

Literature Reviews (First circulating draft)

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What is a literature review?

- Organized examination and presentation of the writings in a field of study or practice.
- In the education field, we might study:
 - scientific (theoretical or research) publications (including experiments, case studies, models, etc.)
 - reports from related fields - psychology or content-specific disciplines, interdisciplinary reports
 - educational publications (such as books that are intended to teach the reader rather than report new findings)
 - tutorials
 - news reports of events of interest
 - legislation

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The review process

- Cooper (p. 5) lists 5 key “stages” of a literature review. Rather than pretend these are done in a specific order, let’s call them key activities, which might be done in parallel or in any order:
 - “ (a) problem formulation;
 - (b) data collection or the literature search;
 - (c) data evaluation, in this case assessing the quality of studies;
 - (d) analysis and interpretation; and
 - (e) presentation of results.”

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The review process

- Each of these activities is important.
- In this talk, I’ll spend more time on the goals of the review, problem formulation, doing the literature search, and analysis & interpretation.
- For EDF 6481, this will look overwhelming. You are going to do a mini-lit review and touch each key activity lightly.
- These notes are informed by Cooper’s descriptions of these activities, but differ significantly from Cooper’s descriptions. Cooper is an interesting alternate source.

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Problem formulation

- Includes everything from deciding what topic you want to write on to deciding what information you want to collect--deciding what is *relevant* to the problem or question you are writing about.
- So, let's return to an example from a few weeks ago such as:
 - How do reading comprehension skills of high school ESOL students impact math achievement?

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Problem formulation

- Let's break this down:
 - Reading comprehension
 - ESOL
 - High school students
 - Math achievement
- So what do we know (what can we learn about what is known) about **reading comprehension**?
- What can we learn about **ESOL learners**?
- **What can we learn about high school students**?
- What can we learn about the **math achievement**?

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Problem formulation

- You will need to prioritize. For example,
 - There is too much to review in all of these areas.
 - You will need to choose that most relevant to the specific problem you want to research.
- Narrow the topic to something doable
 - First, you must understand the literature well enough to be able to intelligently prioritize and focus.

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Problem formulation

- To develop a feel for the problem, I want to learn what elements are of interest. Candidates include:
 - Variables that might be manipulated (or occur naturally) in research of our topic
 - Questions or issues that have been frequently discussed in connection with our topic
 - Disagreements among scholars or practitioners
 - Sources (key people, books, journals, articles, web sites, electronic indexes)
 - Keywords (terms that I might search under)
- Probably, if they are available, I'll start this by reading the "classic" introductory books, articles, or encyclopedia entries. "Classic" might not mean historically most important, it might mean the ones best used for teaching the subject.

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Problem formulation

- Ultimately, I might have answers for questions like:
 - What search engines should I consult (and how many)?
 - Who publishes on this topic?
 - What is the vocabulary in this area? Is it consistent or do different groups use different terms for the same things and the same terms for different things?
 - How fragmented (lack of cross-reference to related work by another group) is the literature?
 - What bias should I expect from a publication (based on author, school, journal, etc.)?
 - What research paradigms (key *types* of experiments, perhaps in different fields, and the theoretical context around them) are used/useful for this topic?
 - What theoretical contexts does this topic arise in? (What theoretical implications have people seen for this topic?)
 - What are the controversies and confusions in this area?
 - What issues (content issues, such as, what types of ambiguity are there) seem important for an understanding of the topic?

Problem formulation

- At this point, these questions guide me in developing a research strategy. They aren't the answers. They are the questions I want to explore in order to figure out how to look for the answers to my underlying question:
 - How do reading comprehension skills of high school ESOL students impact math achievement?
- There are a lot of questions here.
- Unlike so many books pushing a process, I do *not* assume that a reading for one purpose (such as, learning who is publishing in the field) will provide me with the information that I need for another purpose (such as, learning the vocabulary). I *don't* try to force my notetaking to cover all questions at once--it is too hard, too time consuming, too easy to lose focus, too frustrating (for some people, including me) and too likely to result in me giving up.

Problem formulation

- This is a critical strategic issue, and one where I differ fundamentally from authors like Garrard, Cooper, and I think Hart and Fink.
- I expect to read the sources several times and to use my notes as an index to the sources rather than as a replacement for (a summary that can be consulted instead of) the sources.
- My passes through the literature, to fill out charts or other organizers, are to help me build my understanding of the issue at hand, rather than of the fine details of the sources. It is natural for me to do many passes, one for each issue.
- (I'll still read the original source in enough depth to understand the context it provides for the information I'm pulling out of it, but the context is context, not essential content.)

Problem formulation

- RECAP:
 - I typically start with an opening library of secondary sources and/or educationally useful primary sources.
 - The opening library introduces me to the field and helps me develop a first-draft strategy:
 - WHO should I read?
 - WHAT QUESTIONS should I read to answer?
 - WHERE should I look for readings?
 - WHAT do I currently think is my ULTIMATE OBJECTIVE for this review?

Problem formulation

- Garrard (p. 116) says
“In a review of the literature, the 3 most important decisions you will make are (1) specifying the purpose of the literature review, (2) selecting the source documents, and (3) choosing the column topics. Column topics in a review matrix are the issues or concepts used to abstract each journal article or other source document in a review of the literature.”
A critical 4th decision is the level of detail written into each cell (or into the article’s abstract, if you use an abstract rather than a matrix). Put a simple

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Problem Formulation

- Garrard (and others) advocates a thorough abstracting of each paper. Similarly, in law school, students are urged to write thorough abstracts (called “briefs” of each court case).
- Advantages:
 - powerful discipline for the novice reader, forces the novice into active reading, critical reading, and a systematic analysis. Educates the novice in the key concepts and methods and reasoning of the field.
 - a good summary jogs your memory and saves your need to reread things you’ve already read, understood, and summarized.
 - in theory (but I think not so much in practice), a thorough abstract saves you the need to reread later when exploring other issues.
- Disadvantages
 - Burdensome
 - Loses essential information for a future project

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Literature search

- Use the library. If we don’t have the book, we can get it via inter-library loan. They’re quick and FREE!
- UCF Library subscribes to an extensive set of online resources for research
- Free PERC sessions are available to familiarize you with the online resources. Sign up for one.

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Literature search

- One issue for search is the list of keywords to search under. You may very likely need to cross disciplines to find the information you need.
 - The psychology field knows a lot about learning. We should look there, too.
 - Your specific discipline will have a body of knowledge to tap as well.
- You might find the same concept referred to under five different words, in five different areas of research or application. Rather than deciding what your favorite name for a concept is, and sticking with that one, your search should probe the field under each name in use.

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Literature Search

- Garrard lays out 4 artifacts that are important to create:
 - The “paper trail”
 - The “documents section”
 - The “review matrix”
 - The “synthesis”
- The paper trail is a record of the research sources you’ve consulted so far. For example, suppose that you are searching under 8 terms, and you are searching the PsycInfo, CiteSeer, ERIC Digests, Dissertation Abstracts, Education Abstracts, and your favorite discipline database, consider making a tracking chart.
- This tracking is essential or you will miss some searches, believing that you searched specific source for a certain topic when you had not.

Literature search

	Word 1	Word 2	Word 3	Word 4	Word 5	Word 6	Word 7	Word 8
PsycInfo								
Dissertation abstracts								
CiteSeer								
ERIC								
Education abstracts								
Discipline specific DB								

Inside the matrix, the cells show the date you did the search and/or other key notes.

Literature search: Documents section

- The “documents section” is your virtual binder of all the materials you are citing. I use a carrying file box for my current projects. Garrard suggests sorting by date. I prefer sorting by author name. In either case, I would stick post-its on each document to show its keywords.
 - Make YOUR OWN SET of copies
 - MARK THEM UP freely
 - Include photocopies of directly relevant sections books (with their bibliographies)
 - When the project is done, I file in a file cabinet



Literature search: Matrix

- The matrix is the core of your literature research. What should it contain? Avoid formulaic template-like answers.
- Column should include author(s)
- Probably column for date (might merge with authors column)
- Might have column for title (I don’t, it’s too long)
- The rest are the issues you currently think are interesting. You are collecting data into these columns, fill them in (for a given paper) when that paper has something to say about the column’s issue, briefly note it. Else leave it blank.
- Becky prefers to do this with mind-mapping or concept mapping. She uses software so she can reorganize on the fly. The Notes feature keeps track of details.

Literature search: My iterative process

- Start with a starting library (intro texts, encyclopedia, literature reviews, detailed descriptions. These yield vocabulary of topics/concepts and key sources (people, papers, journals/publishers, etc).
- Keyword searches
 - goal: find influential papers, find literature clusters
 - risks: easy to misclassify a relevant or irrelevant source b/c of mass of material that shows up in this search
- Work forward/backward through literature:
 - Read X paper's sources
 - Read papers that cite X
- Literature reviews
- Dissertations
- Websites of key contributors

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Literature search: My iterative process

Meta-questions

- I am constantly asking these questions:
 - What am I trying to learn?
 - What are the dimensions of what I am trying to learn?
 - What other literatures / fields are tied in with what I am trying to learn?
 - Where is the relevant information?
 - How can I assess credibility of sources?
 - Who is my audience and why are they interested and what do they want to (what do I want them to) learn?
 - What foundations do I need to understand this literature?

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Evaluate Sources

- For experiments, there are lots of ways to assess validity of the experiment and the quality of the report. See, e.g., Girden's and Leavitt's books.
- There are rules of thumb for articles by source
 - I.e. - articles in peer-reviewed journals are better than articles in non-reviewed or commercial journals. These are biases, heuristics, subject to error. They are generally true.
- We went over this in class on 1/28 and the class website has links.

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Writing the review

- The matrix columns (or mind map) lay out a set of issues. In effect, they are the outline for your paper (maybe not in the order you'll write the paper).
- Each section of the paper corresponds to a column, an issue that you now understand thoroughly, and you know who wrote what about it.
- Write the issue in your terms, what you are trying to teach people about the issue.
- Offer references to the sources for their facts, but **no need to push their words.**

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The paper

- Cooper's 5th step is presentation of results.
- During the library treasure hunt, you copied a lit review in your area of interest from the *Review of Educational Research*
 - RER is a well-respected AERA journal. This should be a good example
- Read the review and look for the things we've talked about: current understanding in the field, major contributors to the field, controversies, etc.
- Use the checklist from HW 5 to examine the mechanics of the presentation.

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“Owning the Literature”

- Garrard, p. 6, a person who successfully reviews the literature on a topic knows the area so well that they “own it.”
- You know you're beginning to own the literature when:
 - you know what study an author will cite to make a point, before they cite it
 - you recognize the facts and can identify the study before they cite it
 - you spot plagiarism (of words or ideas)
 - you notice absence of citations to key sources and can think intelligently about whether this is due to sloppiness, fragmentation of the literature, bad blood between two researchers, or something else
 - you highlight an area of open questions or needed research and then see recent dissertations or conference papers or email discussions of it
 - you can predict the perspective and methodological approach of a paper from the author's name or institution

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