

Expanding a Search Using Boolean Operators

Boolean searching is based on an algebraic system of logic. In a Boolean search, keywords are combined by the operators to narrow or broaden the search. For example: (you do not have to enter them in capitals).

AND

The operator AND narrows the search by instructing the search engine to search for all the records containing the first keyword, then for all the records containing the second keyword, and show *only* those records that contain *both*.

OR

The operator OR broadens the search to include records containing either keyword, or both.

The OR search is particularly useful when there are several common synonyms for a concept, or variant spellings of a word.

Whatever strategy you use to obtain your keywords and phrases, it is important to realize that keywords are your keys to search library subscription databases, Internet search engines/meta search engines, and online book stores/digital libraries.

The following table provides an expanded list of Boolean strategies (operators) which you might use in your search of topic-specific articles. As you will see, the chart begins with basic strategies and then moves to advanced strategies using an example of mentoring. It focuses the topic by selecting a population of college students.

Be sure to keep a running list of all of your keywords for your audit trail.

Basic and Advanced Boolean Search Strategies

<i>Boolean Operation</i>	<i>Explanation of Boolean Strategy</i>	<i>Example of Boolean Strategy</i>	<i>Explanation of Example of Boolean Strategy</i>	<i>Number of hits in Education Research Complete</i>
Basic Strategies				
AND	Searches for all documents in the database that contain words/phrases that lie either side of the "and"	mentoring AND college students	Searches all documents in the database that contain both the words "mentoring" and "college students"	665
OR	Searches for all documents in the database that contain at least one of the words/phrases that lie either side of the "or"; useful for linking search words that are synonyms, antonyms,	mentoring OR college students	Searches all documents in the database that contain either the word(s) "mentoring" or "college students" or both	88,897

<i>Boolean Operation</i>	<i>Explanation of Boolean Strategy</i>	<i>Example of Boolean Strategy</i>	<i>Explanation of Example of Boolean Strategy</i>	<i>Number of hits in Education Research Complete</i>
	alternative spellings, or abbreviations			
NOT	Searches for all documents in which a search word or phrase is to be excluded	mentoring and NOT college students	Searches for all documents that contain the word "mentoring" but do not contain the phrase "college students"	8,024
*	Searches for word variations using the asterisk (*) as a wildcard symbol; it replaces letters that appear after the string, can be used more than once in a word, and can be used anywhere	mentor* AND college students	Searches for all documents that contain the phrase South Africa and any word that begins with "mentor" (e.g., "mentors"; "mentoring")	11,728
""	Searches for all documents that contain the string of words in quotation marks	"mentoring and college students"	Searches for all documents that contain the phrase "mentoring and college students"	1
()	Searches for all documents using a combination of two or more Boolean operations	(mentoring OR tutoring) AND college students	Searches for all documents that contain the words "mentoring and college students" or the words "tutoring" and college students" (but not "mentoring and college students and South Africa")	1,512
Advanced Strategies:				
W/n	Searches documents in databases with search words that appear within "n" words of each other; joins words and phrases that express parts of a single idea or joins closely associated ideas	mentoring W/3 "college students"	Searches for all documents that contain the words "mentoring" and "college students" within 3 or fewer words of each other; includes phrases such as "mentoring and college students"; "mentoring among college students"; but not "mentoring in the area of college "	N/R
PRE/N	Searches documents in databases in which the first search word precedes the second by not more than the stated number of words; primarily useful in situations where a different word order significantly alters meaning (e.g., "summary judgment" vs. "judgment summary")	mentoring and college* PRE/3 students	Searches for all documents that contain the words "mentoring" and a string in which a word beginning with "college" precedes the word "students" by 3 or fewer words; this string includes phrases such as ""college students"; "colleges containing students"	N/R

<i>Boolean Operation</i>	<i>Explanation of Boolean Strategy</i>	<i>Example of Boolean Strategy</i>	<i>Explanation of Example of Boolean Strategy</i>	<i>Number of hits in Education Research Complete</i>
W/p	Searches documents in databases with search words that appear within the same paragraph	mentoring OR tutoring W/p "college students"	Searches for all documents that contain the words "mentoring" or "tutoring" within the same paragraph as "college students"	N/R
W/SEG	Searches documents in databases in which both search words appear within the same segment (e.g., within the same title)	mentoring W/SEG "college students"	Searches for all documents in which the words "mentoring" and string "college students" appear within the same segment	N/R
W/s	Searches documents in databases in which both search words appear within the same sentence	mentoring W/s "college students"	Searches for all documents in which the words "mentoring" and string "college students" appear within the same sentence	N/R
ALLCAPS	Searches words in which all letters of the search word or phrase are capitalized	mentoring and ALLCAPS (GPA) and "college students"	Searches for all documents in which the words "mentoring" and the capitalized nickname academic achievement in the United States (i.e., GPA: grade point average) appears alongside "college students"	N/R
ATLEAST	Searches documents in databases in which a word or phrase appears at least a specified number of times; use ATLEAST when you want only documents that contain an in-depth discussion on a topic rather than just a mention	mentoring and ATLEAST10 (college students)	Searches documents in databases in which the word "mentoring" appears and the string "college student" appears at least 10 times	N/R
CAPS	Searches documents in databases in which capital letters appear anywhere in the word	mentoring and CAPS (college students)	Searches documents in databases in which the word "mentoring" appears and the string "college students" can have a capital letter anywhere	N/R
NOCAPS	Searches documents in databases in which capital letters appear anywhere in the word	mentoring and college students and NOCAPS (achieve*)	Searches documents in databases in which the words "mentoring" and "college students" appear alongside words such as achieve and achievement but not the disease ACHIEVE	N/R

<i>Boolean Operation</i>	<i>Explanation of Boolean Strategy</i>	<i>Example of Boolean Strategy</i>	<i>Explanation of Example of Boolean Strategy</i>	<i>Number of hits in Education Research Complete</i>
PLURAL	Searches documents in databases in which only the plural form of the word appears	PLURAL (mentor) and college students	Searches documents in databases in which the plural word “mentors” and phrase “college student” appear	N/R
SINGULAR	Searches documents in databases in which only the singular form of the word appears	SINGULAR (mentor) and college students	Searches documents in databases in which the singular word “mentor” and phrase “college students” appear	N/R

N/R = This Boolean operation is not recognized by this database

Reference

Onwuegbuzie, A. J., & Frels, R. K. (2016). *Seven steps to a comprehensive literature review*. London, UK: Sage.