Interview Guide on Systematic Review and Meta-analysis

Preface

During this interview, we are most interested in hearing about how you conduct a typical review. To start, please tell us about a recent experience when you reviewed scientific studies and presented a summary of your findings to support decision-making in the Navy. We will refer back to this recent experience throughout our discussion.

Question Pattern

(We will ask the following pattern of questions for each of the topics listed below. In order to maintain flexibility in our interviews, we may ask follow-up questions or ask about emergent topics, not listed here, that fall within the scope of the study.)

When <***recent experience*** *with review*>, did you <*topic*>?

(If so...)

How did you <*topic*>?

Is this how you typically <*topic*>, or was this review somehow **unique**?

What **factors** typically influence the way you <*topic*>*?*

(If relevant...)

How do you **document** your judgments about <*topic*>, so you can consider them later?

(If not…)

Can you think of **another experience** with scientific review when you did <*topic*>?

Question Topics Per Stage of the Review Process

Scoping and Sampling

1. Define a research question and/or objectives
2. Include papers from a variety of fields in your review
3. Include studies employing a variety of measures in your review
4. Judge the relevance of each study to the research questions or motivating problem
5. Gather information from primary sources (e.g., interviews, observations, or surveys)

Assessing and Organizing Information from Studies in the Review

6. Extract specific information (e.g., methods, effect size, interpretation of results, field of study, etc.) from each article in your review
7. Use original units of measurement vs standardized effect sizes
8. Apply grouping to studies based on some characteristic(s)
9. Assess potential bias in individual studies

Analysis and Visualization

10. Select a model, algorithm, or analysis technique utilizing the information gathered(e.g., meta-analysis, task analysis, cost-benefit analysis)
11. Use visualization to help with your analysis
12. Check the quality of your analysis
13. Make predictions about real-world events

Communication and Decision-Making

14. Communicate findings to decision-makers/stakeholders
15. Convey your level of confidence/skepticism/uncertainty about the review
16. In your experience, are decisions about the process of the review made systematically? What decisions are made in an improvised manner?

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Is this how you typically <*topic*>, or was this review somehow **unique**?

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How do you **document** your judgments about <*topic*>, so you can consider them later?

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Can you think of **another experience** with scientific review when you did <*topic*>?

Question Topics Per Stage of the Review Process

Scoping and Sampling

17. Define a research question
18. Include papers from a variety of fields
19. Include studies employing a variety of measures
20. Judge the relevance of each study to the research questions or motivating problem

Coding

21. Extract specific information (e.g., methods, effect size, interpretation of results, field of study, etc.) from each article
22. Use original units of measurement vs standardized effect sizes
23. Apply grouping to studies based on some characteristic(s)
24. Assess potential bias in individual studies

Meta-Analysis and Visualization

25. Select a model or analysis technique for combining the results of the studies in the review (e.g., meta-analysis)
26. Use visualization to help with your analysis
27. Check the quality of your analysis
28. Make predictions about real-world events

Communication and Decision-Making

29. Communicate findings to decision-makers/stakeholders
30. Convey your level of confidence/skepticism/uncertainty about the review
31. In your experience, are decisions about the process of the review made systematically? What decisions are made in an improvised manner?

Defining a Research Question

32. When you set out to conduct a systematic review and meta-analysis, what informs your research questions?

Article Relevance Judgments

33. In the systematic review you described at the beginning of the session, do the papers you decided to include come from a variety of disciplines or employ a variety of measures?

    a. If so, how do you think about the relevance of individual pieces of evidence to your research questions or your motivating problem?
    b. If not, what is your reason for reviewing tightly scoped phenomena?
34. How do you document your judgments about the relevance of each study in your review, so you can consider them later?

Codebook Specification

35. What kind of information do you typically extract from each article (e.g., methodological considerations, effect size or information needed to calculate effect size, interpretations of results, the discipline or field of study)?
    a. Is it important to maintain a record of effects in terms of the units of measurement used in the study, or do you focus on standardized effect sizes?
36. How do you keep track of all this information as you conduct a review? Do you and your team use a *consistent codebook or form*?

Identification and Grouping of Effects

37. When studies in a review use different measures to address similar research questions, do you group the studies differently than you would if they used the same measures? What kinds of differences in research design make it inappropriate to group studies together?
38. Do you group within- and between-subjects designs separately for analysis purposes?
    a. Do you base this decision on a judgment of whether it is more natural to think of an effect as occurring within or between individuals?
39. Are you ever concerned about potential bias in a single study resulting in an overestimation of true effect size (i.e., regression to the mean)?
    a. If so, do you employ bias-corrected measures for effect size like Hedge's g?

Visualizations for Meta-Analysis

40. Do you use visualizations as an analytic tool when conducting a meta-analysis? Please describe or sketch the visualizations you like to use.
    a. What do you find helpful about these visualizations?
    b. What do you find confusing or ambiguous?
41. Do you use visualizations or some other method to check the quality of your analysis (e.g., to test model assumptions or the presence of publication bias)?

Prediction and Decision-Making

42. At the end of your systematic review and meta-analysis when you make predictions about real-world events, how do you express these predictions to stakeholders?
43. When you aggregate the evidence in your meta-analysis, how important are the original units of measurement used in individual studies vs standardized effect sizes?
44. What does the aggregated effect size distribution which results from your meta-analysis tell you about what to expect in the real world? What does it not tell you?
    a. How do you account for these ambiguities when drawing conclusions from your review for a general audience?

Circling back to the big picture

45. In your experience, how is systematic review ad hoc?
46. What are the greatest barriers to the validity of systematic review and meta-analysis?