

OFFICIAL COURSE STUDY GUIDE

Information Literacy: Search Like a Pro

Keywords, boolean operators, truncation, and subject headings - academic search as a skill.

LEARNING & STUDY SKILLS · INTERMEDIATE · 2 MODULES · 49 MIN

Course by Leeds University Library · Curated and published by MegaCourse

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Information Literacy: Search Like a Pro: The Complete Study Guide

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MegaCourse curates the world's best free courses into structured learning paths with study guides, practice material, and certificates. This guide accompanies the MegaCourse course "Information Literacy: Search Like a Pro", taught by Leeds University Library. It is designed to be read alongside the video lessons and to serve as a standalone reference for review.

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INTRODUCTION

About This Course

This guide accompanies the MegaCourse "Information Literacy: Search Like a Pro" course, taught by Leeds University Library. Effective information searching is a fundamental skill for academic success and lifelong learning. The ability to find reliable, relevant sources quickly is crucial in any field.

This course teaches you to move beyond basic keyword searches. You will learn to construct precise search queries using boolean operators, truncation, and subject headings. These techniques allow you to systematically retrieve the information you need, saving time and improving the quality of your research.

The course is organized into 2 modules and 13 lessons, totaling approximately 49 minutes of video instruction. This structured approach, combined with the detailed explanations in this study guide, ensures you build a strong foundation in academic search strategies. You will gain confidence in your ability to find and evaluate information effectively.

Course Facts

FORMAT	2 modules · 13 lessons
VIDEO INSTRUCTION	About 49 min
LEVEL	Intermediate
CATEGORY	Learning & Study Skills
INSTRUCTOR	Leeds University Library
CERTIFICATE	Included with course completion on MegaCourse
COURSE HOME	megacourse.app/courses/information-literacy-search-like-a-pro

What You Will Learn

- Turn research questions into effective keyword strategies.
- Use boolean, truncation, and proximity operators fluently.
- Exploit subject headings and citation chains.
- Search databases systematically instead of hopefully.

Who This Course Is For

This course is designed for intermediate learners: students, researchers, and professionals who regularly need to conduct academic or in-depth information searches. If you find yourself struggling to locate

specific articles, overwhelmed by search results, or unsure how to refine your queries, this course is for you.

You should have a basic familiarity with using a computer and navigating websites. While access to an academic database is helpful for practicing the techniques, it is not strictly required to understand the concepts presented. The course focuses on universal search principles applicable across various platforms.

Before You Start

- Basic computer and internet navigation skills are assumed.
- No prior experience with advanced search techniques is required.
- Access to an academic database is helpful for practicing the skills, but not mandatory for course completion.

How to Use This Guide

This study guide is designed to complement the video lessons available on MegaCourse.app. We recommend watching each lesson first, then reviewing the corresponding section in this guide. The guide provides detailed explanations, examples, and summaries to reinforce your understanding.

Pace yourself through the 2 modules and 13 lessons. You might choose to complete one lesson per day or several at once, depending on your schedule. Take time to practice the search techniques introduced in each lesson. Experiment with different operators and strategies as you go.

Use the review questions at the end of each module to test your knowledge. A comprehensive glossary of terms is also included to help clarify any unfamiliar vocabulary. Consistent engagement with both the videos and this guide will maximize your learning.

CHAPTER 1

Effective Information Searching

Welcome to Chapter 1 of the official study guide for "Information Literacy: Search Like a Pro." This chapter focuses on developing fundamental and advanced search skills essential for academic research. You will learn to move beyond simple keyword searches and employ sophisticated techniques to find relevant, high-quality information.

Mastering these strategies will transform your approach to research. You will gain confidence in navigating academic databases, efficiently locating sources, and systematically refining your search results. This chapter provides a solid foundation for becoming a skilled and efficient information seeker.

Planning Your Search and Crafting Keywords

Covers: Planning a search and generating good keywords · Combining keywords efficiently to find relevant sources

Effective searching begins long before you type anything into a search bar. It starts with careful planning and a clear understanding of your research question. A well-defined research question guides your entire search process, helping you identify the most relevant terms and concepts.

Deconstructing Your Research Question

Begin by breaking your research question into its core concepts. For example, if your question is "*What are the effects of social media use on the mental health of adolescents?*" you can identify several key concepts:

- Social media use
- Mental health
- Adolescents

Once you have these core concepts, brainstorm a list of keywords for each. Think about synonyms, related terms, broader terms, and narrower terms. Consider different spellings or phrases that authors might use. For the example above:

- **Social media use:** social media, social networking, Facebook, Instagram, Twitter, digital platforms, online communication
- **Mental health:** mental illness, well-being, anxiety, depression, stress, psychological health
- **Adolescents:** teenagers, youth, young adults, teen, adolescence

Combining Keywords with Boolean Operators

After generating a comprehensive list of keywords, you need a way to combine them effectively. Boolean operators are powerful tools that allow you to define the relationships between your search terms. The three primary Boolean operators are AND, OR, and NOT.

- **AND (Narrows your search):** Use AND to connect different concepts. This tells the database to find results that contain *all* the specified terms. For example, `social media AND mental health` will only return articles that discuss both social media and mental health. Using more AND operators will narrow your search results.
- **OR (Broadens your search):** Use OR to connect synonyms or related terms within the same concept. This tells the database to find results that contain *any* of the specified terms. For example, `adolescents OR teenagers OR youth` will find articles using any of these terms for the age group. Using more OR operators will broaden your search results.
- **NOT (Excludes terms):** Use NOT to exclude specific terms from your search results. This can be useful when a term has multiple meanings, and you want to eliminate irrelevant results. For example, `jaguar NOT car` would exclude articles about the car brand. Use NOT with caution, as it can sometimes exclude relevant articles that mention the excluded term in a different context.

Constructing a Search String

Combine your keywords and Boolean operators using parentheses to group related terms. This ensures the database processes your search in the correct order. Think of parentheses like mathematical equations, where operations inside them are performed first.

Example Search String: `("social media" OR "social networking" OR Facebook OR Instagram) AND (anxiety OR depression OR "mental health" OR "well-being") AND (adolescents OR teenagers OR youth)`

This string tells the database to find articles that contain at least one term from the social media group, at least one term from the mental health group, and at least one term from the adolescent group. This structured approach helps you retrieve a more precise and comprehensive set of results than a simple keyword list.

Advanced Keyword Techniques: Truncation, Wildcards, and Proximity

Covers: Comprehensive searching using truncation and wildcards · Refining your search results with proximity searching

Beyond basic Boolean operators, several advanced techniques can significantly enhance the comprehensiveness and precision of your keyword searches. These include truncation, wildcards, and proximity operators.

Truncation

Truncation allows you to search for variations of a word by replacing the end of a word with a special symbol, usually an asterisk (*). This is useful for finding different endings, plurals, or different forms of a root word. For example:

- `educat*` will find `educate`, `education`, `educator`, `educational`, `educating`, etc.
- `child*` will find `child`, `children`, `childhood`, `childish`, etc.

The truncation symbol typically replaces one or more characters. Always check the specific database you are using, as the symbol can vary (e.g., some use `?` or `#` for truncation, though these are more commonly

wildcards). Truncation broadens your search by including all possible word endings from a common root.

Wildcards

Wildcards are similar to truncation but are used to replace a single character within a word, often for variant spellings. The most common wildcard symbols are `?` or `#`.

- `wom?n` will find `woman` or `women`.
- `colo#r` will find `color` or `colour`.

Wildcards are particularly useful when dealing with variations in spelling (e.g., American versus British English) or when a word might have a single character difference. Like truncation, always verify the specific wildcard symbol used by your database.

Proximity Operators

Proximity operators specify how close two or more search terms must be to each other within a document. This helps refine your search by ensuring terms are contextually related, rather than just appearing anywhere in the same article. Common proximity operators include `NEAR` and `ADJ` (adjacent).

- **NEAR (N):** The `NEAR` operator specifies that terms must appear within a certain number of words of each other, in any order. For example, `"social media" NEAR/5 "mental health"` would find articles where "social media" and "mental health" appear within 5 words of each other. The number after the slash indicates the maximum word distance.
- **ADJ (W):** The `ADJ` operator (or `W` in some systems) specifies that terms must appear adjacent to each other, and often in a specific order. For example, `"climate change" ADJ "policy"` would typically find "climate change policy" but not "policy on climate change." Some databases allow you to specify the number of words for `ADJ` as well, similar to `NEAR`.

Using proximity operators allows for much more precise searching, especially when you are looking for specific phrases or concepts that might be expressed in slightly different ways. For example, if you search for `"heart disease"`, you will only find that exact phrase. If you search for `heart NEAR/2 disease`, you might find `heart disease`, `diseases of the heart`, or `heart related disease`, capturing more relevant variations while still ensuring the terms are closely related. Always consult the database's help section for the exact syntax and available proximity operators, as they can vary significantly.

using Subject Headings and Search Limits

Covers: Using Subject Headings in database searching · Using limits in your search

While keywords are essential for initial exploration, academic databases offer more structured tools for precise searching: subject headings and search limits. These tools allow you to refine your results significantly.

Understanding Subject Headings

Subject headings (also known as controlled vocabulary, descriptors, or thesaurus terms) are standardized terms assigned to articles by human indexers. Unlike keywords, which can be any word an author uses,

subject headings come from a fixed list maintained by the database or indexing service. This consistency is a major advantage:

- **Overcomes Synonymy:** If you search for **adolescents**, you might miss articles indexed under **youth** or **teenagers**. A subject heading like **Adolescence** (or a similar term in the database's controlled vocabulary) would encompass all these concepts, ensuring you find all relevant articles regardless of the specific word choice in the article's text.
- **Eliminates Ambiguity:** A keyword like **AIDS** could refer to the disease or simply 'help.' A subject heading **Acquired Immunodeficiency Syndrome** removes any doubt.

Finding and Using Subject Headings

There are two primary ways to find useful subject headings:

1. **Use the Database Thesaurus:** Many databases have a 'Thesaurus' or 'Subject Headings' link, usually near the search bar or in the advanced search options. You can type in your keyword and see if a corresponding subject heading exists. The thesaurus will often suggest narrower, broader, or related terms, guiding you to the most appropriate official term.
2. **Examine Relevant Articles:** When you find an article that is highly relevant to your topic, look at its full record. Databases typically display the subject headings assigned to that article. These are excellent terms to incorporate into your next search.

Once you identify a relevant subject heading, you can add it to your search string. Some databases have a specific field for subject headings (e.g., **SU:"Mental Health"**). Combining subject headings with your keyword searches can yield highly precise results.

Applying Search Limits

Search limits, or filters, allow you to narrow your results based on specific criteria beyond the content of the articles. They are usually found on the left-hand sidebar of your search results page or within the advanced search options. Common limits include:

- **Publication Date/Year:** Restrict results to a specific timeframe, e.g., articles published in the last 5 years.
- **Publication Type:** Filter for specific types of documents, such as **journal articles**, **dissertations**, **books**, **reviews**, or **conference papers**.
- **Language:** Limit results to articles published in a specific language, e.g., **English**.
- **Peer-Reviewed/Scholarly Journals:** This is a crucial limit for academic research, ensuring you only retrieve articles that have undergone a rigorous review process by experts in the field.
- **Author/Affiliation:** Search for works by a specific author or from a particular institution.
- **Geography:** Limit results to studies conducted in or about a particular region or country.

Applying limits systematically helps you manage large result sets and focus on the most pertinent information. For instance, if you need current, scholarly research on a topic, you would apply both a date limit (e.g., last 5 years) and a 'peer-reviewed' limit simultaneously. Always review the available limits in each database, as they can differ.

Improving Search Results and Accessing Articles

Covers: Improving your search results · Accessing articles

Even with well-crafted search strings and applied limits, your initial search results might not be perfect. It is a normal part of the research process to evaluate and refine your approach. Also, finding an article is only half the battle; you also need to know how to access its full text.

Strategies for Improving Your Search Results

If your search yields too few or too many results, or if the results are not relevant, consider these strategies:

- **Too Few Results:**
- **Broaden your keywords:** Use more general terms or more synonyms with **OR** operators.
- **Remove specific keywords:** Take out the least essential term from your **AND** string.
- **Remove limits:** Lift restrictions like publication date or peer review.
- **Check spelling and syntax:** A simple typo or incorrect Boolean operator can derail a search.
- **Try truncation or wildcards:** Capture more variations of your terms.
- **Consider a different database:** Some databases specialize in different subject areas.
- **Too Many Irrelevant Results:**
- **Narrow your keywords:** Use more specific terms or add more concepts with **AND** operators.
- **Add more limits:** Apply publication date, publication type, or peer-reviewed filters.
- **Use subject headings:** Switch from general keywords to precise controlled vocabulary.
- **Employ proximity operators:** Ensure terms are closely related in the text.
- **Use quotation marks for exact phrases:** "social media" will only find that exact phrase.
- **Use the **NOT** operator carefully:** Exclude irrelevant concepts, but be mindful of over-exclusion.

Citation Chaining (Snowballing)

Citation chaining is a highly effective method for finding more relevant articles once you have identified a few key sources. It works in two directions:

1. **Backward Chaining:** Look at the reference list (bibliography) of a highly relevant article. The sources cited are often foundational or directly related to your topic. This helps you find older, influential works.
2. **Forward Chaining:** Use a citation index (like Web of Science, Scopus, or Google Scholar) to see which newer articles have cited your relevant article. This helps you find more recent research that builds upon the work you have already found.

Accessing Full-Text Articles

Finding the citation for an article is the first step; getting the full text is the next. Most academic databases will provide a link to the full text if it is available directly through the database or your institution's subscriptions.

- **"Find It" or "Get Full Text" Buttons:** Look for these buttons. They usually link to your university library's holdings, which may include direct PDF access, a link to the publisher's website, or an option to request the article through interlibrary loan.
- **Publisher Websites:** If a direct link is not available, note the journal title, volume, issue, and page numbers. You can often navigate to the publisher's website and search for the article there. If your library has a subscription, you may be able to access it.
- **Interlibrary Loan (ILL):** If an article is not immediately available, your library likely offers an interlibrary loan service. You can request the article, and the library will obtain it from another institution, usually free of charge. This process can take a few days to a week.
- **Open Access Repositories:** Some articles are freely available in open access repositories (e.g., arXiv, PubMed Central) or institutional repositories. A quick search on Google Scholar or a general web search for the article title might reveal an open access version.

KEY TAKEAWAYS

- Deconstruct your research question into core concepts and brainstorm comprehensive keyword lists for each.
- Use Boolean operators (AND, OR, NOT) to precisely combine keywords, narrowing or broadening your search as needed.
- Employ truncation (e.g., `educat*`) to capture various word endings and wildcards (e.g., `wom?n`) for spelling variations.
- Utilize proximity operators (e.g., `NEAR/5`, `ADJ`) to ensure search terms appear close together and are contextually relevant.
- use subject headings (controlled vocabulary) for highly precise searching, overcoming keyword limitations like synonyms.
- Apply search limits (e.g., date, peer-reviewed, publication type) to efficiently filter and focus your search results.
- Refine your search strategy by adjusting keywords, Boolean operators, or limits based on the relevance and quantity of initial results.
- Access full-text articles through library subscriptions, publisher websites, interlibrary loan, or open access repositories.

CHECK YOUR UNDERSTANDING

Answer these before moving on. Model answers are in the Answer Key at the back of this guide.

1. How do Boolean operators AND and OR differ in their effect on search results?
2. When would you use truncation, and what symbol is commonly used?
3. What is the primary advantage of using subject headings over keywords in a database search?
4. Name three common search limits you can apply to refine your results.
5. Explain the concept of 'citation chaining' and its two directions.

CHAPTER 2

using Search Tools and Strategies

Chapter 2 guides you through the practical application of information literacy skills to find high-quality academic sources. You will learn to navigate various search tools, from specialized academic databases to general search engines, understanding their unique strengths and weaknesses. This chapter also shows you how to expand your search effectively by utilizing citations and author information.

Finally, we will bring these elements together to develop a systematic approach to searching. This structured method ensures that your research is thorough, efficient, and reproducible. Mastering these techniques will transform your search process from a hopeful endeavor into a precise, targeted skill.

Navigating Search Tools and Information Sources

Covers: Search Tools · Academic journals and Other Information Sources

Effective information retrieval begins with selecting the right search tool. Different tools offer distinct advantages and are suited for specific types of information needs. Understanding these differences is fundamental to efficient academic searching.

Library Catalogs

A library catalog is your guide to the physical and electronic holdings of a specific library or library system. It lists books, journals (though not individual articles within them), media, and other materials the library owns or subscribes to. You can search by author, title, subject, or call number. Use a library catalog when you need a specific book, want to see what books a library has on a broad topic, or identify which journals a library provides access to.

Academic Databases

Academic databases are specialized search tools that index vast collections of scholarly articles, conference papers, theses, and other research outputs. Examples include Web of Science, Scopus, PubMed (for medical sciences), PsycINFO (for psychology), and JSTOR (for humanities and social sciences). These databases offer advanced search functionalities, such as searching by abstract, subject heading, author affiliation, and publication type. They are crucial for finding peer-reviewed journal articles, which represent the cutting edge of research in most fields. Most databases also allow you to filter results by publication date, language, and other criteria.

General Search Engines and Academic Search Engines

General search engines like Google cast a wide net, indexing billions of web pages. While useful for quick factual checks or initial brainstorming, they often return an overwhelming volume of results of varying quality. Google Scholar is a specialized version focusing on scholarly literature. It can be excellent for

discovering articles, books, and theses across disciplines, and it offers useful features like citation counts and related articles. However, its coverage may not be as comprehensive or curated as discipline-specific academic databases, and it sometimes includes non-peer-reviewed or less authoritative sources. Use Google Scholar for a broad initial sweep or to find works that might not be indexed in your library's primary databases.

Choosing the correct tool depends on your research question and the type of information you seek. For a foundational overview, start with books found in a library catalog. For current, peer-reviewed research, turn to academic databases. For a broader exploration or to find grey literature, consider Google Scholar.

Academic Journals and Other Information Sources

The type of information source you consult significantly impacts the depth and authority of your research.

Academic Journals Academic journals publish articles that report original research, theoretical developments, or critical reviews. These articles undergo a rigorous peer-review process, where experts in the field evaluate the manuscript for its validity, methodology, and significance before publication. This process ensures a high standard of quality and reliability. Journal articles are typically the most current form of published scholarly research.

Conference Proceedings These are collections of papers presented at academic conferences. They often represent very recent research, sometimes before it appears in a full journal article. While valuable for tracking emerging trends, they may not always undergo the same level of peer review as journal articles.

Books Scholarly books, or monographs, provide comprehensive treatments of a subject. They are excellent for gaining a broad understanding, exploring historical contexts, or working through theoretical frameworks. Edited collections feature chapters by different authors, offering diverse perspectives on a central theme.

Theses and Dissertations These are detailed, original research projects undertaken by students for advanced degrees. They offer in-depth analysis and extensive bibliographies. Many universities make their theses and dissertations publicly available, often through institutional repositories.

Grey Literature This category includes reports, working papers, government documents, technical specifications, and policy statements. Grey literature is often produced by organizations outside traditional academic publishing channels. It can contain unique data or perspectives not found elsewhere, but its quality control may vary. Evaluate grey literature critically for authorship, purpose, and methodology.

Understanding these source types allows you to select the most appropriate materials for your specific research needs. Prioritize peer-reviewed journal articles for evidence-based arguments, and use books for foundational knowledge.

Expanding Your Search with Citations and Authors

Covers: Citations and Reference Searching · Author Search

Once you find a few highly relevant articles, you can expand your search significantly by using their bibliographies and author information. This method helps you discover connected research efficiently.

Citations and Reference Searching

Every scholarly work builds upon previous research. The references or bibliography at the end of an article or book chapter provide a roadmap to foundational and related studies. This technique is often called citation chaining or snowballing.

Forward Citation Chaining (Snowballing) When you find a key article, examine its reference list. These are the sources the authors cited to support their work. By reviewing these references, you can identify earlier, often foundational, articles and books that shaped the field. This is an effective way to trace the intellectual lineage of a concept or methodology.

- **Procedure:**

1. Locate a highly relevant article.
2. Go to its reference list or bibliography.
3. Identify titles that appear particularly relevant to your topic.
4. Search for those identified titles in your chosen databases or library catalog.
5. Repeat the process with newly found relevant articles.

Backward Citation Chaining (Reverse Citation Searching) This method involves finding articles that have cited your key article *after* its publication. This helps you discover more recent research that built upon, critiqued, or applied the findings of your initial source. Many academic databases and tools like Web of Science, Scopus, and Google Scholar offer a "cited by" or "times cited" feature.

- **Procedure:**

1. Locate a highly relevant article.
2. Use the "cited by" feature in a database or Google Scholar.
3. Review the list of citing articles for relevance to your topic.
4. This helps you understand the impact and subsequent development of the original research.

Combining both forward and backward citation chaining creates a powerful search strategy. It allows you to move both backward in time to the roots of a topic and forward to its most recent developments. This ensures a comprehensive understanding of the scholarly conversation around your subject.

Author Search

Searching by author is a targeted way to find all works by a specific researcher or to identify experts in a field. This can be particularly useful when you know a prominent scholar is working on your topic.

Strategies for Author Search

1. **Exact Name Search:** Most databases have an author field. Enter the author's last name followed by their first initial or full first name, for example, "Smith, J" or "Smith, John". Be aware of variations (e.g., "Smith, J. A." versus "Smith, John A.").

2. **Affiliation:** If multiple authors share a name, combine the author's name with their institutional affiliation (e.g., "Smith, J AND University of Leeds"). This helps narrow down results.
3. **Author Identifiers:** Many researchers use unique identifiers to distinguish their work.
 - **ORCID (Open Researcher and Contributor ID):** A persistent digital identifier that distinguishes researchers from one another. Many databases integrate ORCID profiles.
 - **ResearcherID/Scopus Author ID:** Proprietary identifiers used by Web of Science and Scopus, respectively, to group all publications by a single author. Using these identifiers ensures you retrieve a complete and accurate list of an author's publications.
4. **Combine with Keywords:** To find specific research by an author, combine their name with relevant keywords using the AND operator (e.g., "Smith, J AND information literacy").

An author search helps you track a researcher's contributions over time, identify their collaborators, and explore the breadth of their work. This can lead to discovering new articles, books, and even entire research programs relevant to your interests.

Developing a Systematic Search Strategy

Covers: Systematic Search

A systematic search moves beyond casual browsing. It is a structured, documented, and reproducible approach to finding information. This method ensures thoroughness, minimizes bias, and allows for refinement as your research progresses.

Steps for a Systematic Search

1. **Define Your Research Question:** Clearly articulate what you want to find out. A well-defined question guides your entire search. For example, instead of "information literacy", ask "How does information literacy training impact undergraduate student retention rates?"
2. **Identify Key Concepts and Keywords:** Break your research question into its core components.
 - Research Question: "How does *information literacy training* impact *undergraduate student retention rates*?"
 - Key Concepts: information literacy training, undergraduate students, retention rates.
3. **Brainstorm Synonyms and Related Terms:** For each key concept, list all possible alternative words, phrases, and broader or narrower terms. This expands your search coverage.
 - information literacy training: information skills, library instruction, bibliographic instruction, research skills education.
 - undergraduate students: university students, college students, higher education students.
 - retention rates: student success, persistence, completion rates, academic achievement.
4. **Select Appropriate Databases and Search Tools:** Based on your topic, choose the most relevant academic databases (e.g., education databases, general academic databases) and potentially Google Scholar. Remember the strengths of each tool discussed in Section 1.

5. Construct Search Strings Using Boolean Operators and Truncation: Combine your keywords and synonyms using Boolean operators (AND, OR, NOT), phrase searching (""), and truncation (*).

- **OR** connects synonyms within a concept: ("information literacy training" OR "information skills" OR "library instruction")
- **AND** combines different concepts: ("information literacy training" OR "information skills") AND ("undergraduate students" OR "university students")
- **Truncation** (*) captures word variations: student* (students, student's, student-led)
- **Phrase Searching** (") ensures exact phrases: "retention rates"

Example Search String Fragment:

```
("information literacy training" OR "information skills" OR "library instruction")
AND
("undergraduate student*" OR "university student*" OR "college student*")
AND
("retention rate*" OR "student success" OR "persistence" OR "completion rate*")
```

6. Apply Subject Headings (Controlled Vocabulary): Many databases use a controlled vocabulary (e.g., MeSH in PubMed, ERIC Descriptors in education databases). These are standardized terms assigned to articles by human indexers. Searching with subject headings can be highly precise because it bypasses variations in author terminology. Find relevant subject headings by examining highly relevant articles in the database; often, the database will list the assigned headings.

7. Run Searches and Review Results: Execute your search strings in the chosen databases. Review the initial results for relevance. Look at titles, abstracts, and keywords.

8. Refine Search Strategy: Based on your initial results, adjust your search.

- If too many irrelevant results: Add more specific keywords, use NOT operator, apply more filters (date, publication type).
- If too few results: Add more synonyms, broaden terms, remove restrictive operators.
- Use citation chaining (as discussed in Section 2) to find more relevant articles.

9. Document Your Search Process: Keep a detailed record of your search strategy. This includes:

- Date of search.
- Databases used.
- Exact search strings (including operators, truncation, and filters).
- Number of results for each search.
- Any key articles found. This documentation is vital for reproducibility, especially in systematic reviews, and helps you avoid repeating searches.

10. Consider Search Limits: Apply limits such as publication date ranges, language, or specific study types (e.g., "review articles") to focus your results.

By following these steps, you transform your search from an exploratory activity into a rigorous, systematic process. This approach is a hallmark of professional academic research.

KEY TAKEAWAYS

- Choose the right search tool, whether a library catalog, academic database, or specialized search engine, based on your information needs.
- Academic journals, conference proceedings, and scholarly books offer distinct types of information, with peer-reviewed journals providing the most current and validated research.
- Expand your search effectively by using citation chaining, both forward (references) and backward (cited by), to discover related research.
- Utilize author search strategies, including author identifiers like ORCID, to find all works by a specific researcher.
- A systematic search involves defining your question, brainstorming terms, constructing precise search strings, and documenting every step.
- Combine Boolean operators, truncation, phrase searching, and subject headings to create comprehensive and targeted search queries.
- Documenting your search process ensures reproducibility, allows for refinement, and demonstrates the rigor of your information retrieval.

CHECK YOUR UNDERSTANDING

Answer these before moving on. Model answers are in the Answer Key at the back of this guide.

1. When would you choose to use a general search engine like Google Scholar over a specialized academic database?
2. Explain the difference between forward and backward citation chaining.
3. Why is it important to use author identifiers like ORCID when searching for a specific author's work?
4. What are the key components you should document when performing a systematic search?
5. How do subject headings enhance the precision of your search compared to keywords alone?

REFERENCE

Glossary

Academic database

A specialized online collection indexing scholarly articles, conference papers, and other research, often with advanced search features.

Author identifier

A unique digital code, such as ORCID, used to distinguish researchers and group all their publications accurately.

Boolean operators

Words (AND, OR, NOT) used to combine or exclude search terms, defining their relationship in a search query.

Citation chaining

A strategy to find more articles by examining the references of a relevant article (backward chaining) or seeing which newer articles cite it (forward chaining).

Keywords

Words or phrases that describe the main concepts of your research question, used in search queries.

Library catalog

A database listing the physical and electronic holdings of a specific library.

Proximity operators

Commands (e.g., NEAR, ADJ) that specify how close search terms must appear to each other within a document.

Search limits

Filters applied to search results (e.g., publication date, peer-reviewed, document type) to narrow the scope.

Subject heading (controlled vocabulary)

Standardized terms used by databases to categorize and index articles, enabling precise searches beyond keywords.

Subject headings

Standardized, controlled vocabulary terms assigned to articles by indexers, used for precise and consistent searching.

Systematic search

A structured, documented, and reproducible approach to information retrieval that follows a defined set of steps.

Truncation

A search technique using a symbol (often *) to replace varying word endings, finding different forms of a root word.

Wildcard

A search technique using a symbol (often ? or #) to replace a single character within a word, useful for spelling variations.

REFERENCE

Answer Key

Chapter 1: Effective Information Searching

1. How do Boolean operators AND and OR differ in their effect on search results?

The AND operator narrows your search, requiring all connected terms to be present in the results. For example, 'dogs AND cats' finds documents mentioning both. The OR operator broadens your search, finding results that contain any of the connected terms. For example, 'dogs OR cats' finds documents mentioning either dogs, cats, or both.

2. When would you use truncation, and what symbol is commonly used?

You would use truncation to find various forms of a word from a common root, such as plurals or different verb tenses. For example, 'child*' could find 'child,' 'children,' or 'childhood.' The asterisk (*) is the most common symbol for truncation, but it is always good to confirm with the specific database.

3. What is the primary advantage of using subject headings over keywords in a database search?

The primary advantage is precision and comprehensiveness. Subject headings are standardized terms from a controlled vocabulary, overcoming issues of synonyms, variant spellings, and ambiguity that can plague keyword searches. They ensure you retrieve all relevant articles indexed under that specific concept, regardless of the authors' exact wording.

4. Name three common search limits you can apply to refine your results.

Three common search limits include publication date (to find recent articles), publication type (to filter for journal articles or books), and peer-reviewed status (to ensure academic rigor). Other useful limits include language and author affiliation.

5. Explain the concept of 'citation chaining' and its two directions.

Citation chaining is a method to find more relevant articles by following citation links. Backward chaining involves examining the reference list of a relevant article to find older, foundational works. Forward chaining involves finding newer articles that have cited a known relevant article, helping you discover more recent research built upon that work.

Chapter 2: using Search Tools and Strategies

1. When would you choose to use a general search engine like Google Scholar over a specialized academic database?

You would use Google Scholar for a broad initial exploration of a topic or to find grey literature that might not be indexed in specific academic databases. It is also useful for quickly identifying highly cited works and related articles across disciplines. However, for comprehensive, curated, and peer-reviewed results in a specific field, academic databases are generally more effective.

2. Explain the difference between forward and backward citation chaining.

Forward citation chaining involves reviewing the reference list of a relevant article to find older,

foundational sources that the article cited. Backward citation chaining, also known as reverse citation searching, identifies newer articles that have cited your initial relevant article since its publication. Both methods help expand your search by connecting related research in different temporal directions.

3. Why is it important to use author identifiers like ORCID when searching for a specific author's work?

Author identifiers like ORCID are crucial because they uniquely identify a researcher, distinguishing them from others with similar names. This ensures that you retrieve a complete and accurate list of all publications by that specific author, overcoming challenges posed by name variations or common surnames. It streamlines the process of tracking an author's entire body of work.

4. What are the key components you should document when performing a systematic search?

When performing a systematic search, you should document the date of the search, the specific databases used, the exact search strings (including all operators and filters applied), and the number of results obtained for each search. This documentation ensures the search is transparent, reproducible, and allows for future refinement or replication.

5. How do subject headings enhance the precision of your search compared to keywords alone?

Subject headings enhance search precision because they are standardized terms assigned to articles by human indexers, representing the core content of the material. Unlike keywords, which can vary greatly, subject headings provide a consistent vocabulary. This means a search using subject headings can retrieve all relevant articles on a topic, regardless of the specific keywords authors used, leading to more focused and comprehensive results.

CLOSING

Where to Go Next

After completing "Information Literacy: Search Like a Pro," you will possess a robust set of skills for finding academic information. To consolidate your learning, apply these strategies to your own research projects. Actively use boolean operators, truncation, and subject headings in every search you conduct.

Consider exploring specialized databases relevant to your field of study. Many disciplines have unique resources that benefit from the search techniques taught here. Practicing these skills regularly will ensure they become second nature.

You might also consider courses on advanced research methods, critical evaluation of sources, or citation management. These subjects build naturally upon the strong foundation in information literacy you have now established.



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