UBC Library Systematic and Scoping Review Workshop Series

Tools, Screening Criteria, and Appraisal

guides.library.ubc.ca/SystematicReviews | 2020

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Welcome

• Please make sure you are muted
• Please change your names to: First Name [area of research]
  • Example: Ritu [Forestry], Alex [Nursing]
• You can ask questions in the chat, or by raising your hand
• Please introduce yourself by putting your research topic into the chat
Learning Objectives

By the end of this workshop you will know how to:

- Export search results and deduplicate for screening
- Test inclusion criteria for your review
- Appraise the quality of evidence
- Use tools to increase openness and reproducibility of your review
Exporting results and using Covidence
Exporting database results and deduplication

Most databases can export results in RIS format, which can be imported to Covidence for screening. See this guide for export instructions for Ovid, PubMed, EBSCO, Proquest, and Cochrane Library. Suggested workflow:

1. Export references in RIS format from databases and save them in a folder.
2. In folder, create subfolders for the RIS files from each database (eg Medline, Web of Science, etc). Keep the original RIS files in case you need them later.
3. Import RIS files into Covidence. Covidence will automatically detect and remove all or most duplicates.
4. Proceed with title/abstract and full text screening in Covidence.
5. For any additional duplicates found in Covidence, tag them, then manually adjust the numbers in the PRISMA diagram generated by Covidence.
6. When finished screening full text in Covidence, you can export included studies to citation management software. From Review Settings, select Export, Included, then choose which manager.
Exporting results from Ovid databases

Select either “All,” or ranges of up to 1000 results at a time, then click Export:

[Stress in the dental practice: 'Suddenly I wasn't able to work anymore'].
Stress in de tandartspraktijk: 'Ineens lukte werken niet meer'.
Exporting results from Ovid databases

Then, choose **RIS** as the format, and be sure to change **Fields** to **Citation, Abstract**.

The RIS file will download. Save it to the folder you’ve created for your review, inside the subfolder for the database (e.g., Medline, Embase).
Special cases: Web of Science and manual additions

Web of Science does not have an option to export to RIS. Instead:

1. Export results to citation management software such as Zotero, RefWorks, Mendeley, or EndNote
2. Export from the citation management tool as RIS

The same applies to other references which you may need to add manually, such as grey literature. Add to citation manager, export as RIS, import into Covidence.
Covidence: getting started

guides.library.ubc.ca/covidence

Use a ubc.ca email address to sign yourself up. (Note: a few people have problems using alumni.ubc.ca emails - contact ubc.covidence@ubc.ca if you run into trouble)

Choose “start a new review” and ensure it’s in the UBC Library account.
Covidence: features

In Covidence you can:

- Highlight words related to inclusion or exclusion criteria
- Create custom tags to describe reasons for exclusion
- Manage reviewer roles
- Invite anyone to work on your review, even if they’re not affiliated with UBC
Covidence: caveats

- Deduplication might miss some duplicates. If you find more, use the tag function to label them; use filter to view the number of tagged references; then manually adjust the PRISMA numbers.
- Covidence shows full citation data at title/abstract screening level, which might introduce bias.
- You can’t select reasons for exclusion at the title/abstract screening level. However, you can use tags to label reasons if you want.
- Data extraction is not very flexible, best suited for questions framed in PICO format. You may want to export to Excel for extraction.
Screening: time

Research suggests:

- Average time of 30 seconds to 1 minute per citation screened at the title/abstract level\(^1\)
- Average of 3% of search results are included in the final review\(^2\)
- Using 1 rather than 2 screeners may miss 13% of relevant studies\(^3\)

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Screening: piloting and agreement

It’s important to pilot screen some references to ensure you and your co-screener(s) are applying the inclusion criteria in the same way. Also, discuss ahead of time how you will resolve conflicts (e.g., through discussion, or another screener). The Cochrane Handbook recommends a pilot of 6-8 articles.¹

Some reviews calculate and report interrater reliability for screening. Usually, 80% or greater agreement is considered acceptable.² You can calculate interrater reliability with Covidence.

1. Section 4.6.4, https://training.cochrane.org/handbook/current/chapter-04#section-4-6
Inclusion criteria: some considerations

- Population characteristics (sex, age; what to do with mixed populations)
- Intervention
- Outcomes (including how outcomes are measured, specific instruments)
- Study design
- Publication type (eg include conference abstracts, other grey literature?)
- Years of publication
- Language

Balance relevance to answering your research question with potential bias introduced by excluding some types of studies.

For more details and examples, see resources from U of T librarian Patricia Ayala: osf.io/fxp6d/
Poll 2: inclusion criteria

Are these inclusion criteria clear and robust enough for a systematic or scoping review?

Research question: is COVID-19 causing an increase in PTSD in physicians?

Studies were included if they described original research about PTSD in physicians during the COVID-19 pandemic. Review articles and articles not available in English were excluded.
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- What study designs and publication types count as “original research?” What about ongoing studies? Preprints?
- Must PTSD be formally diagnosed, or would you include studies using self-screening tools? Only PTSD related to occupation, or due to any cause?
- The research question is specifically looking at increase in prevalence. Will you only include studies that describe the baseline, pre-COVID PTSD prevalence?
- What if a study looked at multiple types of healthcare professionals, including physicians - include or exclude?
- What if there are few or no studies on COVID - would studies on similar pandemics such as SARS and MERS be eligible for inclusion?
- What if there is valuable information in non-English literature?
- Any geographic limitations on studies?
Screening exercise

Review abstracts to decide whether they meet the following inclusion criteria*:

- includes empirical evidence relating to the impacts and outcomes of playing games
- published between January 2004-February 2009
- include participants over the age of 14 years

Gender differences in Taiwan high school students’ computer game playing. (2007)

The purpose of this study is to explore gender differences among adolescents who play computer games: key areas of study include hours played, motivation, enjoyment experienced, and the impacts on the students’ lives. The data were obtained from 535 Taiwan high school students. Results indicated that males spent more time playing computer games than did females and also enjoyed it more. Results also indicated that male students are more strongly motivated to play computer games. Gender differences exist in both the frequency and the types of games the subjects played. It is interesting to note that even with significant gender differences, both genders overwhelmingly concluded that playing computer games has helped the quality of their friendships. Finally, results also showed a slight gender difference regarding the predictors of Taiwan high school students’ game playing enjoyments.
The SIMs meet ESL: Incorporating authentic computer simulation games into the language classroom. (2006)

Despite their motivational appeal to learners, innovative and technologically advanced computer simulation games targeting native English speakers frequently remain beyond the competence of ESL learners as independent didactic tools. Guided by Chapelle’s (2001) criteria for determining CALL task appropriateness, this paper illustrates how the popular authentic simulation, The SIMs, can be adapted to enhance vocabulary learning through supporting materials. Adult ESL learners completed a five-week unit, experiencing different conditions of supplemental materials while completing tasks using The SIMs. The participants received mandatory supplemental materials in one condition, voluntary access to supplemental materials in the second, and no supplemental materials in the third. The results indicate a statistically significant increase in vocabulary acquisition for the first condition. Student feedback suggests the supplemental materials were beneficial for successful task completion. Thus, how authentic computer simulation tasks are structured and supported appears to have a considerable bearing on the appropriateness of the task.
The goal of this article has been to discuss next generation learning environments and next generation training technologies as well as the learning and design challenges faced in using these. Specifically, we discuss theoretical and design principles of constructivist learning environments and how advanced technologies can potentially support meeting these principles as well as the challenges they may pose to various types of designers, instructional, game, graphic and programming. To address methods for designing complex environments, we also address the use of methodologies and authoring systems with various tools to support the design process. In this context, to illustrate how tools can be used to help instructional design teams manage the complexities of developing for these environments. As an example, we discuss one tool, IIPi CREATE, that supports this process and organizes the development process.
Homeless: it’s no game - measuring the effectiveness of a persuasive videogame (Doctoral dissertation, 2008).

There is little empirical evidence for the effectiveness of persuasive games. Conceptually, little attention has been given to this issue. The videogame Homeless: It’s No Game was developed to test the thesis that the effectiveness of a persuasive videogame can be measured. Volunteers answered a survey of attitudes towards the homeless and then either played the videogame, read a short story about homelessness, or were part of a control group. The survey was re-administered two weeks later. Results were mixed, with some indicators showing increased sympathy towards the homeless and others showing no significant effect. Many questions remain to be explored, such as the effect of non-ludic factors, the duration of the persuasive effect, and whether different issues and different game genres play a role in the effectiveness of persuasive games; however the results do suggest lines for further inquiry.
Critical Appraisal
Critical Appraisal

- A.K.A. Quality Assessment, Risk of Bias Assessment
- Necessary in Systematic Reviews, not always in other types of literature reviews
- What is it?
- Why do we need it?
- How do we do it?
Critical Appraisal

● What is it?
  ○ assessment of evidence for validity and applicability

● Why do we need it?
  ○ evidence synthesis depends on the quality of the evidence

● How do we do it?
  ○ thoroughly, using good, appropriate tools
Tools and Resources

- **AMSTAR: A MeaSurement Tool to Assess systematic Reviews**
- Centre for Evidence-Based Medicine (CEBM) [Critical Appraisal Worksheets](#)
- Critical Appraisals Skills Programme (CASP) [checklists](#)
- Joanna Briggs Institute (JBI) [critical appraisal tools](#)
- PRISMA checklist can also be used
Let’s Discuss

Example
Risk of Bias Assessment

- **Cochrane Handbook for Systematic Reviews of Interventions**
  - Ch. 8 for randomized trials, Ch. 25 for non-randomized studies
  - Training module
- **RoB 2**
- Risk of Bias is: High, Low, Some Concerns
Data Extraction
Data Extraction

- Usually done with forms
- Tailored to your research question
- Google Forms, Excel, or platforms like Covidence
Synthesis
Data Synthesis

- Meta-analysis
- Narrative or Descriptive Synthesis
Reproducibility, Transparency, and Retractions
Systematic reviews and related review types

Limit bias with
- pre-defined methods and research question(s) published in a protocol
- assessing studies for quality and excluding poor quality studies
- a team that has domain expertise, methodological expertise, and no conflicts of interest

Increase reproducibility and transparency with
- detailed accounting of methods, including portions of the review that are less structured

Increase effectiveness and application by
- including stakeholders
- ensuring a broad range of researchers, patients, organizations, etc. can access and use the review
Reproducibility vs transparency

2.3. Search procedures

PROQuest, JStor, WebofScience, and Scopus databases were searched for papers on the topics explained above from 1975 to mid-2016. The search combined two groups of keywords, one referring to ethnicity, and one referring to urban nature (Table 1). This search was iterative, so to retrieve more results, other, more generic terms were also included in it (Table 1). The goal of the search was to collect as many studies as possible, so terms related to the interpretation of values used in this paper, such as opinion, attitude, and/or preference, were not included in the search as they would have restricted it. Because the search was limited to certain databases, to the English language, and excluded books, conference papers, or other publications, most but not all the relevant literature was found. For example, the study by Woolley and Amin (1995) was not found in the search, although a similar study, Woolley and Amin (1999), was included. To keep the replicability and internal validity of the systematic search, the study was not included in the review.

<table>
<thead>
<tr>
<th>Keyword Group 1</th>
<th>Keyword Group 2</th>
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</thead>
<tbody>
<tr>
<td>cultural</td>
<td>urban ecosystem</td>
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<tr>
<td>culture</td>
<td>urban forest (or forested area)</td>
</tr>
<tr>
<td>ethnic</td>
<td>urban green</td>
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<td>ethnicities</td>
<td>urban greening</td>
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<tr>
<td>ethnicity</td>
<td>urban green area</td>
</tr>
<tr>
<td>immigrant</td>
<td>urban green space</td>
</tr>
<tr>
<td>migrant</td>
<td>urban natural area</td>
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<tr>
<td>minorities</td>
<td>urban nature</td>
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<tr>
<td>minority</td>
<td>urban park</td>
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<tr>
<td>race</td>
<td>urban trees</td>
</tr>
<tr>
<td>racial</td>
<td>urban vegetation</td>
</tr>
<tr>
<td></td>
<td>urban woodland</td>
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<tr>
<td></td>
<td>city ecosystem</td>
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<tr>
<td></td>
<td>city forest</td>
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<td>city green</td>
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<td>city greening</td>
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<td>city green areas</td>
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<td></td>
<td>city green space</td>
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<td></td>
<td>city natural area</td>
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<td>city nature</td>
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<td></td>
<td>city park</td>
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<td></td>
<td>city trees</td>
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<tr>
<td></td>
<td>city vegetation</td>
</tr>
<tr>
<td></td>
<td>city woodland</td>
</tr>
</tbody>
</table>

Note: Boolean operators such as AND OR were used in between terms to include or exclude words in the search. Expressions with "city" were also inverted (e.g. "city ecosystem" AND "ecosystem in cities", and so on).
Reproducibility and transparency

Search methods for identification of studies
The literature search was conducted in collaboration with information retrieval specialists at the Library of Human and Social Sciences, University of Oslo. Details of the search strategy and hits in bibliographical databases are provided in Supporting Information 1.

5.1.8 Electronic searches
The electronic search was conducted in March 2016, and was limited to include references back to January 1986. In October 2018, an update identical electronic search was conducted to include studies between March 2016 and October 2018.

Studies were identified by searching the following electronic databases:

• Eric (Ovid)
• Psych INFO (Ovid)
• ISI Web of Science
• Proquest Digital Dissertations
• Linguistics and Language Behavior Abstracts (LLBA)
• Scopus Science Direct
• Bielefeld Academic Search Engine (BASE)
• Open Grey

The search was adapted to each database. Details on the search strategy for each database are provided in Supporting Information 1. The search limits included publications reported in English and dating back no more than 30 years from the original search.

5.1.2 Years of publication
Studies from January 1986 until 2018 were eligible for inclusion. The reason we focused on the last 30 years is that it is important that the educational settings in which the studies are conducted are comparable over time.

5.1.9 Searching other resources

Google scholar and relevant web-pages
The search for literature also included specific search and screening of relevant hits on Google scholar (see Supporting Information 1). In addition, searches for gray literature included searches in relevant web-pages, leading to authors in the field who were contacted for unpublished or in-press manuscripts.

Hand search
Searches were conducted in prior meta-analyses (Blok, 1999; Elleman et al., 2009; Fukkink & de Glopper, 1998; Goodwin & Ahn, 2010; Lonigan, Shanahan, & Cunningham, 2008; Marullis & Neuman, 2010, 2013; Mol et al., 2009; Pesco & Gagné, 2017; Stahl & Fairbanks, 1986) and in the following key journals: Journal of Research in Reading, Journal of Research on Educational Effectiveness, Journal of Child Psychology, and Psychiatry.
Retractions

“Errata are published to correct unintended errors (accepted as errors by the author(s)). Retraction notices are published (usually by the journal editor) where data have been found to be fraudulent, for example in the case of plagiarism. Comments are published under a range of circumstances including when errors are suggested by others and also for early concerns regarding fraud.”

“Some studies may have been found to be fraudulent or may have been retracted since publication for other reasons. Errata can reveal important limitations, or even fatal flaws, in included studies. All of these may lead to the potential exclusion of a study from a review or meta-analysis. Care should be taken to ensure that this information is retrieved in all database searches by downloading the appropriate fields, together with the citation data.”

MECIR Box 4.4.e; Cochrane Handbook, 4.4.6
https://training.cochrane.org/handbook/current/chapter-04#section-4-4-6
Identifying Retractions and Errata

- Databases
  - Noted in title or article record/citation record
  - Search titles or results with terms to identify retractions. For medicine focused databases see Cochrane Guidelines Technical Supplement 3.9. For other databases search help information or combine title or results with terms like: retraction or retracted.


- Zotero flags retractions
Knowledge Translation
Knowledge translation and equity

- Need a relevant research question that will potentially have an impact
- Consider demographic representation, distribution of effects, and implications for equity and generalizability

- Review needs to be used and applied
- Include users and stakeholders in research eg. patient oriented research
- Make sure that the products of your research are accessible ie. open access
cIRcle UBC Library’s open access repository  https://circle.ubc.ca/
Open Science Framework

How OSF supports your research

Search and Discover
Find papers, data, and materials to inspire your next research project. Search public projects to build on the work of others and find new collaborators.

Design Your Study
Start a project and add collaborators, giving them access to protocols and other research materials. Built-in version control tracks the evolution of your study.

Collect and Analyze Data
Store data, code, and other materials in OSF Storage, or connect your Dropbox or other third-party account. Every file gets a unique, persistent URL for citing and sharing.

Publish Your Reports
Share papers in OSF Preprints or a community-based preprint provider, so others can find and cite your work. Track impact with metrics like downloads and view counts.

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- Scholarly Communications [https://scholcomm.ubc.ca/](https://scholcomm.ubc.ca/)
- Data management [https://researchdata.library.ubc.ca/](https://researchdata.library.ubc.ca/)
Thank you!