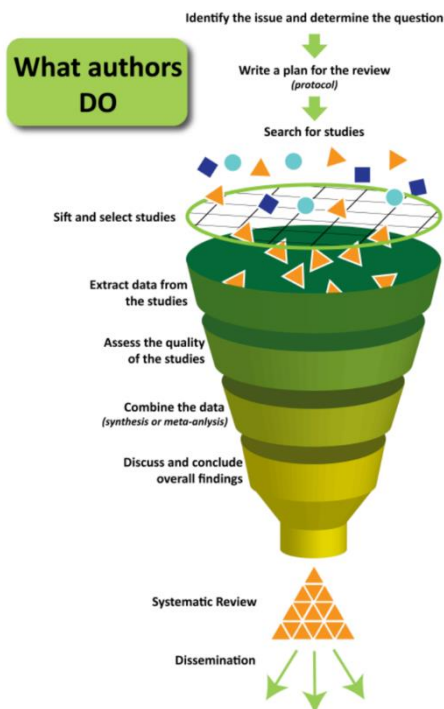# Qualitative Evidence Synthesis and EPPI Reviewer

Introductory Workshop

University of Stavanger, 3rd November 2023

Dr Melissa Bond

What authors DO

Identify the issue and determine the question

Write a plan for the review *(protocol)*

Search for studies

Sift and select studies

Extract data from the studies

Assess the quality of the studies

Combine the data *(synthesis or meta-anlysis)*

Discuss and conclude overall findings

Systematic Review

Dissemination

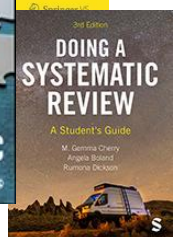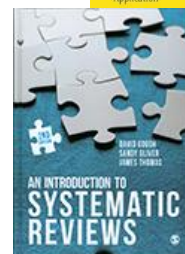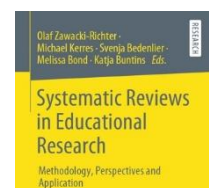*Image source: http://navigatingeffectivetreatments.org.au/exploring_systematic_reviews.html*

Key Considerations

➢ The 'so what?' question – where's the gap?
➢ Scope of the project – keep it manageable.
➢ Software (EPPI Reviewer, Rayyan, Leximancer, VOSViewer)
➢ Resources (time and people)
➢ Where to publish?
   o IJETHE (HE, OA)
   o NJSRE (OA)
   o AJET (HE, OA, word count restrictions)
   o BJET (word count restrictions)
   o Computers & Education
   o Computers & Education: AI
   o ETRD
   o JECR
   o ILE (AI)
   o CALL (Language)
   o London Review of Education (OA)

Suggested resources

- *Systematic Review in Educational Research* by Zawacki-Richter et al. (2020), https://link.springer.com/book/10.1007/978-3-658-27602-7

- *An Introduction to Systematic Reviews* by Thomas et al. (2017), https://us.sagepub.com/en-us/nam/an-introduction-to-systematic-reviews/book245742

- *Doing a Systematic Review: A student's guide* by Cherry et al. (2023), https://uk.sagepub.com/en-gb/eur/node/1571341/

- *Qualitative Evidence Synthesis: Where are we at?* By Flemming & Noyes (2021), https://doi.org/10.1177/1609406921993276

EPPI Centre
Evidence for
Policy & Practice

Step 1 –Question and search string

1. Identify and clearly define the question/s your review will address, following the PICO(TS) framework as necessary for your topic.

    ➤ e.g. What effects do <u>clicker-based technologies</u> have on <u>cognitive and non-cognitive learning outcomes</u> in <u>classrooms</u> compared to <u>conventional lecture classes</u> where they are not used?
        ➤ P = students in classrooms
        ➤ I = clicker-based technologies
        ➤ C = conventional lecture classes
        ➤ O = cognitive and non-cognitive learning outcomes
    ➤ How does the <u>flipped learning approach</u> affect <u>student engagement</u> in <u>K-12</u>?
        ➤ P = K-12 students
        ➤ I = flipped learning approach
        ➤ O = student engagement

Ask yourself…	Your review focus
Population – who?	
Intervention – what?	
Comparator/s – compared to?	
Outcomes – expected result	
Time – when?	
Setting – where?	

Your review question:

_____

_____

_____

_____

2. Refine your search strategy.

    ➤ Use the template on Page 3 to brainstorm terms.

    ➤ Consider truncations and settings of specific databases.

    ➤ Write your search string on Page 4.

Develop table for key concepts in research question (e.g. according to PICOTS model) and find search terms for each concept – identify free text terms and author keywords/subject terms to create your searches; join all terms <u>within</u> each concept with **OR**.

	Concept 1	Concept 2	Concept 3	Concept 4
Key concepts				
Free text terms (synonyms, UK/US terminology, acronyms/abbreviations, more narrow search terms)				
Author keywords / Subject terms (e.g. Keywords within Web of Science)				

Once you have found all relevant information for each concept in your topic, join them together using **AND** and write your search string on the next page.

Search String

_____

_____

_____

_____

_____

_____

_____

Step 2 – Search strategy

1. Decide what types of studies and data will answer your question.

   ➢ Empirical research only?

   ➢ Grey literature?

   ➢ Both quantitative and qualitative data?

2. Decide on your inclusion/exclusion criteria.

INCLUSION	EXCLUSION

3. Decide on which database/s you are going to search in:

☐ Web of Science   ☐ Scopus   ☐ ERIC   ☐ ProQuest

☐ EBSCO Host   ☐ PsycINFO   ☐ Teacher Reference Center

☐ Science Direct   ☐ Wiley   ☐ Cochrane Library

☐ PubMed   ☐ _____   ☐ _____

Step 3 - Protocol

Begin writing your protocol.

1. Background
   ➢ Gives context and provides a summary of PICO(TS).
2. Summary of existing literature
   ➢ Overview of literature that is important to the review question.
   ➢ End with a rationale why the question is important.
3. Research question and aims
4. Methods
   ➢ Search strategy, screening & selecting, quality assessment, data extraction, data analysis.
5. Time frame

Step 4 – Scoping search

1. Conduct a search for literature using the databases you have decided on.

   ➢ Be systematic and methodical.

   ➢ Document all search results using Record Keeping Log (see below).

2. Export your results into a .ris or .txt file.

Record Keeping Log example

Database searched	
Date of search	
Person searching	
Database settings	
No. of records obtained	
Search string	

Hands-on task

You can find instructions on how to set up your own review in EPPI Reviewer in our [shared GoogleDrive folder](#).

Today, you're going to be working on a systematic review I've already set up on the experiences of mothers undertaking doctoral education (PhD or EdD).

Step 1 – Log into EPPI Reviewer

Go to https://eppi.ioe.ac.uk/EPPIReviewer-Web and login to the 'Doctoral education and motherhood – QES practice' review.

Step 2 – Find your coding allocation

Click on the Collaborate tab and click on the number of items in the Remaining column next to your name.

Step 3 – Screen your coding allocation

Click on GO on the first item, read the title and abstract and see if you can find a reason from the list to exclude the item. If you can't, you must include it at this stage. Screen all 16 items.

Step 4 – Reconcile your screening decisions with your partner

In the Collaborate tab, one person should click on 'Create Comparison'. Select the names of the reviewers involved, leave the code set as 'Screening on Title & Abstract', and click on 'Create Comparison'.

Scroll down to the bottom and (under Comparisons) click on 'View' on the report you just created. Then, click on 'Include/Exclude only'. Under disagreements, click on 'Reconcile'. You should <u>always</u> reconcile your disagreements first!

Read the titles and abstracts together and make a mutual decision on whether to include or exclude the items by clicking on the 'Complete & Lock' button in that person's column. Do this for until all items have been reconciled and appear in green.

Then, click close/back and click on 'Complete & Lock' in the Agreements column.

Step 5 – Record your frequencies and officially exclude items given an exclude code

In the Reports tab, click on the 'Screening on Title & Abstract' coding tool, click 'Set', click on your group's allocation code and click 'Set'. Then, click on 'Get Frequencies'.

Click on the blue number of items next to an exclusion code, select all of the items by clicking in the checkbox at the top of the column. Click on the 'In/Exclude' button, choose 'Selected documents', change the toggle to 'Excluded' and click 'Assign'. Repeat for all items given an exclude code.

Repeat steps 3, 4 and 5 for items that you have included on Title & Abstract. Mel will set up the allocations for you but you may need to locate the PDFs for this. Go straight to the method section to see if the item is relevant.

Step 6 – Data extraction

Work your way through the data extraction coding tool and try to assign text directly from the PDF to the codes as much as possible. For example, highlight the research questions or aims/objectives, click on the 'Yes (specify)' code and click the 'A' button. You always need to have text from the item to back up your coding decision.

Where we are using **inductive coding**, that is we are generating new codes based on evidence that appears in the data, click on the parent code (e.g., Theoretical Framework) and click on the + icon. Choose 'Selectable (show checkbox), type in a code name (e.g., Theory of Transformation) and click 'Create'.

Step 7 – Quality assessment

This can be done either before or after data extraction, depending on how many items you have in your review and whether you are going to exclude any that receive a low quality rating. We're not going to focus on this today, but I can highly recommend the tools that I have already mentioned, including:

- CASP tools - https://casp-uk.net/casp-tools-checklists/
- Mixed Methods Appraisal Tool - http://mixedmethodsappraisaltoolpublic.pbworks.com/w/file/fetch/146002140/MMAT_2018_criteria-manual_2018-08-08c.pdf

Step 8 – Synthesis

Now that we have coded our eight studies, we can start synthesising the results. To begin with, I always start with looking at the frequency reports of all the codes and subcodes. You can do this by running a frequency report in the Reports tab (like in Step 5) of the individual codes, but don't forget to select 'Included' before clicking 'Get Frequencies.'

Export the results to an Excel file, which will enable you to order them in descending order. You can then provide the frequencies in a table, as well as report on them narratively. To do this, create a configurable report in EPPI Reviewer and open it in Excel.

Read through all of the evidence you've gathered across each study under that code and see if there are any commonalities or differences. Summarise the studies and include one or two examples.

4.4.3. Cognitive engagement and flipped learning

Found slightly less in the studies in this review, cognitive engagement was coded through 12 different indicators (see Table 4 for the top five), with the flipped learning approach enhancing *positive self-perceptions & self-efficacy* in more than a quarter of studies, and found in 50% of studies using Google Classroom (see Table 8). Research reported enhanced student subject self-efficacy (Abdelrahman et al., 2017, pp. 60–70; Chaipidech & Srisawasdi, 2016) and technology self-efficacy (Chang & Hwang, 2018; Huang & Hong, 2016), with Hwang and Lai (2017) finding that a flipped learning approach using an interactive eBook was more effective for students with lower self-efficacy. Again, whilst some students did not obtain higher results in exams using the flipped approach, they were "not disappointed" because they "became more confident" and "more comfortable to pose questions to the teachers and friends" (Middle school student, Lee, 2018, p. 850). There was, however, still quite a number of studies that reported increased content *understanding* (e.g., Kong, 2015), even if only in one aspect or topic of instruction more than others (e.g., Kirvan, Rakes, & Zamora, 2015).