A person who is information literate in the Scope pillar is able to assess current knowledge and identify gaps.

The above statement is from the Seven Pillars of Information Literacy, the model of information literacy presented in the Introduction of this book. The following list, from the creators of the Seven Pillars model, provides more detail about the Scope pillar. Components include:

- "Know what you don't know" to identify any information gaps
- Identify which types of information will best meet the need
- Identify the available search tools, such as general and subject specific resources at different levels
- Identify different formats in which information may be provided
- Demonstrate the ability to use new tools as they become available

Additionally, the information literate person in the Scope pillar understands:

- What types of information are available
- The characteristics of the different types of information source available to them and how they may be affected by the format (digital, print)
- The publication process in terms of why individuals publish and the currency of information
- Issues of accessibility
- What services are available to help and how to access them
Now let’s examine these concepts.

Scenario

Harry and Sally Dennis have lived in central New York State for 25 years. They work as teachers in the Cortland City School District. Lately, they have been closely following the debate about hydraulic fracturing or fracking in New York State and are concerned about their ability to influence the course of fracking in the future. Although they don’t own much land, they are worried about the possible adverse effect on drinking water, disruption to their environment, and the influx of people that fracking-related jobs will bring into their city. Sally Dennis is considering running for public office in her town to have a more
powerful voice in the fracking debate. To receive the backing of her local political party, Sally needs to present some persuasive arguments against hydraulic fracking that are well thought out and scientifically sound. She needs to engage in substantial research on this issue so that she can present herself as an expert.

At this point, all that Sally really knows about fracking is what she has heard from neighbors and news shows. How will she proceed with her research? Sally’s intentions are laudable and she knows she will have to fill in the information gaps in her fracking issue knowledge before she can be taken seriously as a candidate for city office. Knowing that you don’t have sufficient information to solve an information need is one important aspect of information literacy. It enables you to obtain that missing information.

Different Information Formats and Their Characteristics

In addition to knowing that you are missing essential information, another component of information literacy is understanding that the information you seek may be available in different formats such as books, journal articles, government documents, blog postings, and news items. Each format has a unique value. The graphic below represents a common process of information dissemination. When an event happens, we usually hear about it from news sources—broadcast, web, and print. More in-depth exploration and analysis of the event often comes from government studies and scholarly journal articles. Deeper exploration, as well as an overview of much of the information available about the event, is often published in book format.

Information sources from less in-depth to more in-depth
Sally realizes that she needs to obtain an overview of the whole fracking debate. She needs to determine how severe the consequences of fracking could be and what is actually involved in the fracking process. Where can she find such an overview and how can she trust that the overview is accurate and complete?

Sally believes that she can find this information online and uses Google to search the World Wide Web. She quickly finds that there is an overwhelming amount of online information about fracking. Her search has resulted in more than 11,000,000 sites. Sally knows that she doesn’t have to peruse all of these resources, but those that she does examine do not provide a comprehensive overview of the issues. She also notices that many of the sites are obviously advocating their own point of view.

A better first step is to identify a library that contains academic resources so that Sally will have access to more scholarly treatments of the subject. Sally can use the SUNY union catalog or Worldcat.org (that will allow her to search numerous academic libraries at once).

Library Catalogs

A library catalog is a database that contains all of the items located in a library as well as all of the items to which the library has access. It allows you to search for items by title, author, subject, and keyword. A keyword is a word that is found anywhere within the record of an item in the catalog. A catalog record displays information that is pertinent to one item, which could be a book, a journal, a government document, or a video or audio recording.

If you search by subject in an academic library catalog you can take advantage of the controlled vocabulary created by the Library of Congress. Controlled vocabulary consists of terms or phrases that have been selected to describe a concept. For example, the Library of Congress has selected the phrase “Motion Picture” to represent films and movies. So, if you are looking for books about movies, you would enter the phrase “Motion Picture” into the search box. Controlled vocabulary is important because it helps pull together all of the items about one topic. In this example, you would not have to conduct individual searches for movies, then motion pictures, then film; you could just search once for motion pictures and retrieve all the items on movies and film. You can discover subject terms in item catalog records.

Many libraries provide catalog discovery interfaces that provide cues to help refine a search. This makes it easier to find items on specific topics. For example, if Sally enters the search terms “Hydraulic Fracturing” into a catalog with a discovery interface, the results page will include suggestions for refinements including several different aspects of the topic. Sally can click on any of these suggested refinements to focus her search.

Using this method, Sally finds several good resources on her topic, now she needs to locate them. The SUNY catalog will provide a list of the institutions that own the book she wants.
to read. She can then link to the institution’s own library catalog to find out more information on the location and status of the item.

Why should Sally choose books instead of another format? Books can provide an overview of a broad topic. Often, the author has gathered the information from multiple sources and created an easy to understand overview. Sally can later look for corroborating evidence in government documents and journal articles. Books are a good information resource for this stage of her research.

Once Sally starts to locate useful information resources, she realizes that there are further gaps in her knowledge. How does she decide which books to use? She needs the most current information, because she certainly doesn't want to get caught spouting outdated information.

Looking at publication date will help her to choose the most recent items.

How can she get these books? She is not a SUNY student or faculty member.

Interlibrary loan services at her public library will allow her to access books from an academic library or the college in her area may allow community members to borrow materials. There is a wealth of knowledge contained in the resources of academic and public libraries throughout the United States. Single libraries can't hope to collect all of the resources available on a topic. Fortunately, libraries are happy to share their resources and they do this through interlibrary loan. Interlibrary loan allows you to borrow books and other information resources regardless of where they are located. If you know that a book exists, ask your library to request it through their interlibrary loan program. This service is available at both academic and most public libraries.

Checking for Further Knowledge Gaps

Sally has had a chance to review the books that she chose and although her understanding of the issues associated with fracking has improved, she still needs more specific information from the point of view of the energy industry, the government, and the scientific community. Sally knows that if she doesn't investigate all points of view, she will not be able to speak intelligently about the issues involved in the fracking debate. Where will she get this information? Because this information should be as current as possible, much of it will not be available in book format. Sally will need to look for scholarly journal articles and government documents. It is not likely that the public library will have the depth and scope of information that Sally now needs. Fortunately, Sally has just enrolled in a class at her local SUNY school and is able to use the resources at this academic library. However, when Sally visits the library, she finds that the amount of information available is overwhelming. There are many databases that will help Sally find journal articles on almost any topic. There are also many kinds of government information, some in article format, some as documents,
and some as published rules and regulations. Sally suddenly feels out of her element and doesn't have any idea of where to start her research.

Databases

Sally should start her search for journal articles with research databases. Research databases contain records of journal articles, documents, book chapters, and other resources. Online library catalogs differ from other research databases in that they contain only the items available through a particular library or library system. Research databases are often either broad or comprehensive collections and are not tied to the physical items available at any one library. Many databases provide the full-text of articles and can be searched by subject, author, or title. Another type of database provides just the information about articles and may provide tools for you to find the full text in another database. The databases that contain resources for a vast array of subjects are referred to as general or multidisciplinary databases. Other databases are devoted to a single subject, and are known as subject-specific databases. Databases are made up of:

- Records: A record contains descriptive information that is pertinent to one item which may be a book, a chapter, an article, a document, or other information unit.
- Fields: These are part of the record and they contain information that pertains to one aspect of an item such as the title, author, publication date, and subject.
- The subject field can sometimes be labeled subject heading or descriptor. This is the field that contains controlled vocabulary. Controlled vocabulary in a database is similar to controlled vocabulary in a Library Catalog, but each database usually has a unique controlled vocabulary unrelated to Library of Congress classifications. Many databases will make their controlled vocabulary available in a thesaurus. If the database you are searching does not have a thesaurus, use the subject field in a record to find relevant subject terms.

Below is the first screen of a subject specific database called GEORef. This database covers technical literature on geology and geophysics. The thesaurus is circled. Clicking on the thesaurus allows you to find controlled vocabulary that will focus your search. In this search, Sally has typed the word “fracking” in the search box and only retrieved 23 records. When Sally uses the controlled vocabulary phrase “hydraulic fracturing,” she is able to increase her search results. In fact, she has retrieved too many records. Now she wants to limit her search, but she still wants to obtain the most relevant articles available.
Boolean Operators

One way to limit a database search is to use Boolean operators; words you can add to a search to narrow or broaden your search results. They are and, or, and not. You can usually find these words in the advanced search query area of a database. And will narrow your search. For example, if you are interested in fresh water fishing you would enter the terms “fish and freshwater.” Your results would then include records that only contained both of these words.

The green overlapping area in the diagram above represents the results from the “fish and freshwater” search.
Or will broaden your search and is usually used with synonyms. If you are interested in finding information on mammals found in the Atlantic Ocean, you could enter the terms “whales or dolphins”.

The circles above represent the or search. All of the records that contain one or another, or both of your search terms will be in your results list.

Not will eliminate a term from your results. If you were looking for information on all Atlantic Ocean fish except Bluefish, you would enter “fish not bluefish.”

The larger green circle represents the results that you would retrieve with this search.

Let’s go back to Sally’s search of the GEORef database. If you remember, she searched the controlled vocabulary term, “hydraulic fracturing.” She can use and with the phrase “Marcellus Shale” to focus and limit her results. Sally’s search query is now “hydraulic fracturing and Marcellus Shale.” You can see this represented below. The overlapping area represents the records this search will retrieve.
More information on Boolean Operators can be found in the Plan chapter.

Database searching can seem confusing at first, but the more you use databases, the easier it gets and most of the time, the results you are able to retrieve are superior to the results that you will get from a simple internet search.

Other Information Sources

After taking some time to think about her goal, which is to present a persuasive argument on why she would be a good candidate for public office, Sally decides to concentrate on obtaining relevant government information. After all, she hopes to become part of the government, so she should have some knowledge of the government’s role in the fracking issue.

Government information consists of any information produced by local, state, national, or international governments and is usually available at no cost. However, sometimes it is reproduced by a commercial entity with added value. Look for websites that are created by official government entities, such as the U.S. Department of the Interior at http://www.doi.gov/index.cfm and Thomas, the congressional website at Thomas.loc.gov. New York State’s website can be found at www.ny.gov. It contains information from all New York State government branches. As Sally will discover, you can usually find a wealth of reliable information in government sources.

Even though she has narrowed the scope of her search for information resources, Sally is still confronted with a myriad of information formats. With help from a reference librarian,
Sally discovers a research guide on government information available in the library. She notices that there is a section for New York State that she can explore.

She breathes a sigh of relief when she sees a whole section on the environment that includes a link to the New York State Department of Environmental Conservation’s website, which has many documents and regulations on the topic of Hydraulic Fracturing. The reference librarian continues to assist Sally to find the most useful information as she navigates through the site. Since this information is freely available to the public, Sally is able to access the site from home and spends many hours reading the documents.

Conclusion

Sally has demonstrated that she is competent in the Scope information literacy pillar. She was able to determine that there were gaps in her knowledge and she formulated a plan to locate information to close those gaps. Sally became aware that information was available in many different formats and she was able to choose the formats that were most relevant to her needs: books and government information. In addition, she was able to navigate a complex information environment—the New York State Department of Environmental Conservation—to identify the information that was most useful for her purpose. She did encounter some barriers:

- The information she found using Google was not useful because there was too much and it was biased.
- She had to determine which information formats would best serve her needs.
- Her public library didn’t have the required information.
- She was overwhelmed by the resources available at the academic library.

Sally was able to overcome all of these common research pitfalls. Consulting a reference librarian was a good way for her to obtain information that she might otherwise have not thought to use.

Exercise: Searching in Databases

1. Search both the SUNY connect catalog and Worldcat.org to identify possible books that will provide the information that Sally is seeking. Choose a few resources based on information provided in catalog record and explain why these resources will help Sally solve her knowledge gap.

2. Using an online catalog, identify both a print resource and an online resource on one specific topic. Compare these resources in terms of content and currency. Which resource would be most useful for obtaining an in depth understanding of the topic? Which would be more useful for gaining a broad overview of the topic?
3. Use a newspaper database, such as Proquest Historical Newspapers to find a newspaper article written shortly after a well-known news event such as the immediate results of the election for the President of the United States in 2000. Compare that information with the information that we now have on that contested Presidential Election. What is missing from the newspaper account? What are some possible information sources that would provide the missing information from the early reports?