Chapter 05 - Article Databases

Elizabeth Stephan
Western Washington University, elizabeth.stephan@wwu.edu

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What is a database?

Simply put, a database is a collection of things. These things present themselves as information: Information about stuff: people, inventory, images, books, and so on and so forth. For the most part, we will be discussing databases that consist of journal articles. There are different types of databases, like specialized databases relating to science, business, medicine, etc. For the ease of understanding, the examples in this chapter will come from some of our most common databases with some examples of the types of databases you might run into for some more specialized classes.

When most of us think of databases, we think of something that’s electronic, like the Internet Movie Database (IMDB), but the same information was presented in print form before it was electronic. Think about a phone book. A phone book contains information about people, organized by geographic location and then alphabetized by last name. While phone books may be seen merely as a way to find a phone number, they could also be used to locate addresses of both individuals and businesses. When visiting new towns, it was a way to find people with your same last name. When you were in a new town you could use the business directory to find all the pizza restaurants in a new town without needing to know all the individual names.

Western Libraries has more than 200 databases that range in topic from anthropology to biology to marketing to zoology. We have databases that can be used to find images, articles, financial data, and more. In order to better use any database, it’s good to learn a little bit about how they work. Doing so will allow you to use databases in a way that can not only save you time, but help you find the best resources for your assignments.

Records, Fields, and Metadata (Oh, my!)

A database is made up of records. One record is assigned to each item and each record is name up of fields. Article databases, like Academic Search Complete, contain records with information about each of the articles: author name, journal title, publication date, etc. This data is called metadata, which literally means data and about data. When you search a database you are searching the metadata. Metadata exists in many different forms. We create metadata every day when we search on Google or when we use our phones. That metadata can be used to create a picture of who you are. The metadata attached to the records in a database tells you what the article is and makes it
searchable.

Let’s go back to the example of a phone book. There is an overall understanding of how it is organized: organized by location, then alphabetical by last name. The business listings are organized by the type of business, then alphabetical by name. The information used in phonebooks is also a type of metadata, it is data about those individuals and businesses. When it comes to library databases, libraries used a standardized metadata to make searching for the information useful. With a phonebook, there are only a few ways to organize and find the data. In databases there are multiple ways to search for records by searching their metadata.

This gives you a lot of flexibility in how you search, but with freedom that comes with this flexibility comes some confusion. How do you know what search terms to use? How do you know which database to use? How do you sort through all the results?

**Disciplinary Databases**

Most of our databases are associated with specific disciplines. When or how do you decide which database is the best? In some cases, using OneSearch to find articles can help you find a database that may be useful. Western Libraries website also have a list of databases by discipline. From the Article Databases page, select the select the “Find Databases by Subject” drop down. From here you can select databases by a specific topic.

Just as important, different disciplines have different, and often unique, language and terminology. If you are new to a subject or just starting a major, learning this can be daunting. Subject databases use subject terms to organize their articles and those terms are often based on a specific discipline. Subject terms are a form of controlled vocabulary, meaning the terms used come from a set list of terminology. Think of it as a list of set hashtags used to organize information on the web. Under the Search Strategies section, you will find more on subject terms and how they can be helpful.

**Search Strategies**

Databases have complex search engines. Having a toolkit of some basic search strategies can return more relevant sources as well as save time. While some aspects of the search are standardized across databases, each database is unique. Take the time to explore the databases tools by using the Help function; in some cases, databases will have instructional videos.

For the purposes of this chapter, the examples below are from EBSCO’s Academic Search Complete. EBSCO provides many of Western Libraries databases. Some of the most common EBSCO databases include Academic Search Complete (general topics), Business Source Complete (business and economics), ERIC (education), and PsycInfo (Psychology). All of the EBSCO databases we have access to can be found by selecting “Choose Databases” in the search screen. This not only shows you all the EBSCO databases, it allows to select multiple databases to search at one time. Research is often interdisciplinary and limiting yourself to one database can be detrimental to your search.

**Dissecting a Search**

To understand a database, sometimes it is easier to start at the results page. Looking at the Figure 8.1, you will see the results list, the results based on the initial keyword search of “climate change” or “global warming.” In this example, there were 118,304 results; that’s a lot and indicates that the initial keyword search was too broad. The Refine Results column on the left contain filters. Filters allow you to do just that: filter your results by type of document, date, subject term, etc. Each individual record in the results list provide the title, publication name, date, vol-
The Research Process

Article Databases (Stephan)

The search in Figure 8.1 was a keyword search for “climate change” or “global warming” that resulted in more than 129,000 results. A keyword search is a natural language search that searches all parts of the record, and in some cases, the text of the article as well. A keyword search is a great way to start a general search and a good place to start when you are researching an unfamiliar topic, but it can often be too general.

Let’s unpack this particular search. The researcher was interested in articles related to climate change. She’s most interested in academic articles because she wants the in-depth research, but she is also interested in some articles aimed at the general public. But through some initial research, she realized that there has been a change in terminology. What was once referred to as global warming has evolved into climate change. Not wanting to limit her search to one or the other—at least not initially—she wanted to do a search for both.
Keyword Searching

To do this, she did a phrase/keyword search using Boolean operators. She put both “climate change” and “global warming” in quotes to keep the words together. In this case, when searching for an item in quotes, the database will look for words where there is at least one instance of the words within the quotation marks appearing in that order. Keep in mind that databases also search metadata that you do not see so the exact phrase you are looking for may not appear in the record. (EBSCOHost, Phrases, n.d.)

A keyword search is a general search and based on natural language, meaning that the terms used are everyday language. It’s great to use when you are starting out a search or you are researching an unfamiliar topic. The problem is that a keyword search is sometimes too general. Because it searches an entire document, the results of the search results can be overwhelming. But a search like this isn’t a waste of time or energy. All searches start broad. And use the results to help you develop stronger search terms and to better understand the terminology used for a specific topic or discipline.

One thing to note about Academic Search—and most databases—the results are sorted by relevance to the search. Relevance means the items most relevant to the search are listed first. While relevancy ranking is useful, when you have a large number of results you need more advanced search tools to find best sources.

Boolean Search Operators

<table>
<thead>
<tr>
<th>AND</th>
<th>OR</th>
<th>NOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Results will contain all of the search terms or phrases</td>
<td>Results will contain at least one of the terms or phrases</td>
<td>Results will not contain one of the search terms. This search is the least used and is often used to eliminate a common phrase, like searching for Apple when you want the fruit and not the computer company: Apple NOT computer</td>
</tr>
<tr>
<td>Narrower search: Document will have to contain BOTH “climate change” AND “global warming”</td>
<td>Broader search: Document will have to contain EITHER “climate change” OR “global warming”</td>
<td>Narrower search: Results will contain “climate Change” but NOT “global warming.”</td>
</tr>
</tbody>
</table>

Individual Records

The record for each item provides information on the article as well as the search. The researcher chose this article because it was from an academic journal and it had both search phrases in the title. In the record she’ll find the title of the article in addition to the author names as well as publication information. This is what she would use for her citation. She will also find the abstract—or summary—of the article. The author affiliations can be useful to establish the credentials of the authors. Most academic articles are written by faculty or researchers based at an academic institution. The Digital Object Identifier, or DOI, is listed at the bottom. The DOI is a unique identifier used for digital articles. Many citation styles require DOIs, but one thing to remember is that not all articles have DOIs and not all DOIs are listed in Academic Search.
Databases also provide tools to use to manage your resources. This includes saving an article, printing, and emailing an article to yourself. Academic Search does provide a Cite option. The EBSCO citation generators use metadata to create citations and that data is often wrong. If you are using the citation option, always double check as they are often incorrect. Academic Search also has a Permalink option. If you need to save this URL, always use the Permalink. The URL generated by your browser is a false URL and will expire after a set amount of time.

Subject and Thesaurus Searches

Subject terms are the terms and phrases used to identify this article by topic. Many databases, including Academic Search Complete, use Library of Congress Subject Headings for subject headings, others use disciplinary language and specialized terminology. This particular article uses the following subject headings: Climatic Changes, Global Warming, Public Opinion, and Social Aspects. Based on those headings, the researcher gets an idea of what the article will focus on. However, she notices something else: Instead of Climate change, the subject heading is Climatic Changes.

While keyword searching is broader, searching by subject terms is often seen as a more specific. Subject terms are a form of controlled vocabulary, meaning the same term(s) are always used, making the metadata more precise,
but they aren’t always a natural way of thinking or speaking. Because of this, many databases have a Subject Terms search option, sometimes called a thesaurus because it provides the alternate subject term for natural language. A search of “climate change” bring back this: “Climate change Use Climatic Changes.” Clicking in Climatic changes returns a list of subject terms, or controlled vocabulary, related to Climatic Changes. (Figure 8.3) By clicking on Climatic Changes, the list expands to broader terms (Climatology) and a long list of narrower terms. (Figure 8.4)

The researcher is still at an early stage of research; she’s still looking for some introductory—but more focused—articles. After doing a subject search for “global warming” she builds the following search: (DE “Climatic changes” AND (DE “Global Warming”). The DE is a prompt to the database that these terms are subject terms. The parenthesis is a tool called nesting (see below for more info) and the quotes keep the phrases together. This search in Academic Search Complete returns 5,259 results. This is still a lot, but compared to the 129,000 she started with, this is more manageable. From here, she can use the filtering tools within the database to narrow the search even more.

**Advanced Search Tips**

**Nesting**

Nesting uses parenthesis to groups keywords and synonyms together in order to control the order of your search string. Putting parenthesis around terms not only groups words or phrases together, it searches for those terms first. Nesting can be important when putting together more complex search terms. If a researcher wants to know how climate change has affected whales, she might want to look for both climate change or global warming and wales or cetaceans.

**What She Types:** “Climate Change” or “Global Warming” AND whales or cetaceans

**What the Database Reads:** “Climate Change” or (“Global Warming” AND whales) or cetaceans
A databases give priority to words separates by Boolean operators AND and NOT over OR. This is due to something called the Z39.50 standard, which is, simply put, a standard operating rule for databases. Because of her use of AND between “Global Warming” and whales, the database will look for those two terms first and then the other terms.

**The correct search (nesting): (“Climate Change” OR “Global Warming”) AND (whales OR cetaceans).**

Using a nesting, this search makes the databases find items that have either climate change or global warming AND whales or cetaceans. Nesting can be used with or without subject terms. How important is this? The initial search of “Climate Change” or “Global Warming” AND whales or cetaceans produced 111,115 results. The correct search of (“Climate Change” OR “Global Warming”) AND (whales OR cetaceans) produced 300 results.

**Proximity**

Proximity searching allows you to search for words close together. A proximity search is useful to search for a phrase or even a quote when you don’t know the exact wording. Different databases treat this differently, so always double-check the database Help pages before using this search.

**Chapter Conclusion: Why is this important to you?**

Databases are used in almost all forms of research, from OneSearch to EBSCO to JSTOR to ProQuest. Databases are complex and understanding the complexity of how information is organized and retrieved is important
for many reasons, from saving time to finding the most reliable sources. Understanding how databases store and search information allows a researcher to more strategically search. It is easy to get caught up on specific keywords or phrases, especially when a topic is unfamiliar. Understanding not only how databases work, but how to use the different database tools to focus or narrow a search.

Research is not a linear process and most researchers will use the basic search tools in the beginning and then use the more advanced search tools as the search becomes more complex.

Understanding how to identify a source or limit a search to a specific source type will help you save time and can be useful when doing a quick search. Knowing the advanced search tools like subject searching together with nesting and proximity searching, creates complex search strings that allows a researcher to take a deeper dive into a subject area.
References
