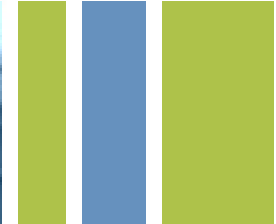


Practical Strategies and Guidelines for Conducting Literature Reviews in Research



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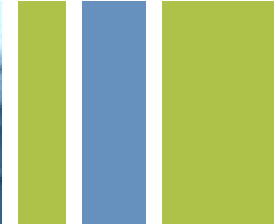
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Overview

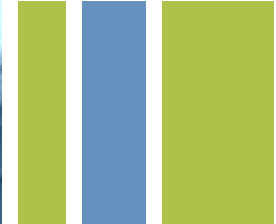
- Background: Purposes and Types of Literature Reviews
- Cooper's Step-by-Step Process for Research Synthesis
- Practical Strategies for Each Step*
- Concluding Comments

**Emphasis will be on ways to efficiently and effectively carry out literature reviews when the review is not an end in itself (e.g., meta-analysis), but rather is designed to inform primary research (e.g., grant proposal, study design and write-up)*



Background

- Purposes of Literature Reviews
 - Advance knowledge base in a given area through systematic synthesis of existing findings
 - Can reveal findings not evident from separate consideration of individual studies. Why?
 - ↑ statistical power via accumulation of samples across studies
 - see influence of factors (methods, intervention, etc.) that may seldom if ever vary within a study



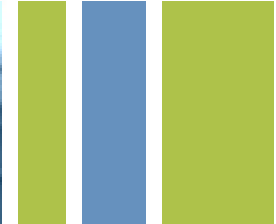
Background (cont'd)

- Inform practice guidelines (e.g., U.S. Preventive Services Task Force) and policy/funding decisions
- Identify limitations and gaps in research literature (e.g., lack of random assignment evaluations of an intervention)
- Inform conduct of primary studies
 - Development of questions/hypotheses and methodology
 - Discussion/interpretation of results



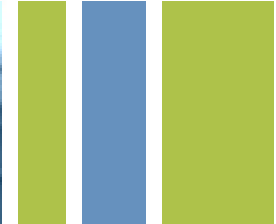
Background (cont'd)

- Major Types of Literature Reviews
 - Systematic
 - Explicitly defined, objective and transparent approach (e.g., study eligibility criteria) to facilitate critique and, if desired, replication
 - Even for purposes where literature review is not an end in itself being “systematic” is highly desirable
 - Specific types of reviews
 - Meta-analysis (quantitative synthesis of findings)
 - Narrative (qualitative synthesis of findings)
 - Others (e.g., meta-synthesis [qualitative research], theoretical [non-empirical literature], reviews of reviews!)



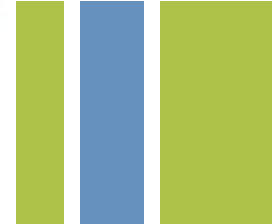
Background (cont'd)

- Limitations and Controversy
 - “Apples and oranges” problem (study differences too great to permit informative synthesis)
 - “Garbage in / garbage out” problem (lack of good input)
 - Sloppy thinking problem (inferring too much)
 - Selected ways of minimizing problems
 - Avoid overly broad review topics
 - Take study quality into account
 - Triangulate across review approaches
 - View review findings as hypotheses to be tested under more controlled conditions



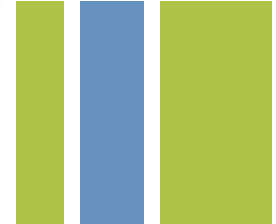
Cooper's Step-by-Step Approach

- 7 Steps as detailed on subsequent slides
- The steps parallel / have analogues to those involved in conducting primary research (e.g., instead of gathering information from persons/organizations, focus is on extracting info from studies as “subjects”)
- See Cooper (2010): *Research Synthesis and Meta-Analysis: A Step-by-Step Approach* (Sage) for detailed treatment



Step 1: Formulate the Problem

- Key Question to Answer: *What is the question or topic of interest?*
- Importance:
 - *Focuses review efforts (which can be time-intensive) for greater efficiency*
 - *Helps avoid missed sub-questions/sub-topics of interest*
 - *Helpful for later reporting of review findings*



Step 1: Formulate the Problem (cont'd)

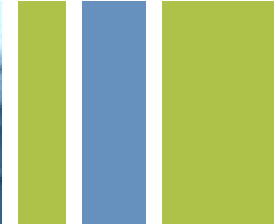
- Tips
 - Define key constructs/variables of interest as clearly as possible
 - What relations among constructs/variables are of interest?
 - Consider sketching out a conceptual path model to help with this
 - Balance breadth and depth/specificity



Step 1: Formulate the Problem (cont'd)

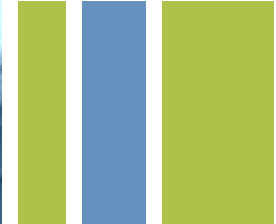
- Examples
 - Poor: Is youth mentoring effective?
 - Better: Are youth mentoring *programs** effective for promoting **social, emotional, behavioral, and academic** outcomes for **school-age** youth? **What characteristics of programs, youth, and/or mentors predict differences in effectiveness?**

**Using definition from DuBois et al. (2011)*



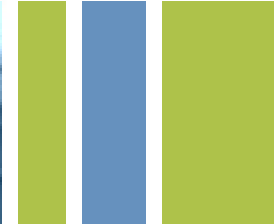
Step 2: Searching the Literature

- Key Questions to Answer: *What are the characteristics of studies that would be relevant to question or topic of interest? What studies of this type exist?*
- Importance:
 - *Inclusion criteria help focus the literature search and add methodological rigor/transparency*
 - *A well-conducted search for studies will reduce the risk of missing key research and also allow review's conclusions to be viewed as more credible*



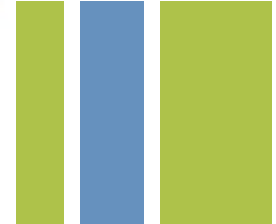
Step 2: Searching the Literature (cont'd)

- Tips
 - Develop inclusion criteria that address both substantive fit and methodological quality of studies
 - Use multiple search strategies that have potential to be complementary in studies identified. Cooper recommends at a minimum:
 - Reference data bases (e.g. PubMed, Google Scholar)
 - Perusal of relevant journals
 - Examination of references in retrieved studies
 - Personal contacts with active researchers in the area



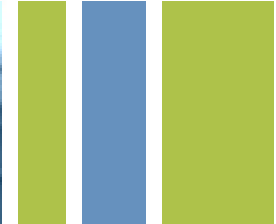
Step 2: Searching the Literature (cont'd)

- Pay particular attention to existing reviews that search may locate
- Take note of literature that does not meet inclusion criteria but may be of interest for other reasons
- For reference data bases, develop well-defined search strategies
 - Include synonyms of key terms
 - Search relevant record fields (title, abstract) not only data base-assigned keywords
 - Screen titles and abstracts for relevance before reviewing full articles
 - Strive for balance in terms of protecting against missed studies vs. inefficiency of needing to review too many search results



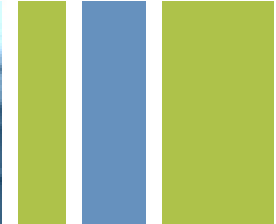
Step 2: Searching the Literature (cont'd)

- Examples
 - Poor:
 - Any empirical evaluations of youth mentoring programs
 - Search PsycINFO (“youth mentoring” and “programs” and “evaluations”)



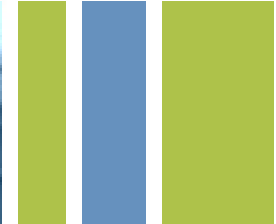
Step 2: Searching the Literature (cont'd)

- Better:
 - Quasi-experimental or experimental evaluations of youth mentoring programs
 - Search multiple reference data bases using synonymous search terms
 - (*mentor* or budd* or big brother* or big sister* or role model or mentee* or protégé* or lay* or coach* or leader* or apprentice**)
AND (intervention or program* or evaluation*)*
AND (ME=(Empirical Study or Literature Review))
AND (youth or child or adolescent* or young or student* or teen*)*
 - Also post query to youth mentoring listserv, review references of retrieved studies, peruse last 5 years of *Mentoring & Tutoring*



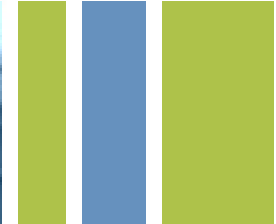
Steps 3 & 4: Gathering Information from Studies / Evaluating Study Quality

- Key Question to Answer: *What information, including indicators of methodological quality, should be taken note of for each study?*
- Importance:
 - *Focuses study review efforts (which can be time-intensive) for greater efficiency*
 - *Helps avoid needing to go back over studies multiple times, further increasing efficiency*
 - *Provides organizational framework for later synthesis and reporting of review findings*



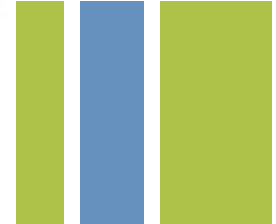
Steps 3 & 4: Gathering Information from Studies and Evaluating Study Quality (cont'd)

- Tips
 - Record both substantive and methodological information about studies
 - Focus on information directly relevant to review question/topic
 - For more in-depth reviews, consider coding study quality using a formal system, such as the DIAD (see Valentine & Cooper, 2008)
 - Focus on study findings, distinct from author conclusions!
 - Code information about effect size, not only statistical significance
 - Utilize a structured coding form to record information, which includes operational definitions of key variables coded as well as spaces for notes



Steps 3 & 4: Gathering Information from Studies / Evaluating Study Quality (cont'd)

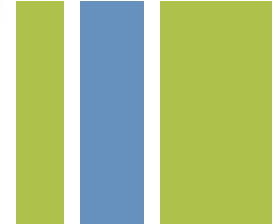
- Examples
 - Poor:
 - Take free-form notes regarding study characteristics that seem important and all study findings
 - Distinguish only between significant and non-significant results



Steps 3 & 4: Gathering Information from Studies / Evaluating Study Quality (cont'd)

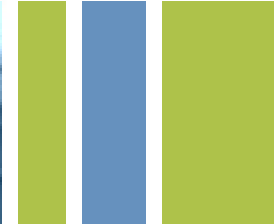
– Better:

- Focus on coding those findings that address effectiveness of youth mentoring intervention being evaluated
- Code characteristics of the youth mentoring programs evaluated that theory/research suggest may influence effectiveness
- Code info on study design, sample size and participant characteristics, measures, and analytic approach, noting threats to both internal and external validity
- Use a structured coding guide to record info (see example)



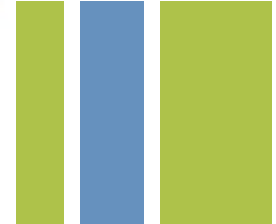
Steps 5 & 6: Analyzing & Integrating Study Findings / Interpreting the Evidence

- Key Question to Answer: *What are the most salient trends or other noteworthy aspects of study findings?*
- Importance:
 - *Facilitates comparison and contrast of findings across studies*
 - *Facilitates efficient summarization of review findings at point of write-up*



Steps 5 & 6: Analyzing & Integrating Study Findings / Interpreting the Evidence (cont'd)

- Tips
 - Compile a tabular summary of key study features and findings (see example)
 - Identify trends in findings across studies
 - Avoid simple “vote count” approach (# of significant and non-significant findings as these can be very misleading)
 - If possible, consider combining effect sizes (see Cooper, 2010) or at least giving greater weight informally to larger sample studies all else being equal
 - Give greater weight to studies that are more “on point” and of higher methodological quality (“best evidence” approach)
 - Look for disconfirming evidence



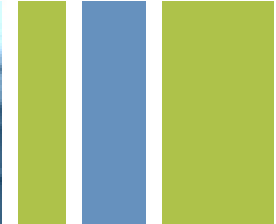
Steps 5 & 6: Analyzing & Integrating Study Findings / Interpreting the Evidence (cont'd)

- Examples
 - Poor:
 - Tally up # of studies reporting evidence of statistically significant impacts of the youth mentoring program on one or more youth outcomes



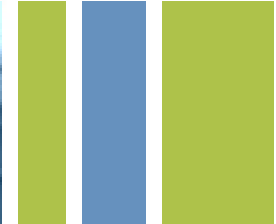
Steps 5 & 6: Analyzing & Integrating Study Findings / Interpreting the Evidence (cont'd)

- Better:
 - Prepare informative table of study characteristics and findings
 - Tally up #s of youth mentoring evaluations reporting small, medium, and large effects on different categories of outcomes
 - Further divide tallies by methodological (e.g., randomized control vs. quasi-experimental, sample size) and substantive (e.g., provision of training to mentors) factors to identify possible influences on (“moderators”) findings
 - Flag studies that are particularly “on point” and of highest quality (e.g., multi-site randomized trial of Big Brothers Big Sisters program with multiple sources of data on outcomes)



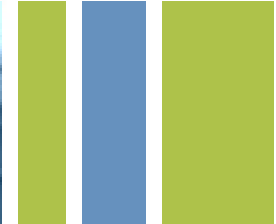
Steps 7: Presenting the Results

- Key Question to Answer: *What are substantive conclusions that are supported by available research? What hypotheses or interesting questions have not been adequately tested (but ideally are hinted at by available evidence)?*
- Importance:
 - *Facilitates effective communication of review findings to different audiences (e.g., journal or grant reviewers)*
 - *Provides direction for next steps in research on the topic (including your own)*



Steps 7: Presenting the Results (cont'd)

- Tips
 - Highlight key conclusions (italics, headers, etc.), with attention to magnitude not only the presence of different relationships of interest
 - Share tabular summary of individual studies and their findings if space permits
 - Discuss the relative strength of evidence supporting different conclusions
 - Position findings in context of research on related topics (see example)
 - Distinguish evidence that comes directly from primary studies and conclusions that are synthesis-generated
 - Highlight limitations in available evidence (disconfirming findings, non-experimental manipulation of key variables, sample characteristics, etc.) and associated directions for future research

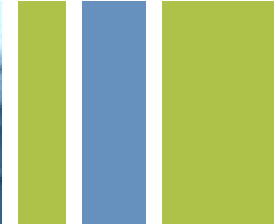


Steps 7: Presenting the Results (cont'd)

- Examples

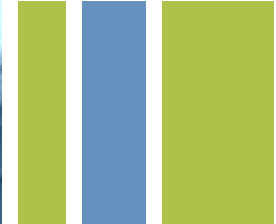
- Poor:

- General conclusion that youth mentoring programs “work”
 - Lack of consideration of limitations of primary studies reviewed or of the review itself (e.g., search strategy)
 - No indication of how findings compare to those in related areas (e.g., after-school programs, tutoring)



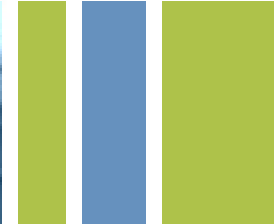
Steps 7: Presenting the Results (cont'd)

- Better (see “Summary” in DuBois et al., 2011):
 - Conclusion that youth mentoring programs as a whole have been effective in promoting social, emotional, academic, and behavioral outcomes
 - Magnitude of effects broadly comparable to those found for other community-based youth programs
 - Key limitations include lack of evidence of effects on several policy-relevant outcomes (e.g., obesity) and lack of long-term follow-up studies
 - Need research addressing these limitations as well as studies of cost-benefit and comparative effectiveness of different program models and practices



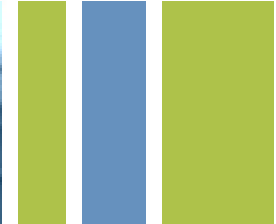
Concluding Comments

- Conducting and effectively presenting a sound literature review within the context of designing and conducting primary research studies is essential to the scientific enterprise of cumulative knowledge building
- An effective review will increase likelihood of funding, generate new ideas and directions for investigation, and improve the quality (and likelihood) of peer-reviewed publication of primary research



Concluding Comments

- Standards for literature reviews, even when they are not the end in themselves, are advancing and it is important to keep ahead of the curve
- Aside from immediate dividends, time invested in conducting systemic literature reviews for primary research can be leveraged to conduct “stand alone” research syntheses on the same or related topics



References

- Cooper, H. (2010). *Research synthesis and meta-analysis: A step-by-step approach* (4th ed.). Thousand Oaks, CA: Sage.
- DuBois, D. L., Portillo, N., Rhodes, J. E., Silverthorn, N., & Valentine, J. C. (2011). How effective are mentoring programs for youth? A systematic assessment of the evidence. *Psychological Science in the Public Interest*, 12, 57-91. doi:10.1177/1529100611414806
- Valentine, J. C., & Cooper, H. (2008). A systematic and transparent approach for assessing the methodological quality of intervention effectiveness research: The Study Design and Implementation Assessment Device (Study DIAD). *Psychological Methods*, 13, 130–149. doi:10.1037/1082-989X.13.2.130