Boolean Keyword Searching in Library Databases: using “AND” & “OR”

Search Guidance:

- Basic principles:
  - Never enter all your search terms in one keyword search box (as is done in Google). This usually fails. Google is designed to always show something, even if it is not that relevant.

Exploratory phase

- Use at least 2 keyword search boxes (3 is better)
- Enter one keyword (for one of your concepts) into one search box, enter your other keyword (representing another concept in another search box).
- Connect the two distinct boxes with the “AND” Boolean operator
- Execute the search, examine your results, identify synonyms, do another search.

Refinement phase

- Place all synonyms representing one concept in one search box, connect them using the “OR” Boolean Operator
- Place all synonyms representing your 2nd concept in a 2nd search box, connect them using the “OR” Boolean Operator

Narrowing

- Limit results by changing the “Select a Field” to “TI Title”

Generate Keywords

1. Use Words that Express the “Main Concept” or “Idea” (from concept to choice word)
2. Write out your topic in several sentences, focus on nouns, and verbs, eliminate articles, prepositions, conjunctions (the, of, and, a, an, etc.)
- Find the “Subject” in Your Sentence:
  - Subject (noun), Verbs, Objects.
- Generate synonyms for your keywords to reiterate your search (one article might use autos and another cars, another motor vehicles).

**Example:** “Electric” AND “Car” AND “pollution” 1st Search attempt

**Topic:** I’m interesting in finding out just how helpful are cars that use alternative forms of energy in reducing pollution. Are electric cars better for the environment than gasoline powered cars.
If you get too many results, specify that your keyword must appear in the “TI Title”

2nd Search attempt using a synonym: “Hybrid” AND “Automobile” AND “pollution”

3rd Search attempt using a synonym: “vehicle” AND “CNG” AND “pollution”

Once you mastered the above steps, you can combine it in one search:
- Place all your keywords for one concept with its synonyms in one search box
  - Link the synonyms together with the “OR” Boolean operator
- Place all your keywords for another concept with its synonyms in another search box
  - Link the synonyms together with the “OR” Boolean operator
- Connect these two search boxes with the Boolean “AND” operator to form your “search statement”
Review:
Good information research is a multi-step process that circles around itself. In each stage one learns from the previous stage. A first keyword search is refined through additional searches. A student should look at the results from one’s first search. Then a 2\textsuperscript{nd}, 3\textsuperscript{rd}, and even a 4\textsuperscript{th} search is done using using synonyms or new keywords. The choice of keywords to be used in later searches is guided by earlier search results. Large sets of search results can be quickly narrowed by specifying that a keyword must appear in the document’s title. In expository writing, the title is a condensed expression of the entire contents of the document.

Research Sequence: this is a proven approach that is effective, efficient and reproducible

1. **Scope the Question** - Consult reference books & reference databases to understand, clarify the subject (your paper’s topic). Define the subject, define terms. Understand sub-topics and closely related topics. Determine boundaries, and core areas and peripheral ideas.

2. **Scope the Subject** – Conduct simple searches in the appropriate library databases. Scan the results of searches. Review the information resources available. Is there sufficient coverage for your subject or thesis topic? Is there enough or too much information published on your topic. Should you concerning your topic been published?

3. **Retrieve journals articles and books for first reading** - Search appropriate the library databases and the library book catalog. Use papers from academic journals and news sources to get more recent information.

4. **Refine adjust your outline/theme/treatment** - Alter and adjust your subject/theme/thesis to adjust to the information available and to what you are learning about the subject.

5. **Create an outline and/or note taking system** - or make use of the online database methods to create bookmarks, folders, to save, export or email articles and papers and citations you find and plan to use. Export citations, refer to Purdue Online Writing Lab (OWL) site to create your works cited page.

6. **Evaluate your sources** - (little or minimal effort to evaluate the accuracy and authoritativeness of a work is need when using the library databases). Open web resources will need careful evaluation.

7. **Use the library databases to generate a correct citation** - You must cite the sources you use. CQ Researcher offers “CiteNow!” Opposing Viewpoints presents a “Source Citation” at the end of each paper.

8. **Repeat** your information research steps as needed. Your searches on library databases should go through several iterations. You will learn and revise your ideas and/or keywords as you proceed.
Boolean “OR” combines different sets into one group

The search strawberries OR blueberries OR raspberries finds any article/document that contains any of these words.

In a database, place all synonyms or word forms for one concept into the SAME search box

Boolean “AND” Finds the intersection or overlap between different sets.

The search strawberries OR blueberries OR raspberries AND antioxidants finds ONLY articles/documents any one of the berry words i.e., strawberry, blueberry, raspberry AND the word antioxidants

“ADVANCED SEARCH” in the library databases is set up to support good Boolean searching.

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