Chapter 2

Developing a Search Strategy

If you want only a quick take on a common idea, you can simply type the appropriate phrase into Google's search box and quickly find your answer. However, if you are working on a research paper, you may want to be sure that you find as many of the most relevant sources as possible. To perform a search that will be extensive and inclusive, you need to plan your search strategy. This chapter will guide you.

2.1 Think About What You Want

The first step is to frame your problem in terms of the kind of information you are looking for. What do you need? Here are some possibilities:

- *Facts or analysis from an organization*. Think of any likely organizations you might want to visit online. Guess an organization's name related to your topic, such as *kidney foundation*. (See Tip 2.1 below.)

- *Government data or findings*. Need statistics? Need a government site? Search for the name of the government agency you want first. For example, *National Transportation Safety Board*. Don't know the agency? Try a phrase related to your topic: *railroad accident investigation agency*.

- *Laws or court rulings*. The keyword *ruling* will help. Try a search on *affirmative action* and then another on *affirmative action ruling* to see the difference.

- *Pictures or drawings*. You might include the acronyms *jpg* and *gif* in your search phrase. (Or use Google Image Search—see Chapter 9.)

The list could go on, but you can see that you should develop early on some kind of idea about what you are looking for. Of course, serendipity is always a happy factor, where you will know what you want when you see it, but for a good start, take some time to think about your research needs.

Tip 2.1 Ask for an Organization

If you think that an organization might exist that relates to your topic, include an organizational descriptor in your search phrase. Here are some examples:

- foundation
- organization
- institute
- association
- corporation
- agency
- board
- department

2.2 Develop Relevant Keywords

The next step is to develop a set of keywords or phrases that will cover the topic of your research. Many topics can be expressed in several ways, so it's important to take this into account. And here is the golden secret to searching with Google (or with any full-text search engine). Remember that you are not necessarily looking for an official subject category or even for the way you think about the subject. When you choose your search terms, *you are trying to match words that actually appear on the pages* that have information relevant to your search. In other words, you need to ask yourself, "How will those who write the pages I want express this idea?" or "What words are the page creators likely to use?" Often, their words and your words will be the same. But keep in mind what you are actually searching for: existing words on a Web page.

Tip 2.2 Include the Type of Information in Your Search String

If you are looking for a specific type of information related to your topic, you might plan to include the appropriate descriptor in your search phrase. Here are some sample information descriptors. Try some searches on a topic of your choice both with and without the descriptor:

- review
- FAQ
- archive
- newsletter
- report
- test drive
- evaluation
- advice
- results
- statistics
- data
- study
- white paper

A useful way to develop your first list of keywords is to follow these simple steps.

• Write out your topic, question, or problem in two or three sentences. Think of alternative ways to express it. For example, use common names and scientific names, synonyms, and even descriptions.
• Underline or circle the important concepts you have mentioned.
• Write down several searchable keywords and keyword phrases that describe, refer to, or might be associated with those concepts.
• Arrange your keyword sets into what you think is the most likely order to yield the best results.

Tip 2.3 Use the Dictionary

After you search on one or more keywords, click on the dictionary definition to see whether further relevant terms are used. For example, after a search on *geranium*, look up the definition and find that the term is also commonly used to refer to *pelargonium* plants. The definition also provides common names: *cranesbill* and *storksbill*. You now have three more keywords for your search.

Relevant keywords include the most common ways an idea is described, the standard technical expressions used for it, and acronyms referring to it (as in OCD for Obsessive Compulsive Disorder). As you read about your subject, write down some of the words used to describe the subject itself (*Teapot Dome*, for example), together with words or ideas you see used in connection to it (*Harding, oil reserve, scandal*), which may supply other search terms or qualifier terms when you build your queries.

Tip 2.4 Use a Thesaurus

A powerful way to develop a list of synonyms related to your search topic is to use a thesaurus. Where can you find a thesaurus? Simply type in the word *thesaurus* in the Google search box and you will find several. You might also type in a synonym for *thesaurus* (this tip is about synonyms, you know), which is *synonym dictionary*, and you will find some more tools.

2.3 Use the FOREST LOG Scheme

For a more extensive search, you can continue to develop keywords from your initial set by using the FOREST LOG scheme. FOREST LOG is a method for developing many different but relevant keywords that can be assembled into a search process. Suppose, for example, that you want to perform an extensive search about the subject of satellite photographs of the earth. Here is how the FOREST LOG scheme would help.

FO
Forms

Identify the forms or variants of the keywords you want to use, including commonly used abbreviations. For example, forms of *photograph* include *photographs, photo, photos, photographic, photography*. During your search, you may want to include one or more of these different forms to make sure you hit pages that contain one form but not another. (Google does not support stemming, the use of a wildcard to match all forms of a word, as in *photo**, so you must include variants.) In a few cases, British English and American English may spell the same word slightly differently, so you may want to include both spellings in your search. Examples: *flavor, flavour, aluminum, aluminium, polyethylene, polythene*.

RE
Related Terms

Related terms are those words that are often found in connection with the search term, such as words connected to the subject area or category. In our photography example, words like *graphic, earth visualization, global mapping,* and *earth pictorial* might be relevant. For the topic as a whole (satellite photographs of the earth), terms like *Keyhole* and *KH-11* (the names of two photographic spy satellites) might be useful as well.

ST
Synonymous
Terms

Synonymous terms are words of similar meaning to your keywords. *Image, picture*, and *snapshot* would be synonyms for photograph. A thesaurus will supply help here, as will your reading, where you will locate synonyms as you progress with your research.

LOG
Ladder of
Generalization

Most of your search terms will be nouns (since nouns name persons, places, things, ideas, concepts, events and so on), and nouns exist along a continuum from very specific (*KH-11*) to more general (*satellite photograph*) to even more general (*earth image*) to very abstract (*planetary representation*). The farther up the ladder of generalization you go, the broader and more inclusive the term, and hence, generally speaking, the more hits you will get. For example, *KH-11* returns 4500 hits and *earth image* (as an exact phrase—see Chapter 3) returns 7500. You can to some extent control the number of results you get in your searches by moving up or down the ladder of generalization. But remember that the further up you go, the less focused the results may be.

Tip 2.5 One-Stop Acronyms

You can always go to Acronym Finder (`www.acronymfinder.com`) to find one or more definitions of an acronym you have encountered, but you can often find the definition through a quick query in Google. Many acronyms are defined somewhere in Web articles, and when

they are, the writer often uses an expression such as "ATF stands for Alcohol, Tobacco, and Firearms." To locate the definition of an acronym then, just follow the lead. Try some of these examples and then model your own queries after them (remember that Google is not case sensitive so you don't need all caps, and remember to enclose the query in quotation marks because you want an exact phrase search):

- *"rflp stands for"*
- *"mhd stands for"*
- *"dlp stands for"*
- *"rcmp stands for"*

One advantage of using Google to find the meaning of an acronym rather than using Acronym Finder or a standard dictionary is that you will often get a more extended, encyclopedic discussion of the term. Moreover, you may find a variety of opinions about the term. If you don't find the explanation you want, try substituting "means" in the place of "stands for."

2.4 General Guidelines for Searching

As you continue to think about what you want to find and what questions you want to answer, follow these guidelines for developing an effective search strategy:

- *Keep a search log.* Your research may require several sessions spread out over several days, making it difficult to remember just what terms you used in your search, how many results you looked at, how satisfied you were with those results, and so on. Therefore, you'll be a more productive researcher if you write down your search practices. Using a piece of paper or word processing file with columns for date, search expression, number of results looked at, and useful sites or articles located will help you avoid duplicating your research efforts. A note as simple as "looked at first 20" next to a particular search phrase will allow you to resume your analysis of results right where you left off.
- *Continue to add keywords and search phrases* based on the results of your early searching. You will discover common ways of expressing your topic and common ideas associated with it. Using some of these words will help focus your research better and make your searches more effective.
- *Create search phrases of about two to six words*. The fewer words you use, the more results you will get, but the more widely spread (or less focused) the results might be. The exception to this rule is the one-word search that contains a rare or highly technical term not likely to have many appearances on the Web. For example, because *isoclinic* is a rare term (only 680 hits), it can stand alone as a search. If you think your term is likely to be rare, give it a try by itself. Normally, though, remember that a search with several words allows Google's

PageRank™ and relevance system to work better because it has more to work with. Too many words, on the other hand, might eliminate pages of value that simply do not have all the words on the page. Remember that Google defaults to an AND between each word you enter, so it looks for pages that have *every* word in your search phrase. In other words, every word you add to your search string narrows your search.

• *Don't be more general than you need to be*. If you want information about Samuel Johnson, type in his whole name, not just *Johnson*. If you want information about *The Emperor Concerto*, type that in first, before trying *Beethoven*. And certainly stay away from *music* or *concerto* by itself.

In the next chapter, we'll look at the details of building a search query based on the strategies you've developed here.