

## THE RESEARCH PROCESS

(Adapted from CSM Library Materials)

Following the section below titled IMPORTANT INFORMATION ON THE RESEARCH PROCESS, this tutorial outlines the research process in eight stages, linked here for your convenience:

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- STAGE 4. [Decide what type and amount of information is needed, how current it should be, and what types of sources will provide that information.](#)
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### IMPORTANT INFORMATION ON THE RESEARCH PROCESS

Defined in simplest terms, **research** is searching for and gathering information, usually to answer a particular question or problem. Research projects of various types and complexity are an integral part of the college experience and offer you the opportunity to learn a valuable set of skills. In fact, the ability to locate and evaluate information -- which is the essence of research and a valuable skill in many areas of life -- is a large part of what it means to be an educated person.

The focus of this tutorial is on **bibliographic research**, which is any research in which information is gathered from published materials. Traditionally, this has included books, magazines, journals, newspapers and various specialized documents. In addition to printed materials, bibliographic research may also include audio and video recordings, photographs, films, and, more recently, computer-based programs and online information. Until recently, most bibliographic research was done in libraries, but now much of it can be done wherever a computer and network connection are available.

Although this tutorial will emphasize bibliographic research, there are two other broad categories of research you should know. **Empirical research** is any method of collecting information from direct experience, observation or experimentation. **Oral research** is any type of research that involves gathering information from people through interviews, surveys, polls, questionnaires....

Most research done at the undergraduate level is bibliographic research, but the other two methods of research can also be used in your overall project. For example, personally interviewing an expert about a research question on which you are working can often give you insights and information you might never find in published sources.

### **When doing bibliographic research, what should your overall purpose and goal be?**

What end result are you striving for? In some courses, your instructor may only be seeking

a *summary* of what others have already said or written about a topic. For example, you may be asked to write a paper in which you present both sides of a controversial issue. Your own position on the controversy would not be included.

However, often at the college level you will be asked to go beyond merely summarizing and reporting in research projects, so as to present **your own evaluative perspective**. You may be asked not only to summarize a debate but to evaluate each side in order to develop your own thesis—your own view, opinion, or stance. This is more complicated and more challenging than merely copying, reorganizing, and rewriting facts, figures, and dates from various sources and calling it "research." You will still read what others have written on a topic, but now in order to complement and strengthen the development of **your own ideas** which you'll state clearly and specifically in your research paper.

The goal of research is to develop **your own informed opinion** on a topic. This goal is only achieved when you have carefully and widely read what others have written on your topic; analyzed, compared, and evaluated those ideas; and come up with your own conclusions. Ideally, your research paper represents a synthesis of your own perceptions, attitudes, ideas, and experiences supported by information gained from other sources. Although no instructor will expect you to become a world-renowned expert on a topic or settle a long-running debate, you will often be expected to show original thinking in your thesis statement and discussion.

### **STAGE 1: Choose a general subject or area of interest.**

The first step in the research process is to decide on a **general subject** or area of interest. Choose a subject area that interests you. The more curiosity you have about a subject, the more enthusiasm and motivation you'll bring to the project, which will in turn be reflected in the quality of your work. You can browse your textbook, lecture notes, and current magazines and newspapers to get ideas, or you can ask your instructor or college librarian for help in choosing a subject.

It is fine if you only have a very general subject area in mind. For example, you may want to research illegal immigration, alcoholism, freedom of speech, computer networks, economic models, or elementary education. Ultimately, though, each of these subjects is far too broad for a single research project.

### **STAGE 2: Conduct a preliminary exploration of your subject.**

Stage 2 is a critically important part of the research process because *it is here that you are deciding exactly what aspects of your subject you want to focus on.*

To narrow your subject down to a focused research topic, you'll first need to do some preliminary reading to familiarize yourself with your subject and gain a sense of its scope and complexity. As you pre-read, ask yourself the following questions:

- What disciplines or professions fall under this subject area?
- How has this subject developed or changed over time?
- What key concepts and terms are used in this subject area?
- What are some of the current controversial questions concerning this subject?
- Who are the key thinkers and researchers in this area?
- What are some of the key publications in this subject area?

These questions can usually be answered by skimming through relevant articles in general and subject *encyclopedias, research guides, annual review sources, and bibliographic guides*. Once you have gained some background knowledge, you should be able to make significant progress toward formulating a central research question (Stage 3).

**FYI:** A great benefit of conducting a preliminary topic exploration is that it almost always provides you with a preliminary bibliography—a list of books, articles, reports, that you may be able to cite in your paper.

### **STAGE 3: Narrow and shape your subject into a specific topic.**

Your next step is to *focus and narrow your general subject to a **research topic***, which is often stated in the form of a question. The difference between a subject and topic is this:

**A subject** is a broad area of interest from which a more specific *topic* area can be chosen. **A research topic**, is a narrow area of interest that can be thoroughly researched and discussed within the page-length guidelines given by your instructor.

Examples of subjects and topics are given below:

<b>SUBJECT</b>	<b>RESEARCH TOPIC</b>
Elementary education	"What are effective methods for teaching children how to read?"
Journalism	"What are the effects of corporate ownership and media monopolies on news reporting and editorial freedom?"
Astronomy	"What are the latest speculations on the origins of the universe?"
Economics	"How does illegal immigration affect the United States' economy?"
Law/Political Science/Sociology	"What steps, if any, should the government take to censor pornography and hate speech on the Internet?"

*Very Important* Notice that each of the five research topic examples above is phrased as an open-ended question. This approach is essential for it reminds the researcher to deliberate different perspectives. If you begin your research with your conclusions and point of view already determined, you are not undertaking a true research project but falling victim to research bias. In this flawed approach you only consider information and evidence that supports your preconceived opinion and ignore information and evidence that does not. Remember: *It is only after reading broadly, and carefully gathering and evaluating several viewpoints and types of evidence, that you can feel justified about reaching your own conclusions and expressing them in a concise thesis statement.*

**At this stage of the process, you should be able to articulate at least a tentative topic for your research project.** Beware of choosing a topic that is too narrow or too broad. A good rule of thumb is this: If there are entire books written about your topic, it is too broad for a research paper. Conversely, if your research question can be fully answered in a few paragraphs, your topic is too limited. Also beware of choosing a topic that is too recent, obscure, or specialized for you to find published material in a variety of formats. If

you initially choose a topic that is too narrow, broad, or esoteric, you can zero in on an appropriate topic as you move through stages 5-7 of the research process.

Research topics, often stated in the form of a question usually include *at least two aspects or main ideas*, often referred to as **concepts**. (Note: "Concepts" are analogous to the "subject" and "predicate" of a topic sentence. Example: My dad [Concept #1=Subject] is a humorous man - [Concept #2=Predicate].)

Say you've chosen *criminal justice* as your general subject. After preliminary research and background reading, you discover that one major debate within criminal justice is the death penalty and whether or not it reduces violent crime rates. Your first concept (or subject idea) is *death penalty*. Your second concept (or predicate idea) is *violent crime rates*.

Assuming this particular subject focus interests you, a plausible research topic might be:

The effect of the death penalty on violent crime rates in the United States.  
(concept #1) (concept #2)

If you now reword your research topic in the form of a question, it becomes: "How does the *death penalty* affect *violent crime rates* in the United States?"

When wording your research question, it is best to begin with the words **How** or **Why** because these words help you pursue a broad investigation and substantive discussion. So, too, research questions beginning with **What** can be acceptable, depending on how much scope and breadth the rest of the question implies. Note the difference between these two research questions, each beginning with "What":

"What percentage of violent crimes are punished by the death penalty each year in the United States?" (A narrow research question not for most research assignments)

"What is the effect of the death penalty on violent crime rates in the United States?" (A broad research question appropriate for most research projects)

On the other hand, **avoid** starting your research question with the words **Who**, **Where**, or **When**. These words tend to force your research into a limited aspect of your subject and you will be unable to come up with enough material for your project.

#### **STAGE 4: Decide what type and amount of information is needed, how current it should be, and what types of sources will provide that information.**

At this point in the process, you should conduct an information needs analysis to determine how much information you need and what sources might provide that information. Are you preparing a 5-page research paper, a 3-minute speech, or a 15-page term paper? Each project requires different kinds and amounts of information. To help you conduct your information needs analysis, ask yourself the following three questions:

- 1) "**What type** of information do I need on my topic?"
  - background?
  - broad overview?
  - biographical?
  - objective-fact/subjective-opinion?

- statistical?
- primary/secondary accounts?
- narrowly focused discussion?
- current news?
- scholarly/technical/popular discussions?
- analysis and commentary?
- recent/older publications? Both?

## 2) "**How much** information on my topic do I need?"

Your professor may require a minimum number of sources depending on the exact nature of the research project. If your instructor doesn't specify how much information you need to cite or consult during your research, you can decide for yourself based on the amount of information that's available on your topic, the level of expertise you'd like to gain, and of course, the length of the final written or oral presentation.

## 3) "**What sources** of information might provide the information I seek?"

Here you are speculating about the types of materials (information sources) that could possibly give you information pertinent to your topic. They may include, but are not limited to the following:

- reference materials (e.g. general and subject encyclopedias)
- books
- periodicals (newspapers, magazines, journals)
- conference proceedings/papers
- dissertations
- pamphlets
- bibliographies/research guides
- unpublished materials
- people (experts, scholars, others)
- government documents
- Internet resources

### **Print vs. electronic forms of information**

Some students think the research process begins and ends with computers. However, a good researcher uses various search methods because the bulk of information in libraries is in print format and still other information is in a wide variety of formats. Not all information is available in electronic format (and may never be).

### **Advantages of electronic online searching:**

- **Speed.** You can search multiple databases in a matter of seconds, while a comparable search in print indexes takes much longer.
- **Flexibility.** You can link words or search terms in a way that can never be done in print, often with better search results.
- **Variability.** Truncating (shortening) terms allows you to search for all the variations of a term. For example, using the truncated term "college\*" will retrieve "college," "colleges," "collegial," and "collegiate."
- **More resources.** Online searching provides access to many more resources than are available in any one library.
- **Currency.** Online databases are updated more frequently than printed sources.

### **Disadvantages of electronic online searching:**

- **Volume.** You get an enormous number of search results, particularly if you are searching the Internet.
- **False matches.** Database searches often result in a number of false keyword matches. Searching "AIDS" may turn up "study aids," "visual aids," "band-aids."
- **Cross-references.** Perhaps the greatest disadvantage of online searching is the lack of cross-references that take the researcher from a poor choice of keywords to terms that will result in a higher rate of success. This is particularly true if you make a typographical error or spell a word wrong. If your topic is broad, "see also" references (sometimes available in electronic databases) will suggest more appropriate headings. If you haven't picked the right subject heading, the "see" references will lead you to the subject heading in actual use.
- **Older sources.** Since many online databases only index articles published after 1980, you will need to use print indexes to locate older articles. If you plan to do research in the humanities or in history you will most likely need to consult information published prior to 1980.

### **Scholarly Journals versus Popular Magazines**

Periodicals can be roughly categorized into two types: popular and scholarly. Sometimes your instructor will insist on your using a certain number of scholarly sources. Here is how to tell the difference between the two:

#### Scholarly and Professional Journals

**Definition:** Scholarly publications are concerned with academic study, especially research.  
**Purpose:** To report on original research or experimentation and share with the profession.  
**Language:** Written by and for scholars in the field, using discipline terminology and jargon.  
**Sources:** Always cite their sources in the form of footnotes or bibliographies.  
**Examples:** *New England Journal of Medicine, Harvard Business Review...*

#### Popular Magazines

**Definition:** Popular magazines appeal to the taste and intelligence of the general public.  
**Purpose:** To provide general information to a broad audience.  
**Language:** For any audience.  
**Sources:** Sometimes cite sources, though more often do not.  
**Examples:** *Fortune, Scientific American, Psychology Today, Time Magazine*

### **STAGE 5: Choose appropriate access tools, develop a search strategy for each tool, and conduct a systematic, planned search using each tool.**

Once you've determined 1) *what kind of information you need* and 2) *what types of sources might provide that information*, you need to 3) *choose the right **access tool**\**, 4) *develop a search strategy for using that access tool*, and 5) *conduct a search for information*.

*\*An access tool is a print or computerized "search aid" that leads you to various kinds of information. For example, online catalogs (OPACs) and periodical indexes are access tools.*

***It is crucial to remember that the access tool(s) you decide to use depends on the type and level of information you're seeking.*** In other words, the tool must be able to access (or at least describe in bibliographic citation) the information you need. For example, if you're looking for an in-depth overview of 20<sup>th</sup>-Century Chinese history, one type of information source you probably need is a book. The access tool to find books is the library catalog, *not* an index or abstract. On the other hand, if you were seeking the results of the most recent national elections in China, a periodical index or the Internet would be the most helpful access tool.

***Time  
Saver!***

Once you've chosen an access tool, you must develop a **search strategy** for using it. A search strategy is a specific plan for how you'll conduct an efficient and effective search so that you uncover the most relevant information that a particular access tool can provide on your topic. *Taking the time to plan a search strategy* adds precision to your search and saves you lots of time: A carefully crafted search helps you avoid the frustration of wading through long lists of irrelevant citations. Listed below are the main steps to follow when developing a search strategy for any given access tool. You will learn more about each of these steps as you progress through the course:

### **Steps for Developing a Search Strategy:**

1. Divide your research question into concepts (main ideas).
2. Identify synonyms or related terms for each concept.
3. Combine terms using Boolean logic (AND, OR).
4. Conduct a search of the database in the keyword mode.
5. Consider field searching, truncation, and proximity operators if the access tool provides these features.

### **STAGE 6: Evaluate search citations and select the most relevant to your topic.**

Once you have conducted a search using appropriate access tools, you'll have a list of citations (aka, references, entries, records, or hits) that describe books, articles, or other sources of information. At this point in the research process, it is extremely important that you **evaluate these citations for relevancy and quality**, significantly using your critical thinking and evaluation skills. **Computers do not make research decisions, you do.**

Listed below are three important parts of a citation that you should closely examine. Citations often contain "clues" that help you decide if the entire item is of sufficient quality and relevance to track down and read in its entirety:

1. Title: Read the entire title, especially the subtitle if there is one, and look for key words and phrases that indicate relevance to your topic.
2. Abstract: Computerized indexes sometime include brief **abstracts** (summaries) of the item described. Read the abstract to decide if the item is relevant to your topic.
3. Author: Is this an author that you have come across before in your reading—say in an encyclopedia article, review article, or bibliography? Do other scholars and writers often refer to or cite the author? If so, he/she is probably pivotal in the field you're researching.

### **STAGE 7: Read, take notes, and evaluate sources selected as relevant in Stage 6.**

You are now at the point where you are reading and taking notes from the relevant sources you chose in Stage 6. When taking notes it is important that you use your own words and phrases to summarize and paraphrase what you read. If you borrow the language of your source too closely, or don't give credit to a source either through quotation marks or proper documentation, you are guilty of plagiarism. If you are uncertain about the process of notetaking and avoiding **plagiarism**, consult one of the many research guides in the CSM library, such as *The Facts on File Guide to Research*, by Jeff Lenburg, or *The Prentice Hall Writer's Guide to Research and Documentation*, by Kirk G. Rasmussen.

### **STAGE 8: Revise, refine, and repeat stages 1-7 as needed.**

As noted at the start of this discussion, this model of the research process is flexible and allows you to react to what happens along the way and respond accordingly. If, for example, your search result list in Stage 5 is hundreds or thousands of records long, you have found too much information and may have to narrow the focus of your topic (Stage 3) or conduct a more precise search, perhaps with different terms. Conversely, if your search uncovers too little information, you may have to broaden its scope. Remember, as you go through the research process you are continually evaluating what's happening in terms of your overall purpose -- finding information that meets your needs. If your research goals are not being met, you have the freedom to make the necessary corrections or adjustments at any stage of the process.