Exercises

# Chapter 5: Searching the literature

## Exercise 5-1: A case study of the search process

Box 5.4 details methods of identifying literature for a systematic review on housing interventions for ‘housing-vulnerable’ adults and the relation to wellbeing (Chambers et al., 2018). The team retrieved 4540 unique references. Consider Table 5.5 and answer these questions:

1. How do you rate this search in terms of the number and types of sources searched? Is this adequate?

2. What disadvantages can you identify in the author’s search approach?

3. What aspects of the search process in the case study might you apply to your own review?

**Box 5-4: Anatomy of the search process**

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| *Description of review* | |
| The objective of this review is to identify evidence on the effectiveness of housing interventions for ‘housing-vulnerable’ adults with an emphasis on well-being outcomes. | |
| *Focused review question* | *Details of the search process used in this review* |
| Population: ‘Vulnerable’ groups (e.g., homeless persons, asylum seekers, victims of abuse)  Interventions: Housing First; independent living; sheltered accommodation…  Comparison – N/A  Outcomes:  Wellbeing (ONS 2015 definition expressed in 8 dimensions)  Context: UK | Key Stage 1: Who should conduct the searches?  Searches were conducted by “highly experienced information specialists” as part of the project team |
| Key stage 2: Purpose of search  “The aim of the searches was to identify all evidence on housing interventions for housing-vulnerable people that relate to the eight dimensions of wellbeing under consideration” |
| Key stage 3: Preparation (scoping)  Initial scoping search including outcome terms for the 8 dimensions of wellbeing found very few relevant records, suggesting that terminology was inconsistent and relevant literature was being missed by including these in the search. |
| Key stage 4: Search strategy  A broad search combining terms for housing with interventions and vulnerable population groups (but not specifying outcomes) |
| Key stage 5: Database searches  Medline, EMBASE, EconLit and PsycINFO (all via OVID), ASSIA (via ProQuest) and Social Sciences Citation Index (via Web of Science) |
| Key stage 6: Supplementary searches  ● Scrutiny of the introduction/background/reference list of papers retrieved to identify additional papers.  ● Citation searching of key papers  ● A search of selected topic relevant UK websites based on known research activity and recommendations from review advisory board members (charities, think tanks and other organisations with an interest in housing for vulnerable people)  ● Search discussion papers, publications and activities of UK university research centres and groups focused on housing research Targeted call for evidence through the expert network (the What Works Centre for Wellbeing) |
| Key stage 7. Reference management  Results were imported into EndNote X7  *(later versions of EndNote are now available)* |
| Key stage 8. Reporting  An example Medline search strategy and details of the supplementary search methods are provided  *(in the appendices of the original article, not in this book)* |

## Exercise 5-2: Examining search strings

These sample search strings cover diverse topics and database platforms. Look at each in turn, and consider:

∙ How would you rate the search? Have the concepts of the research question (population, intervention/exposure, outcome(s), etc.) been successfully translated into search terms? Are there any other search terms that you might have included?

∙ What types of searching (thesaurus searching, **free-text** searching) have been used and are these appropriate?

∙ Which search tools have been used (Boolean operators, truncation, etc.)? Have these tools been used successfully?

### Research question A: Electricity pylons and schools

Is the location of schools near electromagnetic fields from electricity pylons liable to have adverse health effects on schoolchildren?

#### Suggested Search Strategy for MEDLINE via OvidSP

1. exp Schools/

2. school\*.ti,ab.

3. 1 or 2

4. location\*.ti,ab.

5. near.ti,ab.

6. next to.ti,ab.

7. adjacen\*.ti,ab.

8. proximity.ti,ab.

9. 4 or 5 or 6 or 7 or 8

10. 3 and 9

11. exp Electromagnetic Fields/

12. electromagnetic\* field\*.ti,ab.

13. 11 or 12

14. 10 and 13

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### Research question B: ICT interventions to facilitate maths problem-solving

Do information and communications technology (ICT) interventions improve primary schoolchildren’s performance in solving maths problems?

#### Suggested Search Strategy for ERIC via EBSCO

S1 DE "Elementary Schools"

S2 primary school\*  
S3 DE "Children"

S4 child\* or infant\* or junior\*

S5 S1 OR S2 OR S3 OR S4

S6 (DE "Problem Solving")

S7 DE "Information Technology"

S8 ICT or "I.T." or information technolog\* or ("information and communication\* technolog\*" or computer\* or tablet or iPad\* or hand-held device\*)

S9 S7 OR S8

S10 DE "Mathematics Achievement" OR DE "Mathematics Skills"

S11 math or maths or mathematics or numeracy

S12 S10 or S11

S13 S5 AND S6 AND S9 AND S12

### Research question C: the benefits of solar-powered travel

Is the provision of solar-powered cars likely to result in benefits to society in an industrialised nation?

NB – this search focuses on environmental and financial benefits.

#### Suggested Search Strategy for

#### Science and Social Sciences Citation Indexes via Web of Science:

*#1 Topic = (solar power\*) AND (car\* OR vehicle\* OR automobile\*)*

*#2 Topic = (environment\* OR pollut\* OR emission\*)*

*#3 Topic = (financ\* OR econom\* OR cost effective\* OR cost benefit\*)*

*#4 Topic = #2 OR #3*

*#5 Topic = #1 AND #4*

### Research question D

Is early discharge of stroke patients from the hospital into the community more effective than standard hospital care?

#### Suggested Search Strategy for EMBASE via Ovid:

1. exp stroke patient/ or exp stroke/

2. stroke\*.ti,ab.

3. cerebrovascular accident\*.ti,ab.

4. 1 or 2 or 3

5. exp hospital discharge/

6. early adj2 discharge\*.ti,ab.

7. 5 or 6

8. 4 and 7

9. meta-analys:.mp. or search:.tw. or review.pt.

10. 8 and 9

Note how this search demonstrates the use of a search filter (Step 9), in this case, devised by the Health Information Research Unit at McMaster University. Although much shorter than many published filters, this short string has been found to successfully retrieve 92% of systematic reviews when validated against a “gold standard” set of articles (Wilczynski et al., 2007).

## Exercise 5-3: Planning a literature search for your own review

Think...

∙ about the purpose of your review – how comprehensive a search do you need to fulfil the purpose of your review?

∙ about your focused question – what types of databases may index articles on your topic area? Which terms might describe each concept in your focused question?

∙ do you know of any key citations or authors in your topic area? (Hint: ideally these papers should have been published between five and ten years ago in order to have accrued sufficient impact.)

Decide on...

∙ database sources to search, including sources of unpublished or grey literature; (For assistance with identifying grey literature sources, see Tables 5.3)

∙ additional searching techniques: reference list checking, contact with experts, citation searching;

∙ using a table, make a list of possible search terms for each concept within your focused question – think of all the synonyms and consider which terms might allow you to broaden or narrow each concept as required;

∙ identify thesaurus terms for your search terms;

∙ include free-text terms (words you will search for in titles, abstracts and other ‘unstructured’ fields)

∙ combine your search terms using Boolean operators (combine synonyms for each concept with OR; then combine different concepts with AND)

|  |
| --- |
| **Insert your response:**  *Database sources to search*  *Additional searching techniques*  *Possible search terms*  *Possible thesaurus terms*  *Possible free-text terms*  *Appropriate choice of operators* |

## Exercise 5-4: Pearl growing and author searching

In the grid provided list three or four key citations you might consider useful ‘pearls’ in your topic area. List authors or institutions who might have conducted research studies in your topic area.

Candidate pearls: Candidate authors or institutions for author searching:

1. 1

2. 2

3. 3

4. 4

## Exercise 5-5: Sources to search

Using Tables 5.2 and 5.3, complete the search planning worksheet, listing the different sources that would be useful to search for your chosen review topic area. Check your list with a librarian/information specialist if possible.

### Search planning worksheet

We have devised a template for you to record what sources you will search to find the literature to answer your research question. Adjust the number of sources you will search accordingly to meet the requirements of your topic and the time and resources available.

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| **Databases** | **Grey Literature** | **Journals (hand-searching)** | **Experts to contact** |
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