



## Research Tips and Tricks

### Database (and Search Engine) Search Tips

Many current databases have made it easier than ever to search for information by providing built-in filters. Have you ever visited an online clothing store and narrowed down what you were looking for by size, color, and brand with a few quick presses of a button? You follow the same basic process when browsing research sites, instead filtering by date, peer-reviewed or otherwise, format of the information, and so on. Listed below are even more tips and tricks you can use to narrow down your searches. These can be used for both research databases and for search engines.

Search Tip	You can also use	What does it do?	Example
AND	not common, but sometimes you can use a plus sign like this: +	will only include search results that include <i>all</i> of the terms	Shoes AND socks (so all results will have both terms mentioned)
OR	a vertical bar like this:	used to find items that contain <i>any</i> of the searched terms/phrases (it will search for either term or both terms, but not neither)	Drunk driving OR driving impaired (expands your results to include similar subjects)
NOT	a minus sign like this: -	excludes the term from the search (good for words with two famous double meanings or for clarifying a very broad term)	cardinals NOT baseball (this will help narrow results to the bird rather than the baseball team)
~ (tilde)		will search for both that specific word and synonyms	~cold (this will likely search for cold, cool, freezing, icy, chill, etc)
"" (quotation marks)		will search an exact set of words in this specific order (spelling is critical for this one, as it will not include anything)	"civic duty" (this will provide search results that include the whole phrase, rather than either term)

		that doesn't match what's in the quotes exactly)	
* (asterisk, also called a wildcard)	sometimes other symbols are used instead, such as a ? (question mark), ! (exclamation point), or # (pound sign)	can be used at the end of a root word so it will search for all words that share that root word; can also be useful if there's more than one way to spell a word	free* will bring back results that include free, freedom, freeze, etc  wom*n will bring back results for woman, women, womyn
.. (two periods between two numbers)		will search for results that contain numbers within that range of numbers (often used for dates or prices)	10..14 will bring back results for 10, 11, 12, 13, and 14
<b>site:</b>	domain:	will search within a specific site	site:youtube.com cats will only search youtube for results about cats
<b>author:</b>		will search for papers/articles/books by the name, not just papers involving that word	author:brown will provide books/articles by authors who have a first or last name Brown, and not just provide results with the word Brown

### Other Tips for Image Searches:

- You can search for the exact image size you want. After adding the word you are looking for, put in imagesize:widthxheight (make sure to put the dimensions in pixels). For example, cat imagesize:300x200 will bring up cat images that are 300x200 pixels.
- You can narrow down the search by usage rights, too. Some search engines have a settings or tools option that let you automatically filter by usage

rights. However, just because a search result shows up in the filter, you still need to double check the image or page's actual usage rights.

### **Other notes:**

- Capitalize all letters in the operation words, or the search engine will assume it is a term to search for, not a command on *how* to search.
- Make sure you do not put a space between the operation symbol and the search term. For example, you need to search `Sports -football` and not `Sports - football`
- If you receive too many search results, you may want to use operations that narrow your search. If you receive too few search results, you may either need to try new words or try one of the operations that expands your search results.
- You can use more than one operation at a time, just make sure to use parentheses to separate out what exactly you want searched.
- Not all of these tips will work for all databases and search engines.
- A note on subject headings vs keywords: there is a lot of behind the scenes tagging that goes on in databases. Subject headings are the specific words (called a controlled vocabulary) the database builder or coder uses to organize the data. Subject headings are more formalized and often written in an unexpected order; they can sometimes be hard to guess. Keywords, however, are the more common words and terms a user will use to search.
- Stop words are frequently occurring, insignificant words (often articles or prepositions) like *a, an, the, in, of, on, are, if, into*, and so on. While most databases automatically disregard those words, you can help narrow down searches by not including them.
- As you become more knowledgeable about a subject, you will have a better understanding of the terms to use for searching; you can always backtrack and try from an earlier point with a better foundation.
- Use multiple sources.
- Searching a site using quotations and then words like “*funding*” can help provide quicker answers on the owners funding behind certain sites.

## **A Search Engine Reminder**

Technology is not objective. Search engines and the algorithms behind them are made with biases, and algorithms can duplicate or magnify biased information. Algorithms have their own formulas, and search engines like Google prioritize paid advertisements, promoting their own products, and use faulty methods to determine what site is most relevant. Site popularity is its own self-fulfilling cycle; links rise based on clicks, and as it becomes more popular it gets more clicks, but this does not say anything about the actual accuracy of the site. The first result you get is not the best result. Look into the accuracy of sources and follow tips to make sure the information you are accepting is reliable.

## **Accuracy of Sources**

There are several questions and guidelines to use in figuring out the accuracy of your source.

Authorship: Who made this? Are they credible and qualified? Why was it written? Are there spelling or grammar errors?

Currency: When was this made? Has it been revised or retracted? For websites, are the links still functional?

Audience: Who was it written for? What type of site is it? What is the purpose of piece – to teach, to entertain, or to sell? How would different people read the information provided?

Objectivity: Did the sources actually prove the conclusions they came up with? Is there an agenda to the piece? Are they trying to appeal to emotions or relay facts? Is there something missing? Is the piece impartial?

Documentation/Accuracy: Where did the author get this information? Do they provide citations for their sources? Are the sources credible? Has someone already fact-checked it? Is this the original website or an edited copy? What do other people say about the piece?

## URLs

URLs can tell you something about the authors/site owner:

.com	commercial
.edu	educational
.gov	US government
.org	nonprofit organization
.net	network

This is not to say that one type of site is always more credible than another type of site. Nonprofits tend to be given the benefit of the doubt – but just because a group is a nonprofit does not mean that they do not have an agenda or will not provide false information.

## Vertical vs Lateral Reading

Very often, people who are not familiar with how to fact-check websites will move ‘vertically’ – they will look at just the site itself and try to judge it. Rather, it is better to move ‘laterally’ – instead of comparing the site to itself, this method compares the information on that site with other sites. This may involve looking up information about the site or searching keywords as they come up. The central idea behind lateral reading is to view the information in a greater context, rather than in the particular slice of Internet your first search result is on.

## Confirmation Bias

People have a tendency to search for or believe information that already agrees with their ideas, emotional responses, or previous interpretations. It is often easier to accept information that fits within one’s preconceived notions than by objective evidence. This is why incorrect “news” is so easily spread on social media sites like Facebook; not only do people not fact check the story, but the story itself is usually designed to trigger an emotional response. Therefore, one is more likely to react and - in cases like this - share the “news” with others, rather than fact check it.

## **Scholarly vs Peer Reviewed Articles**

Scholarly articles are written by experts and include the author's credentials. Peer reviewed articles go a step further in the publishing process and have other (equally qualified) experts read them for accuracy before publication. Of the two, peer reviewed articles are more credible, but that does not mean that they are all trustworthy – some publishers have been caught circumventing or lying about their review process, and some researchers have falsified or used questionable measures to get their data.

## **Wikipedia**

Wikipedia is the elephant in the room. You have probably heard the refrain “do not use Wikipedia” at least once in your academic career (and likely dozens of times!) Wikipedia is an encyclopedia that anyone can edit, which sometimes means people who are experts write the entries, but often times not. It is also important to note that some writers purposefully edit entries with false information, either because they are misinformed, as a joke, have an agenda about the topic/person, or because they are paid to do so. Sometimes the information is not inaccurate as much as deliberately misleading, or written with a not-always-obvious bias. Wikipedia can be great for gleaning a general overview of a subject, but not always – everything should always be verified by more trustworthy resources, and controversial subjects are sometimes subject to... well, controversy! However, one area that can be a big help to researchers is the References section at the end of Wikipedia entries. These references may not necessarily be trustworthy either, but they can help one start finding more credible sources. Another way Wikipedia can be helpful is by providing additional search terms to use.

## **AI Issues**

AI can produce inaccurate results and has been known to completely make up information. It is not a reliable source of information. One part of this issue is AI-modified/created/manipulated images have flooded search engines; you can no longer trust googling an animal and having an accurate image of that animal come up. One option for this specific situation is to append date constraints to your searches (before:2023). However, appending dates will not work in all situations, such as fake “news” images and texts. While there are still some ways to tell some

AI images from the real deal (such as extra hands in images of people), as this technology improves it will be harder to separate manipulated photos from the real ones.

## References

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