

## **Searching the Literature**

All research projects should begin with a preliminary investigation of the field to find out whether the territory has been covered before and whether there is previous knowledge and experience to guide new investigations. Good research begins with determining what has been researched before, what types of studies have taken place, when they were conducted, how and by whom. The challenge for the novice researcher is cutting through the great quantity of previous knowledge to find out what has been done to date and to familiarize oneself with the major conclusions. In this sense, searching out previous research is an important aspect of data collection and is therefore a legitimate research activity. It involves collecting data, weighing its importance and relevance, and classifying it for future use. Searching sources of research information is often a significant learning activity that helps define, refine and shape our view of our own research problem.

### **1. Types of Sources**

Whether sources are online or print based, there are many different types of sources that can be used in a review of literature, including the following:

- Articles in professional journals
- Government and technical reports
- Conference proceedings and papers
- Reference books
- Monographs
- Books
- Master's and doctoral theses
- Web sites
- Magazines and newspapers
- Personal communications: information from interviews, presentations, lectures.

A good researcher knows when and how to use each type of source most effectively. Sources for a research proposal are considered strongest if they are peer reviewed, meaning that a panel of researchers (considered your peers!) has reviewed the articles and rated the quality of

the methods used in them. Articles in professional journals and some conference papers are the sources most likely to be peer reviewed. However, all of the sources listed above may be useful in some way, and not all articles in professional journals or conference proceedings are peer reviewed.

Another criterion used to evaluate sources in a review of literature is whether the sources are mostly *primary sources* that describe *empirical research*. A primary source is an article that describes original research conducted by the author of the article. By contrast, a *secondary source* is any article written by someone who is describing research done by others, so the description is second hand. Empirical research is a term applied to studies in which a research question has been examined by systematically collecting and analysing data. These articles usually (but not always) include a section labelled as the method section in which are described the persons or groups participating in the study and the methods used to study them. A secondary source, such as a book, may describe empirical research, but it usually gives less information on the research methods and so is usually considered to be a weaker type of source. Professional journals include both primary and secondary sources as well as empirical and nonempirical sources. One useful type of secondary source is a review of literature in which the author provides a comprehensive overview and critique of prior research studies on a given topic. Reviews of literature are useful sources when students are beginning their search of literature, and strategies for finding and using reviews of the literature are discussed below. Most empirical research articles provide a brief review of literature before their method sections, and articles that are solely reviews of literature have more comprehensive references but do not include a method section. Theoretical articles also provide overviews of empirical research, although the studies reviewed are selected based on their relevance to the theory examined.

Nonempirical articles frequently found in journals include *opinion pieces* or *commentaries* in which experts discuss their ideas or conclusions based on previous research, and “how-to” or experiential reports in which practitioners discuss how to implement an educational practice based on their own experiences. Whereas opinion pieces can be useful in identifying issues of debate in an area, the quality of the information will depend on the credibility of the expert. Experiential reports may provide creative ideas for educational practice, but because there is no systematic collection of data and results are based on the experience of just one practitioner, they do not provide strong evidence.

Books, monographs, and references books may also provide overviews of research, although these are likely to be several years older than comparable reviews from similarly dated journal articles. For some topics, government and technical reports may be useful sources, especially if the agencies or persons involved are professional researchers. Web sites provide sources that can vary enormously in quality. Remember that anyone anywhere can put information on the Web, *so any information from the Internet should be cited with caution*. Many Web sites for governmental agencies, educational institutions, and professional organizations provide useful information, although one must always carefully evaluate any information obtained from a Web site for potential bias and accuracy.

## **2. Finding Sources**

Finding sources typically entails the use of several different strategies. The strategy that works best will depend in part on how focused your topic is and whether there has been extensive research on it. Many students begin with a general topic, such as learning disabilities or child neglect and abuse, and have trouble initially thinking about how to focus or narrow it down. For some topics, it may be helpful to simply browse through a journal that focuses just on that topic. For example, the Journal of Child Abuse and Neglect and the Journal of Learning Disabilities are journals dedicated to those topics. If you are interested in these areas, you could read through the abstracts of the studies in one of these journals and select a couple of articles to read. Reading articles in the most recent issues of a journal might provide ideas about a particular issue or problem that could form the focus of a research proposal. It is also a quick way to locate specific articles on your topic and to identify some of the key researchers on a topic. We suggest that you browse through a couple of years of journal issues until you feel that you have a clearer idea of the topic that you want to research. Then it is time to move on to another strategy because it is unlikely that a single journal will provide all of the current information on a topic.

### ***Locating a Review of Literature on a Topic.***

Although your ultimate goal is to find primary sources on your topic, many students find it useful to begin their literature search with a review of the literature. *As noted above, this is a secondary source, but a good review of the literature will help acquaint you with the current issues, authors, research methods, and problems for a particular topic.* The good news is that it does a lot of your work for you! The bad news is that current reviews of literature simply do not exist for all topics.

Important research areas are frequently summarized every couple of years in reference books, such as encyclopedias and handbooks. These are typically located in the reference section of the library, and topics are usually indexed alphabetically. Several journals also specialize in reviews of literature. Note that reviews in encyclopedias and handbooks may well be outdated because these reference books are published only periodically. *Reviews in journals that specialize in reviews of literature are more likely to be up-to-date, but a more limited range of topics will be covered in each issue.* Another approach to finding a review of literature is *to use the words review of literature as one of your terms in searching databases*, a strategy discussed in the next section.

### ***Database Searching***

*A database is a collection of information on articles and materials that have been published, presented at conferences, or created by various educational groups or individuals.* A database will include information about an article, such as the author, title, number of pages, where it was produced or published, and an abstract or summary of the contents of the article. Most databases allow you to combine several terms to find articles. The advantage of computerized databases is that *searching with a specific set of terms is fast*. The disadvantage is that computers look only for the words that you input. So you need to think about how to best describe the information that you want. To do this, you will begin with your research question.

### ***Identifying Types of Articles Using a Database Abstract***

The initial output from a database search will be a list of citations for the articles that match the terms used in your search organized by date. The citation will include the author(s)'s name(s), title of the article, and place of publication or presentation. Usually the abstract contains the information most useful in deciding if you want to obtain and read the article. *Remember that your major goal is to find empirical sources.* There is no fool proof way to determine if a source is empirical based on the abstract, *so look for descriptions of the research methods and results in the abstract.* If you find several articles that are related to your topic, you may want to try out the strategy of following citations described below.

### ***Following Citations***

Sometimes students find a couple of related studies but not much more on their topics. Following citations is one way of expanding the research base in this case. *Citing means that the other studies listed this study in their references, and therefore they are likely to be discussing similar issues or problems.* Clicking on the link brings up a list of the studies that have cited the one produced by your search. Social Science Citations is another database that allows you to enter any reference and find more recent studies that have cited that reference.

### ***People as Sources***

We often remind our students that people can be sources of information, too, and can even be cited as sources in a proposal. Consider first the people you know who have expertise in the area that you wish to research. These may include persons at your workplace, school, or college and people in the community. Documents, training materials, class handouts, and interviews with people can all serve as sources of information on your topic. One advantage of local people is that they may be able to provide information that is specific to the setting or group that you want to research.

### ***Web Sites: Searching the Internet for Scholarly Sources***

As noted earlier, the Internet is an amazingly complex network of information, both good and bad. *We advise extreme caution in using any information from a Web site. If you cannot determine the author of information obtained from the Web or the date it was produced, it has no place in a research proposal.*

## **3. Summarizing Information from Articles**

We encourage students to begin summarizing and abstracting information from articles early in the process of their literature search. There are many different ways to summarize articles, and highlighting parts of the printed article is one way to start. We encourage our students to also begin *writing summaries of the studies using one of the templates referred to as an Article Summary Sheet.* The article summary sheet for primary, research-based studies asks you to *categorize the type of study, identify the research purpose, describe the methods used in the study, summarize the findings and interpretations, and list comments or criticisms that you have or quotes that you might use in your proposal.* The summary does not need to be lengthy, although studies will vary in their complexity. The article summary sheet for secondary sources and non-research-based sources is more general because these sources vary in the information that they contain. *By writing a summary in your*

*own words, you are beginning the process of abstracting information for your review of literature that will be discussed later. As you read and analyse the studies, you can also begin to think about what other information you might need. For example, you might find out that cooperative learning has worked well with fourth graders, but results with students in earlier grades vary, with some groups doing well and others having problems. If the younger students who did well seemed to have better social skills, you might want to look for information on how training students in social skills prepares them for cooperative learning. As you analyse studies, you will also refine your research question in ways that take into account what other researchers have found. Your revised research question might suggest new search key words to try.*

### ***When Do I Have Enough?***

In every educational research class, students want to know how many articles is enough for a research proposal. *There is no magic number that automatically translates into an A grade, in part because different topics will have different amounts of research.* We have watched several students struggle to find more than eight sound empirical studies on looping or multi-age classrooms whereas others find that a search on cooperative learning can turn up several hundred empirical studies. If you are finding hundreds of articles, try to refine your research question so that you can limit your search by including more combinations of variables, group characteristics, or types of settings. If you find only a few related studies, try using different key words.