the end of Chapter 3 for critically analyzing literature reviews, critique literature reviews in several different literature studies, identifying their strengths and weaknesses and supporting your claims with evidence from the articles.

Summary of Chapter 3: Literature Review and Focusing the Research

A review of scholarly literature provides information that can be used to investigate a topic of importance to learn what is known about that topic for its own sake (i.e., to improve teaching or therapeutic practices) or as a basis for designing a research study. The formulation of a research topic is enabled by reading about research that has already been conducted because the reader can figure out what is already known as well as become acquainted with the strengths and weaknesses of methods used in prior research. Multiple sources exist for the conduct of literature reviews, including secondary sources that provide an overview of past research and primary sources that report original research. Primary sources can be identified through several different electronic means that are described in this chapter. Persons conducting literature reviews can summarize their results in narrative form or a quantitative form known as meta-analysis that is described in more detail in Chapter 13. A literature review is used to develop research questions of different types, such as descriptive, correlational, or interventionist. Researchers can also benefit by looking outside of published scholarly research to community members to provide a different perspective on what needs to be studied and how it should be studied. You are now ready to consider which specific research approach is appropriate to answer the research questions.

Notes

1. I want to acknowledge the contribution of Gallaudet's research librarian, Jane Rutherford, for her many years of support for the students in my courses and for keeping me up-to-date on resources available from the library.

2. *Search engine* is the term used in the technology literature for search sites.

3. This is twice as many as were included in the first edition of this book published in 1998.

4. I am indebted to the comments of an anonymous reviewer for this framing of critical analysis.

In This Chapter

- ♦ The importance of experimental design in the postpositivist paradigm is discussed.
- ♦ Independent and dependent variables, experimental and control groups, random assignment, and internal and external validity are defined and illustrated.
- ♦ Threats to internal and external validity, along with ways to minimize these threats, are explained.
- ♦ Research designs are diagrammed and explained for single-group, experimental, and quasi-experimental studies.
- ♦ Other design issues are discussed, such as the type of treatment variable, ordering effects, and matching subjects.
- ♦ Complex issues concerning experimental research in the transformative paradigm are discussed.

Quantitative research is rooted in the postpositivist paradigm, which holds that the purpose of research is to develop confidence that a particular knowledge claim about an educational or psychological phenomenon is true or false by collecting evidence in the form of objective observations of relevant phenomena (Gall, Gall, & Borg, 2007). Research design can be defined as a process of creating an empirical test to support or refute a knowledge claim. Two tests of knowledge claims exist in the postpositivist paradigm: (a) Is the knowledge claim true in this situation (does it have internal validity)? (b) Is the knowledge claim true in other situations (does it have external validity or generalizability)?

Knowledge claims concerning internal validity require some complex thinking. Suppose you have a first grader who generally refuses to sit in his seat and pushes so hard on the paper when he tries to write that the paper tears. When he does sit in his seat, he bangs his head on the desk. It does not matter whether you are the parent, teacher, counselor, or school administrator, you want to be able to identify the variables that cause the behavior and figure out a treatment that allows this child to learn and thrive. You might formulate a wide variety of hypotheses as to why these behaviors are occurring. You might speak with other staff members and find out that they have observed similar behaviors with other children. You might consult the literature and find that such behaviors could result from a lack of self-confidence in a school setting or from frustration associated with a learning disability or a developmental delay. The recommended courses of action could be to try to build the child's self-confidence, to change teaching strategies to address the learning disability, or to lessen the demands on the child until maturation occurs.

If you are operating in the postpositivist paradigm, you might design a research study in which you decide to administer a selected treatment (e.g., a program designed to build self-confidence) to one group of children, and another similar group of children would not get the treatment. Suppose that the group of children who received the treatment improved their behavior more than the other group. How can you claim that it was your "treatment" that caused the observed change in behavior? For the researcher to make a knowledge claim that this treatment caused this effect, certain tests of internal validity must be met. These tests of internal validity are the subject of a major portion of this chapter.

Most quantitative research is of two types: studies aimed at discovering causal (or correlational) relationships and descriptive studies that use quantitative data to describe a phenomenon. Six approaches to undertaking quantitative research are explained in this text: single-group, experimental, and quasi-experimental designs (Chapter 4); causal comparative and correlational research (Chapter 5); survey methods (Chapter 6); and single-case research (Chapter 7).