



Researcher Identity Development

Strengthening Science in Society Strategies

www.researcher-identity.com

Training material

Conducting a systematic literature review

Process and tips

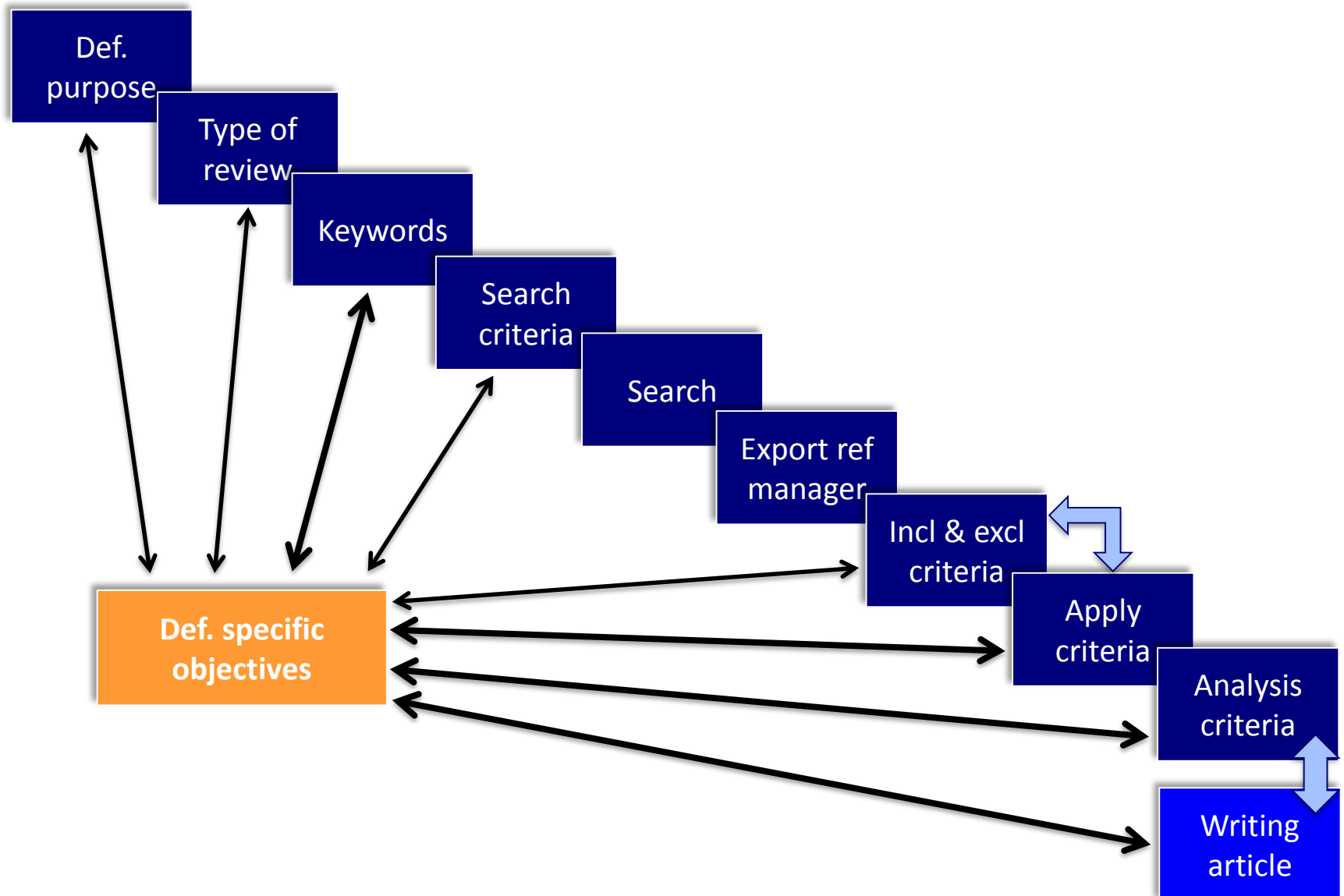
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Overview of the process



STEP 1

Why write a systematic literature review?

Purpose regarding the topic

✓ **Mature topic**

- Review, critique, or potential reconceptualization of a vast body of knowledge.

✓ **New or emerging topic**

- Initial or preliminary conceptualization of the topic (i.e., a new model or framework) - combination of topics (i.e. intersection between identity as a research and identity as a woman).

✓ **Both**

- Identification of gaps, establishment of a research agenda.

STEP 1

Why write a systematic literature review?

Different purposes and objectives

✓ Theoretical models

- Synthesis, critique, reorganization, etc. of the theories used to explore a given topic.
→ New model, classification of the theories, underrepresented dimensions...

✓ (Sub)topic or objectives

- Analysis of the research questions and objectives.
→ Under or overexplored issues.

✓ Characteristics of interventions

- Analysis of the models, objectives, tools, formats, participants, duration and pedagogical methodologies used in interventions about a given topic.
→ New model of intervention, underrepresented methods...

✓ Methods

- Analysis of the methods used to explore a given topic.
→ Map of the available instruments and combinations, under or overused instruments...

✓ Effects of interventions

- Analysis of the outcomes of interventions, relationship of the outcomes with characteristics of participants or methodologies.
→ New model re relationships among variables, characterization of effective modes of intervention.

✓ Generalization of results

- Analysis of the results of the studies conducted on a given topic, detection of common results and differences/contradictions
→ New theory or definitions, new understanding of a topic.

STEP 2

Types of reviews (I)

Table 1 Main review types characterized by methods used

Label	Description	Methods used (SALSA)			
		Search	Appraisal	Synthesis	Analysis
Critical review	Aims to demonstrate writer has extensively researched literature and critically evaluated its quality. Goes beyond mere description to include degree of analysis and conceptual innovation. Typically results in hypothesis or model	Seeks to identify most significant items in the field	No formal quality assessment. Attempts to evaluate according to contribution	Typically narrative, perhaps conceptual or chronological	Significant component: seeks to identify conceptual contribution to embody existing or derive new theory
Literature review	Generic term: published materials that provide examination of recent or current literature. Can cover wide range of subjects at various levels of completeness and comprehensiveness. May include research findings	May or may not include comprehensive searching	May or may not include quality assessment	Typically narrative	Analysis may be chronological, conceptual, thematic, etc.
Mapping review/systematic map	Map out and categorize existing literature from which to commission further reviews and/or primary research by identifying gaps in research literature	Completeness of searching determined by time/scope constraints	No formal quality assessment	May be graphical and tabular	Characterizes quantity and quality of literature, perhaps by study design and other key features. May identify need for primary or secondary research.
Meta-analysis	Technique that statistically combines the results of quantitative studies to provide a more precise effect of the results	Aims for exhaustive, comprehensive searching. May use funnel plot to assess completeness	Quality assessment may determine inclusion/exclusion and/or sensitivity analyses	Graphical and tabular with narrative commentary	Numerical analysis of measures of effect assuming absence of heterogeneity
Mixed studies review/mixed methods review	Refers to any combination of methods where one significant component is a literature review (usually systematic). Within a review context it refers to a combination of review approaches for example combining quantitative with qualitative research or outcome with process studies	Requires either very sensitive search to retrieve all studies or separately conceived quantitative and qualitative strategies	Requires either a generic appraisal instrument or separate appraisal processes with corresponding checklists	Typically both components will be presented as narrative and in tables. May also employ graphical means of integrating quantitative and qualitative studies	Analysis may characterise both literatures and look for correlations between characteristics or use gap analysis to identify aspects absent in one literature but missing in the other
Overview	Generic term: summary of the [medical] literature that attempts to survey the literature and describe its characteristics	May or may not include comprehensive searching (depends whether systematic overview or not)	May or may not include quality assessment (depends whether systematic overview or not)	Synthesis depends on whether systematic or not. Typically narrative but may include tabular features	Analysis may be chronological, conceptual, thematic, etc.
Qualitative systematic review/qualitative evidence synthesis	Method for integrating or comparing the findings from qualitative studies. It looks for 'themes' or 'constructs' that lie in or across individual qualitative studies	May employ selective or purposive sampling	Quality assessment typically used to mediate messages not for inclusion/exclusion	Qualitative, narrative synthesis	Thematic analysis, may include conceptual models

Extracted from: Grant, M. J., & Booth, A. (2009). A typology of reviews: an analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal*, 26(2), 91-108.

STEP 2

Types of reviews (II)

Table 1 *Continued*

Label	Description	Methods used (SALSA)			
		Search	Appraisal	Synthesis	Analysis
Rapid review	Assessment of what is already known about a policy or practice issue, by using systematic review methods to search and critically appraise existing research	Completeness of searching determined by time constraints	Time-limited formal quality assessment	Typically narrative and tabular	Quantities of literature and overall quality/direction of effect of literature
Scoping review	Preliminary assessment of potential size and scope of available research literature. Aims to identify nature and extent of research evidence (usually including ongoing research)	Completeness of searching determined by time/scope constraints. May include research in progress	No formal quality assessment	Typically tabular with some narrative commentary	Characterizes quantity and quality of literature, perhaps by study design and other key features. Attempts to specify a viable review
State-of-the-art review	Tend to address more current matters in contrast to other combined retrospective and current approaches. May offer new perspectives on issue or point out area for further research	Aims for comprehensive searching of current literature	No formal quality assessment	Typically narrative, may have tabular accompaniment	Current state of knowledge and priorities for future investigation and research
Systematic review	Seeks to systematically search for, appraise and synthesis research evidence, often adhering to guidelines on the conduct of a review	Aims for exhaustive, comprehensive searching	Quality assessment may determine inclusion/exclusion	Typically narrative with tabular accompaniment	What is known; recommendations for practice. What remains unknown; uncertainty around findings, recommendations for future research
Systematic search and review	Combines strengths of critical review with a comprehensive search process. Typically addresses broad questions to produce 'best evidence synthesis'	Aims for exhaustive, comprehensive searching	May or may not include quality assessment	Minimal narrative, tabular summary of studies	What is known; recommendations for practice. Limitations
Systematized review	Attempt to include elements of systematic review process while stopping short of systematic review. Typically conducted as postgraduate student assignment	May or may not include comprehensive searching	May or may not include quality assessment	Typically narrative with tabular accompaniment	What is known; uncertainty around findings; limitations of methodology
Umbrella review	Specifically refers to review compiling evidence from multiple reviews into one accessible and usable document. Focuses on broad condition or problem for which there are competing interventions and highlights reviews that address these interventions and their results	Identification of component reviews, but no search for primary studies	Quality assessment of studies within component reviews and/or of reviews themselves	Graphical and tabular with narrative commentary	What is known; recommendations for practice. What remains unknown; recommendations for future research

Extracted from: Grant, M. J., & Booth, A. (2009). A typology of reviews: an analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal*, 26(2), 91-108.

STEP 2

Types of reviews

Systematic literature review

✓ **Systematic**

- Data collection and analysis guided by well-defined and consistent criteria and method (*revisable*).

✓ **Critical analysis of the literature**

- Not (only) a summary; (re)organization of the literature, identification of gaps, weaknesses...
- Not everything; selected dimensions, characteristics of the articles included.

✓ **Significant contribution to the field/topic/discipline**

- New ways to conceptualise a topic or the research conducted in the field (*original conclusions*).

✓ **Transparency**

- Replicable method – clear and transparent report of the process and criteria.

× **Summary of the important authors, theories or contributions**

× **Position paper**

× **Dissertation introduction**



Objectives??

STEP 3

Keywords

✓ Related to the topic

- Used by important papers and authors in the field.
- Synonyms (cultural/country differences; different theoretical perspectives).

– thousands of results!

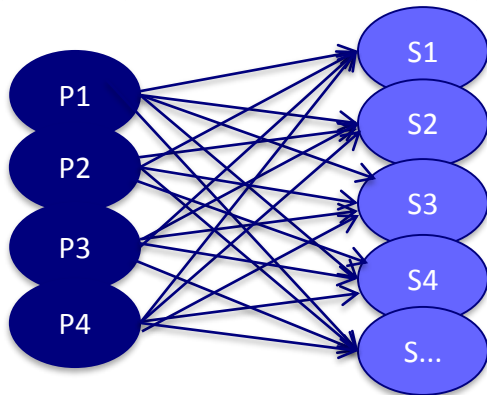
✓ Related to the objectives

- Specific context? (e.g. In Europe; intervention studies...)
- Specific participants? (e.g. Primary school students; toddlers; taxi drivers...)
- Other specific research conditions? (e.g. only academic writing; only dialogical argumentation...)

– to refine the search!

✓ Hierarchical organisation

- Defining primary keywords (probably re. topic)
- Defining secondary keywords to filter the search
- Defining tertiary keywords (if necessary)
- ...



➡ Objectives??

STEP 3

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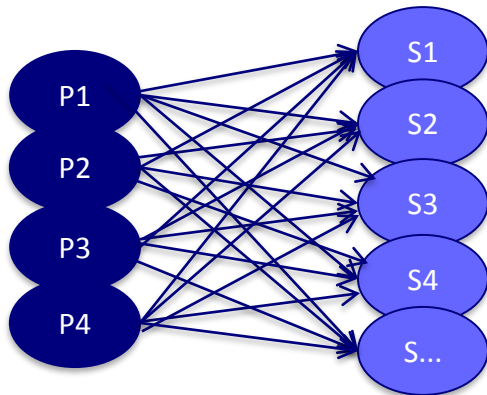
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Example

Primary keywords

- (1) Writing regulation
- (2) Writing coregulation
- (3) Writing monitoring
- (4) Writing process
- (5) Writing processes

Secondary keywords

- (1) Higher Education
- (2) University
- (3) College
- (4) Undergraduate
- (5) Graduate
- (6) Ph.D *phd
- (7) Doctoral
- (8) Doctorate
- (9) Academic writing
- (10) Writing in the Disciplines
- (11) Writing Across the Curriculum
- (12) Scientific writing

=60 independent searches

STEP 4

Search criteria and process

✓ Related to the objectives

- Year span? (e.g. last 20 years; last five years...)
- Discipline filters? (some databases permit filtering by specific discipline, others by domain)
- Types of documents (normally only –research- articles)
- Languages
- Specific journals?

✓ Databases

- Normally more than one
- Different options:
 - Journal repositories or editorial houses (e.g. Elsevier, etc.)
 - Research document databases (e.g. Web of Science, Scopus, EBSCO, PubMed, Google Scholar...)

**Make sure you save all the searches
in the database platform!**

STEP 4

Search criteria and process: Example

Search History

Web of Science Core Collection

[Learn More](#)

Set	Results		Save History / Create Alert	Open Saved History	Edit Sets	Combine Sets <input type="radio"/> AND <input checked="" type="radio"/> OR Combine	Delete Sets Select All Delete
# 4	36	(ts=("writing regulation" OR "writing monitoring" OR "writing processes")) AND LANGUAGE: (English OR Catalan OR French OR Italian OR Spanish) AND DOCUMENT TYPES: (Article) Refined by: TOPIC: (university) Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC Timespan=2000-2018				<input checked="" type="checkbox"/>	<input type="checkbox"/>
# 3	8	(ts=("writing regulation" OR "writing monitoring" OR "writing processes")) AND LANGUAGE: (English OR Catalan OR French OR Italian OR Spanish) AND DOCUMENT TYPES: (Article) Refined by: TOPIC: (higher education) Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC Timespan=2000-2018				<input checked="" type="checkbox"/>	<input type="checkbox"/>
# 2	22	(ts=("writing regulation" OR "writing monitoring" OR "writing processes")) AND LANGUAGE: (English OR Catalan OR French OR Italian OR Spanish) AND DOCUMENT TYPES: (Article) Refined by: TOPIC: (college) Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC Timespan=2000-2018				<input checked="" type="checkbox"/>	<input type="checkbox"/>
# 1	271	(ts=("writing regulation" OR "writing monitoring" OR "writing processes")) AND LANGUAGE: (English OR Catalan OR French OR Italian OR Spanish) AND DOCUMENT TYPES: (Article) Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC Timespan=2000-2018			Edit	<input type="checkbox"/>	<input type="checkbox"/>

☐ AND ☐ OR
[Combine](#)
[Select All](#)
[Delete](#)

- ('Writing regulation' AND university) OR ('Writing regulation' AND 'higher education') OR ('writing regulation' AND 'college')...
(Primary keyword AND secondary keyword) OR (Primary keyword AND secondary keyword) OR...

STEP 5

Exporting results to a reference manager

✓ Why?

- Merging the results from different databases.
- Eliminating the duplicates.
- Managing the filtering process.

✓ Where?

- Free options:
 - Mendeley
 - Endnote web (not desktop version)
 - Refworks
 - Zotero
 -

STEP 5

Exporting results to a reference manager

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- Free options:
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✓ How?

STEP 5

Exporting results to a reference manager

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- Managing the filtering process.

✓ Where?

- Free options:
 - Mendeley
 - Endnote web (not desktop version)
 - Refworks
 - Zotero
 -



✓ How?

- From Scopus, there are many options

Export document settings ?

You have chosen to export 1 document

Select your method of export

☐  MENDELEY ☐  RefWorks ☐ RIS Format
*EndNote,
Reference Manager* ☐ CSV
Excel ☒ BibTeX ☐ Plain Text
ASCII in HTML

What information do you want to export?

<input type="checkbox"/> Citation information	<input type="checkbox"/> Bibliographical information	<input checked="" type="checkbox"/> Abstract & keywords	<input type="checkbox"/> Full text
<input checked="" type="checkbox"/> Author(s)	<input type="checkbox"/> Affiliations	<input checked="" type="checkbox"/> Abstract	<input type="checkbox"/> Number of citations
<input checked="" type="checkbox"/> Document title	<input type="checkbox"/> Serial identifiers (e.g. ISSN)	<input checked="" type="checkbox"/> Author keywords	<input type="checkbox"/> Accession number
<input checked="" type="checkbox"/> Year	<input type="checkbox"/> PubMed ID	<input checked="" type="checkbox"/> Index keywords	<input type="checkbox"/> Species
<input checked="" type="checkbox"/> Source title	<input checked="" type="checkbox"/> Publisher		<input type="checkbox"/> Full text
<input checked="" type="checkbox"/> volume, issue, pages	<input checked="" type="checkbox"/> Editor(s)		
<input checked="" type="checkbox"/> Citation count	<input type="checkbox"/> Language of original document		
<input checked="" type="checkbox"/> Source & document type	<input type="checkbox"/> Correspondence address		
<input checked="" type="checkbox"/> DOI	<input type="checkbox"/> Abbreviated source title		

STEP 5

Exporting results to a reference manager

✓ Why?

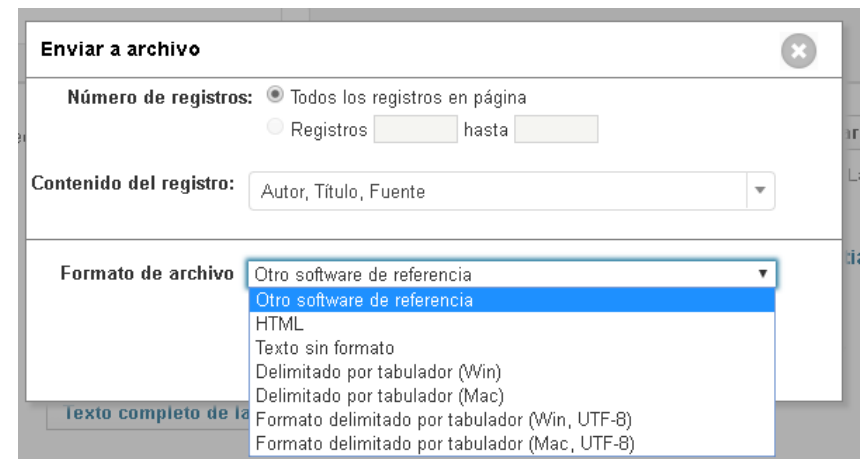
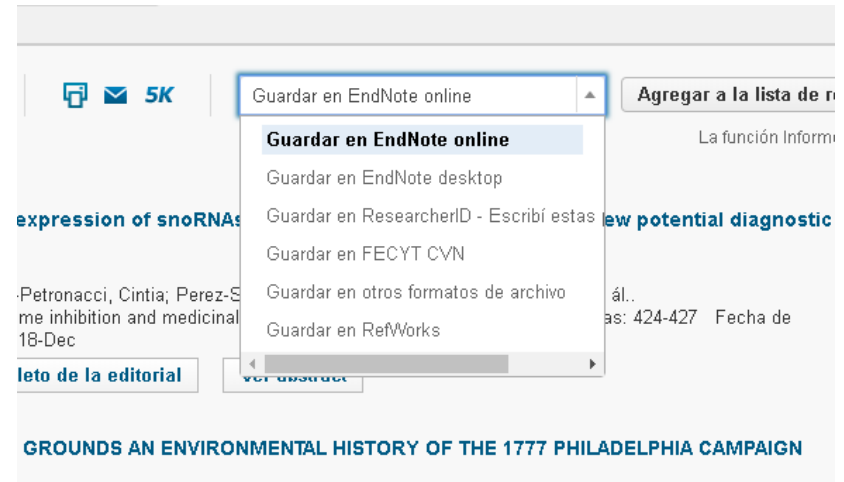
- Merging the results from different databases.
- Eliminating the duplicates.
- Managing the filtering process.

✓ Where?

- Free options:
 - Mendeley
 - Endnote web (not desktop version)
 - Refworks
 - Zotero
 -

✓ How?

- From Scopus, there are many options
- From WoS, not so well depending on the refmanager.
 - Perfect for Endnote
 - But Mendeley button does not work
 - Export to Endnote online and download a .bib file that you can drag to Mendeley.



STEP 5

Exporting results to a reference manager

✓ Once in Mendeley...

- Create a specific folder for all the papers (this folder will remain untouched, need to keep all the results in one folder).
- Duplicate the folder (these are the papers you are going to filter).
- Create one folder for:
 - Each exclusion criteria.
 - Papers that meet the inclusion criteria.
 - Papers not related to the topic.

STEP 6

Applying inclusion and exclusion criteria

Keep track of all the steps and all the papers, you'll need to report the numbers later on.

✓ Filtering process

1. First the papers that are not related at all to the topic (there will probably be many!)
 2. Continue with the exclusion criteria (e.g. Primary school if you are looking at university students).
 3. Read the remaining abstracts until they are all classified.
 4. Download doubtful papers to check if they fit the criteria.
- (depending on the criteria, you might need to download all the potential papers to get the final decision –e.g. Papers that include a description of their theoretical perspective).

Some tips

- Cut and paste these papers to the new folder (eliminating them from the folder to filter).
- You may want to use keywords to spot papers that need to be excluded fast (e.g. names of other disciplines, or types of participants you are not interested in).
- Check the numbers in all the folders match the number of results.
- You might need to redefine or add criteria (e.g. Does professional identity count as researcher identity?)

Use a codebook of the criteria to help you decide on the doubtful articles.

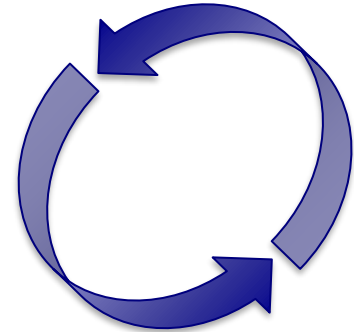


Objectives??

STEP 7

Analysis of the selected papers

- ✓ **Establishing analysis dimensions in relation to the objectives of the review.**
E.g. studies' theoretical perspective, design and instruments used.
- ✓ **Coding the papers regarding these dimensions.**
Using Excel or qualitative analysis software.
Top-down or bottom-up coding.
- ✓ **Looking at regularities and differences.**
Quantitative (e.g. Chi-square test and frequencies) or/and qualitative analyses.
- ✓ **Revising the coding system.**
- ✓ **Organising the papers in relation to one or more dimension(s).**
E.g. groups by theoretical perspective and subgroups by objectives.



We cannot analyse all the characteristics; we are not expected to report everything.

Use a codebook of the criteria to help you decide on the doubtful codes.

 Objectives??

STEP 8

Writing the literature review

- ✓ **Reporting the method.**

Exclusion and inclusion criteria.

Search process (keywords, databases, total number of results, *number of papers excluded in each criteria, final number of papers included).

Use models of published reviews, especially in the target journal(s) (great variations!).

- ✓ **Organising the results.**

Organisation in relation to the (main) dimensions of analysis.

- ✓ **Discussing the results.**

Characteristics of the literature, but also gaps and unexplored issues.

Many journals do not publish lit reviews. You may want to think about what journal you want to submit your paper early on in the process.



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