

How to write a literature review

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Literature Reviews
Project

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Literature Reviews
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Literature Reviews

- Conducting a literature review is an essential skill for any aspiring researcher
- Literature reviews **summarize** existing research results on a topic in a way that **synthesizes** different perspectives and characterizes **what is known** about a topic as well as **what is not known**
- Carrying out an effective literature review can reveal opportunities for future research

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Literature Reviews
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Literature Review Resources

- "What is a literature review?" by Missy Harvey, Carnegie Mellon (<http://www.cs.cmu.edu/~missy/WritingaLiteratureReview.doc>)
- "What can a literature review do for me?" by Hilton Obenzinger, Stanford (<http://651.wikispaces.com/file/view/LiteratureReviewHowToStanford.pdf>)
- "The Literature Review: A Few Tips On Conducting It" by Dena Taylor, Toronto (<http://www.writing.utoronto.ca/advice/specific-types-of-writing/literature-review>)
- Write a Literature Review, VCU (<http://guides.library.vcu.edu/lit-review>)

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What a literature review isn't (Obenzinger)

- Not an annotated bibliography
- Not an overview of one author's work
- Background information is only part of a literature review
- Not just an argument why your topic is important
- Does not include every paper published on a topic

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Literature review rhetorical patterns (Obenzinger)

- **Road map:** presents research results as a logical history progressing from first inquiry to current understanding
- **Swiss cheese:** presents picture of current knowledge, identifying gaps
- **Battlebots:** identifies different lines of argument or debate, presents both sides and chooses one
- **Guilt by association:** provides context from related research when no work has been carried out on the research question

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Research approach: collect, scan, read (Obenzinger)

- 1 **Collect** papers that seem relevant to your topic but don't read them
 - Go through literature reviews and collections of curated paper lists to find relevant papers
 - Look at the references for other potential papers
 - Use Google Scholar and DBLP
- 2 **Scan** articles to identify what may be important, noting themes and important results
- 3 **Read** papers that seem most relevant to the task at hand

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Example collection strategy

<http://lyle.smu.edu/~tylterm/courses/econsec/project/topics.html>

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Using a synthesis matrix

- It can be helpful to organize the papers you read using a synthesis matrix
- Info: <http://guides.library.vcu.edu/loader.php?type=d&id=237970>
- Example template: http://lyle.smu.edu/~tylerm/courses/econsec/project/litreview_template.doc

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Writing approach (Harvey)

- Annotated Bibliography
- Thematic organization
- More reading
- Write individual sections
- Integrate sections

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Writing about individual papers (Harvey)

- Specific findings from the article
- Be selective (most important points from 1)
- Is it a current article?
- What specific claims are made? Are they stated clearly?
- What support is given for these claims (type of evidence, arguments made)?
- What is the source of evidence?
- Does the author take into account contrary or conflicting evidence and arguments?
- What specific conclusions are drawn, and are they warranted?
- How does this article relate to other work?

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Example: economics of proof-of-work schemes

- Observation: some attacks work because criminals can cheaply automate behaviors
- Often proposed to add small cost that good guys are willing to pay, but bad guys will refuse to pay in aggregate
- Proof-of-work schemes require solving simple puzzles (either by computers or by humans via CAPTCHAs)

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CAPTCHAs: proof-of-work using humans



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One paper that turned up at WEIS

“Proof-of-Work” Proves Not to Work

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Abstract. A frequently proposed method of reducing unsolicited bulk email (“spam”) is for senders to pay for each email they send. Proof-of-work schemes avoid charging real money by requiring senders to demonstrate that they have expended processing time in solving a cryptographic puzzle. We attempt to determine how difficult that puzzle should be so as to be effective in preventing spam. We analyse this both from an economic perspective, “how can we stop it being cost-effective to send spam”, and from a security perspective, “spammers can access insecure end-user machines and will steal processing cycles to solve puzzles”. Both analyses lead to similar values of puzzle difficulty. Unfortunately, real-world data from a large ISP shows that these difficulty levels would mean that significant numbers of senders of legitimate email would be unable to continue their current levels of activity. We conclude that proof-of-work will not be a solution to the problem of spam.

Source: <http://oinvite.googlecode.com/files/ProofOfWorkNoWork.pdf>

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Applying Harvey's rubric to the paper

- Template: <http://lyle.smu.edu/~tylrm/courses/econsec/reading/review-template.txt>
- Applied to the paper: <http://lyle.smu.edu/~tylrm/courses/econsec/reading/review-pow-clayton.txt>
- One question for your final homework assignment: read a paper on CAPTCHA economics and summarize in a similar fashion (<http://cseweb.ucsd.edu/~mmtoyam/usec10-recaptchas.pdf>)

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Project information

- Project description: <http://lyle.smu.edu/~tylrm/courses/econsec/project.html>
- Project topics: <http://lyle.smu.edu/~tylrm/courses/econsec/project.html>

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Project proposal due Friday

- Still unsure what to work on? Come see me
 - Wednesday 9-10am, 3-4pm
 - Thursday 1-2pm
 - Sign up here
<https://docs.google.com/spreadsheets/cc?key=0AvJIU8F0WAZzdHF0UDkydjVONGcwek1PTFF00HdXbnc>

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