Module 2: ARDI Searching Strategies

- Planning a Search Strategy
- Boolean Operators
- Evaluating Internet Information
Planning a Search Strategy

Developing a Search Strategy: Process Overview

1. ASK
   State your topic as a question to focus your search.
   Ask: Is my question too broad or too narrow?

2. DEFINE NEED
   Define your information need.
   Ask: What sort and how much information do I need?

3. IDENTIFY CONCEPTS
   Identify main concepts from your question.
   Ask: What are the most important terms in my question?

4. SELECT TERMS
   Select unique words, synonyms, spellings, plurals, broader topic
   Ask: Should I use tertiary, secondary or primary sources?
   Ask: What are some discipline specific thesauri?

5. SELECT SOURCES
   Select appropriate professional sources
   Ask: How do I get full text? How will I use this information in the future?
   Ask: Find out how good the information is.
   Ask: Can I trust this information? Is this a highly cited article?

6. SEARCH
   Construct a search with appropriate commands for the system selected.
   Ask: Am I searching efficiently?

7. REVISE
   Be prepared to revise and refine your search.
   Ask: Did I retrieve all information that I need?

8. MANAGE RESULTS
   Retrieve records, full text, save, print, cite, e-mail.
   Ask: How do I get full text? How will I use this information in the future?

9. EVALUATE
   Find out how good the information is.
   Ask: Can I trust this information? Is this a highly cited article?

10. APPLY
    Answer your question.
    Ask: Did I answer my question. Do I still need more information?

Remember: Your question drives the search strategy. There is no one best way to search. Avoid one stop searching to prevent bias.
Steps 1–4: Example (solar panels and electricity)

- Ask: Question: How can solar panels be used for electricity?
- Need: scholarly/primary research
- Main Concepts: solar panels or cells and electricity
- Select Terms:
  - Broader terms: ‘energy’, ‘power’, sun
  - Synonyms: solar/photovoltaic, energy/electricity, panels/cells
  - Alternative spellings: none
  - Plurals: cell(s), panel(s)
  - Capitalization: be aware of relevancy ranking
Step 5: Select a Source

Types of Information Sources and Information Retrieval Process

Sources are considered primary, secondary, or tertiary based on the originality of their information and its proximity to the original source. When you are looking for answers you may need to consult several types. No single source is comprehensive.

- **Tertiary Sources**
  - Summaries & General Information
    - Encyclopedias
    - Dictionaries
    - Drug Compendia
    - Reference books
    - Textbooks

- **Secondary Sources**
  - Secondary interpretation or indexing of original research
    - Abstracting and indexing services (e.g. PubMed)
    - Bibliographies
    - Reviews
    - Meta-Analyses

- **Primary Sources**
  - Original research
    - Conference posters/papers
    - Journal articles reporting original research
    - Case reports
    - Correspondence
    - Dissertations
    - Clinical trial protocols

INFORMATION RETRIEVAL PROCESS
Step 6: Construct a search using the appropriate commands and best practices

Question: How can solar panels be used for electricity?

Concept 1
- solar
  - 1. solar
  - 2. photovoltaic

7 = 1 OR 2

Concept 2
- panels
  - 3. panels
  - 4. cells

8 = 3 OR 4

Concept 3
- electricity
  - 5. electricity
  - 6. energy

9 = 5 OR 6

10 = 7 AND 8 AND 9
Step 7: Revise

- Review and refine search
  - be prepared to review/revise your search
  - keep your search terms in concept sets/zones but remember to explore subtopics
- try new sources of information
- save the search and citations for future use
- promote use of high-quality resources
Step 8: Manage Results

- Download, print, save, e-mail results and search history
- Cite using a scientific citation style
- Save search, set up alerts
Step 9: Evaluate

- Accuracy
- Authority
- Objectivity
- Currency
- Coverage
Step 10: Apply

- Answer the question
Boolean Operators: **AND Operator** (to combine two concepts)

![Diagram showing the intersection of solar and panel concepts](image)

The **AND** operator is used to combine two concepts e.g. solar **AND** panel – results are in the combined area of the two circles.
AND Operator
(to combine three concepts)

the **AND** operator is used to combine three concepts e.g. solar AND panel AND electricity in the combined area of the three circles
**OR Operator**

*(information containing one or other term)*

- **solar**
- **photovoltaic**

*the OR is a means of combining synonyms e.g. solar OR photovoltaic - in each circle’s area with the overlap in the middle having both search terms*
NOT Operator
(in one term or the other)

solar NOT eclipse – in the left side area; eliminates items in 2nd term (eclipse) or both terms
Other search engine functions

- Phrase or proximity searching: "..."
  - allows you to search for an exact phrase
  - Example: "solar power"

- Truncation/wildcards: * or ? or % or $
  - can represent a range of characters
  - allow you to search alternative spellings and plurals
  - Example: panel? for panel OR panels
  - Example: bactericid* for bactericide, bactericides, or bactericidal
("leptospermum scoparium" OR manuka OR teatree) AND (antibacterial OR bactercid*)

Search results are in the combined area of the circles. The (OR) operator retains items in each term and the AND operator is used to combine two concepts.
More Search Techniques

- Field Specific Searching
  - author, title, journal, date, url, etc.

- Language Restrictions, Humans or Animals and other limits

- Relevancy Ranking
  - a grading that gives extra weight to a document when the search terms appear in the headline or are capitalized
Criteria for Evaluating Web Information

- Accuracy - research methods explained, sources cited, includes bibliography; is a well written/edited information
- Authority - author recognized as expert or from an academic or scientific organization (see url/web address)
- Currency - date website updated: use of current research & sources
- Coverage - inclusion of material you need
- Design - ease to navigate (including links) and find what you want speed of website
- Objectivity - methods/results are not influenced by particular perspectives, values or bias; is not a personal website or that of an organization with a specific agenda
Evaluating Web Pages - Resources

- www.ed.ac.uk/information-services/library-museum-gallery/finding-resources/library-databases/databases-overview/evaluating-websites (primary source)
- medlineplus.gov/evaluatinghealthinformation.html
- guides.library.cornell.edu/evaluating_Web_pages
- usm.maine.edu/library/checklist-evaluating-web-resources
- www.sc.edu/beaufort/library/pages/bones/lesson5.shtml
Search Tools

See Module 5 for information about the Summon search tool and Module 7 for the discussion of various tools – from ARDI and the Internet.
Exercises

- This is the end of the ARDI Basic Course Module 2

- Complete the exercises for this module in the accompanying (exercises) word document

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