

Research Strategies

Developing Keywords

You must use words most likely to be used by other authors researching and writing about your topic. You need to match what the authors are writing.

What are keywords, synonyms and related words you can also use?

The words you might use are not the ones used by researchers and scholars. As you conduct your research, note different wordings that are associated with your topic.

We recommend using a chart like in the box below. While reading your sources, add important keywords and concepts to the chart. This will help you keep track of your searches and make your research go quicker.

Research Question: Does watching reality TV have an impact on teenagers in the audience?

Keyword ONE	Keyword TWO	Keyword THREE
reality tv	teenagers	audience
<ul style="list-style-type: none">• reality television• reality TV• reality programming• reality show	<ul style="list-style-type: none">• teens• adolescents• young adults• teenager• minor• immature• youth	<ul style="list-style-type: none">• public• viewers• spectators• listeners

Most of the databases you will come across have search bar options that is highly reminiscent of the single search box found on Google-type searches engine sites, where you can type in several words and retrieve results that are at least somewhat relevant.

Database searching is much more selective and will be most effective if you can narrow your topic into concepts.

One method you can use is a chart like the chart below, organizing your topic into 2 or 3 concepts.

(Concept 1) _____ OR _____ (Synonymous terms dealing with Concept 1)

(Concept 2) _____ OR _____ (Synonymous terms dealing with Concept 2)

(Concept 3) _____ OR _____ (Synonymous terms dealing with Concept 3)

Using the first example from the Narrowing Your Topic section on the last page, you can break up your research topic into basic concepts such as:

(Concept 1) "speech impairment" OR "articulation impairment"

(Concept 2) sibling* OR brother* OR sister*

Databases offer some unique search options to narrow or broaden your search

- Add quotation marks around phrases to retrieve that exact phrase.
- Add the truncation symbol to the end of root words to retrieve multiple word endings. For example, the truncation symbol for most databases is the asterisk * (for multiple characters -- metho* will retrieve results for method, methods, methodology, etc.) and the question mark ? (for single characters -- wom?n will retrieve results for woman or women).

Use the key terms you have developed as your entries in the database search engine. If you are searching multiple concepts simultaneously, use the Advanced Search function and separate each concept on individual lines connected by Boolean operators.

If your search does not return any results, first check your spelling. Secondly, check your search terms. Most databases have a Subject Terms/Thesaurus feature where you can enter your concepts and determine if you are using the correct terms that will be recognized by the database.

Boolean Operators Really Work

Boolean Operators link concepts and are used to broaden or narrow your search. Briefly, here's how they work:

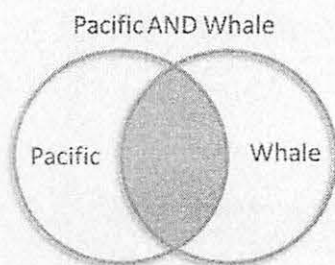
AND - finds results with your *all* search terms. AND narrows your search.

OR - finds results with *any* of your search terms. OR broadens your search.

NOT - finds results with *only one* of your search terms. NOT narrows your search.

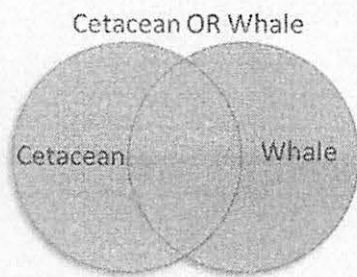
Boolean operators (AND, OR, and NOT) are used to connect keywords and concepts when searching.

Operator	Example	Result
AND	business AND ethics cooking AND Spain	Retrieves records that contain <i>ALL</i> of the search terms.
OR	hotels OR motels www OR world wide web theater OR theatre	Retrieves records that contain <i>ANY</i> of the search terms, but does not necessarily include all of them.
NOT	java NOT coffee Trudeau NOT Justin	Excludes records containing the second search term.



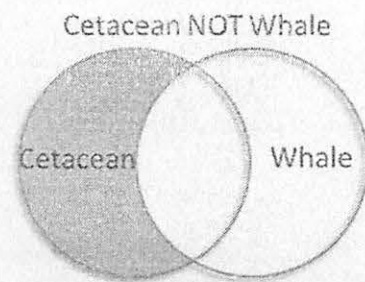
AND is used to narrow down your search. When you add AND between two or more search terms, your search results will include all of your search terms.

The blue area in the illustration above represents the results that would be returned for the search **Pacific AND Whale**. All the articles will have both terms.



OR is used to broaden your search. When you add OR between two or more search terms, your search results will include either of your search terms.

The blue area in the illustration above represents the results that would be returned for the search **Cetacean OR Whale**. All the articles will have both terms.



NOT is used to narrow your search. When you add NOT between two or more search terms, your search results will include only the term before the NOT.

The blue area in the illustration above represents the results that would be returned for the search **Cetacean NOT Whale**. All the articles will have only one of the terms - Cetacean.

Source: College of the Rockies/Library Services

Database Search Tips: Keywords vs. subjects

What to look for

To find subject headings for your topic:

- Look to see if the database has an online thesaurus to browse for subjects that match your topic (check the Help screens).
- Some databases publish thesauri in print (e.g. Thesaurus of Psychological Index Terms for the PsycInfo database). Ask Us for help using thesauri.

Another way to find subject headings:

- Start with a keyword search, using words/phrases that describe your topic.
- Browse the results; choose 2 or 3 that are relevant.
- Look at the Subject or Descriptor field and note the terms used (write them down).
- Redo your search using those terms.
- Your results will be more precise than your initial keyword search.

What are subject headings and keywords?

Subject headings describe the content of each item in a database. Use these headings to find relevant items on the same topic. Searching by subject headings (a.k.a. descriptors) is the most precise way to search article databases.

It is not easy to guess which subject headings are used in a given database. For example, the phone book's Yellow Pages use subject headings. If you look for "Movie Theatres" you will find nothing, as they are listed under the subject heading "Theatres - Movies."

Keyword searching is how you typically search web search engines. Think of important words or phrases and type them in to get results.

Here are some key points about each type of search:

Keywords	vs.	Subjects
<ul style="list-style-type: none"> • natural language words describing your topic - good to start with 		<ul style="list-style-type: none"> • pre-defined "controlled vocabulary" words used to describe the content of each item (book, journal article) in a database
<ul style="list-style-type: none"> • more flexible to search by - can combine together in many ways 		<ul style="list-style-type: none"> • less flexible to search by - need to know the exact controlled vocabulary term
<ul style="list-style-type: none"> • database looks for keywords anywhere in the record - not necessarily connected together 		<ul style="list-style-type: none"> • database looks for subjects only in the subject heading or descriptor field, where the most relevant words appear
<ul style="list-style-type: none"> • may yield too many or too few results 		<ul style="list-style-type: none"> • if too many results - also uses subheadings to focus on one aspect of the broader subject

<ul style="list-style-type: none"> • may yield many irrelevant results 		<ul style="list-style-type: none"> • results usually very relevant to the topic
---	--	--

TOP TEN DATABASE SEARCH TIPS

1. SEARCH TERMS: *Identify Key Concepts*

Identify key concepts and terms related to our topic area.

There may be just one concept or, much more likely, several concepts that will need to be considered.

Within each concept, you will need to determine appropriate words or phrases, including synonyms, broader terms, related terms and narrower terms. Revise this list during the actual search process by noting and using subject headings that have been assigned to relevant books and articles.

For example if planning to do a research paper on "gun control" other terms you might use are firearms and law or legislation or

firearms and ownership or guns and violent crimes

2. DATABASE SELECTION

Broadly speaking you can search three distinct places: library catalogs (for books), databases (for articles) and the freely available Internet (for rare needles in the haystack).

Books, searchable via library catalogs, are great sources of both general and highly specific information.

Databases provide access to high quality, up-to-date information from respected publishers and publications. They provide sophisticated search capabilities and access in many instances to online full-text articles.

Be very careful using the freely available web. You risk finding too much "junk," with web pages that contain potentially biased information from unreliable and unverifiable sources. For finding accurate, useful information quickly, the web is generally no match for database and catalog searching.

Gear the databases you search to your topic. For Example: If your topic deals with psychology, search psychology databases such as Psychology and Behavioral Sciences Collection. For business topics, search Business Source Premier.

For interdisciplinary topics, search general databases such as Academic Search Premier, MasterFile Premier and EthnicNews. There are brief descriptions of each database on the library's databases page. If you have any questions regarding which database(s) to search ask a librarian.

3 START THE SEARCH: *Start with a general search*

If you start with a complicated search, you will probably retrieve a very small number of articles.

You are much better off to start with a general search and then refine your search from there.

For example, if you are researching various aspects of the subject of obesity, start with a simple search just on the term obesity.

Enter this one concept and analyze results.

Ask yourself the following questions:

- How much information is available on my topic?
- Are there better terms that I could be using?
- Will I need to narrow or expand my topic?
-

4. ADVANCED SEARCH

Nearly all databases have an advanced search option that lets you to do sophisticated searches by combining the various concepts you have already identified for your search.

The advanced search mode will also allow you specify which fields you want to search, including author name, article title, publication title, subject, etc.

5. SUBJECT HEADINGS

Articles and books in library databases and catalogs are assigned subject headings by people who review each document.

Each article or book is looked at carefully and then assigned one or more subject headings.

These subject headings are selected from a specific list of possible subject headings.
If a subject heading is used for one article or book on the topic, the same heading will be used for other articles or books on the topic.
Most books and articles are assigned many subject headings.
You can determine relevant subject headings by finding an article or two that deals directly with your research topic.
Then do a search on the subject headings assigned to those articles.
You can use the advanced search mode to search for your terms in the subject field.

6. BOOLEAN OPERATORS : AND, OR, NOT

When you want to combine search terms, you will need to use what are called Boolean operators or connectors. This is best done using the advanced search mode.

For example: if you are researching ways to combat obesity, you need to split your search into two concepts: combat and obesity.

Next, you need to connect these two terms with a Boolean operator.

Using the operator **AND** will retrieve articles that mention **both terms** somewhere in the article.

Using the operator **OR** between the two terms will retrieve articles that mention **either term**.

In this case, **AND** is the appropriate connector because you want to retrieve articles that address both concepts, combat and obesity.

The use of **AND** generally will retrieve a **smaller set of results**.

Use of Boolean operators allows you considerable flexibility in your search.

As another example, if you wanted to retrieve articles that dealt with either obesity or over weight, then the appropriate Boolean operator is **OR**.

The search obesity OR overweight will retrieve articles that mention either term.

The use of **OR** generally will retrieve a **larger set of results**.

OR is especially useful when you are searching with terms that are synonyms or that deal with the same basic concept.

Using the **OR** in your search will retrieve articles that contain any of the synonyms that you use.

If you wanted to **exclude terms**, you would use the Boolean operator **NOT**.

For example, if you were interested in the subject obesity, but not interested in how fast-foods relate to obesity, you could exclude all items that have the term fast-foods by searching obesity **NOT** fast-foods.

Effective use of Boolean operators is essential to sophisticated research.

7. TRUNCATION

Truncate search terms to retrieve all variants of a term.

Truncation symbols vary from database to database. Examples include: *, ?, !, % and \$.

For example: If you search on the term plagiar* in ProQuest, you will retrieve articles that contain any words that begin with the letters plagiar, including: plagiarism, plagiarize, plagiarizing, plagiarized, plagiarizer, plagiarizers, plagiarist, etc.

Using the truncation symbol will allow you to broaden your search to include materials on any variant of a term.

Most database search interfaces are not sophisticated enough to search for all variants of a term automatically.

8. LIMITING

Most databases have limiting features that will let you focus the results of your search.

You may be able to limit your searches to retrieve only scholarly or peer-reviewed articles.

You can also limit to particular date ranges or particular journals.

Many databases provide their own unique limiters, which allow you to limit by intended audience, item type (peer reviewed, journal or newspaper article), language, country of publication and more.

Limiting your searches will allow you to **narrow** your search, resulting in a smaller list of more relevant materials.

9. ADAPT THE SEARCH:

- **NARROWING** If you are retrieving too many articles, focus your search by adding terms, limiting terms to particular fields, or by limiting your searches.
 - **EXPANDING** If you are retrieving too few articles, expand your search by removing terms or searching for terms in keywords or full-text. Consider adding synonyms or similar terms to your search if the ones you are using aren't very effective.
 - **BE FLEXIBLE** Above all, be flexible in your searching. If one term doesn't work, try a different one. Approach your topic using as many search strategies as you can think of.
- There will never be one perfect search for your topic. It may take dozens of searches to retrieve all the necessary information.

If you get stuck, don't spend all day with a futile search. Instead, **ask librarian for assistance**. They are there to help.

10. WEB CONCERNS

No Subject Headings

Encountering useless web pages are only one problem in using the Internet for research. There are many other major issues. One problem is that nearly all search engines lack the sophisticated search capabilities that both library catalogs and databases provide. Because of this, searches will often return results of thousands and thousands of web pages. You will get better search results using subscription databases and library catalogs rather than Internet search engines.

Questionable Quality

Because anyone can create a web page, the quality of information on the web is always in question. There is also an inordinate amount of repetitive, superficial information, often of a promotional or persuasive nature. You must also be careful to avoid commercial web sites that are trying to sell a product or service. Above all, the bias or slant of web sites must be considered, although it can frequently be difficult to determine a site's particular bias.

Questions To Consider

Searching the web is very time-consuming because you need to consider many issues before using a web page in your research.

- Is the information from a respected and reliable source? If you can't tell, the answer is probably no.
- Is the page trying to sell you something?
- What are the author's credentials?
- Why was the web page created? It should be clear from viewing the page.
- Is the information accurate? Biased? Outdated?
- Are sources clearly cited?

Use Only When Appropriate

Only after answering all of these questions can you be sure that your resource is appropriate for a research paper. The "About Us" section of a web page, if available, will often provide this information.

Stick To Databases

However, by searching only subscription databases and limiting your search to scholarly or peer-reviewed sources, you can virtually guarantee that all materials retrieved will be appropriate for a research paper.

Source: Berkeleycity college.edu