Strategies for Writing Literature Reviews

Youyang Qu

Privacy Technology Research Group
Data61, CSIRO
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Top review papers we have published

- Qu, Youyang*, Yichen Wan*, Wei Ni, Yong Xiang, Longxiang Gao, and Ekram Hossain. "Data and model poisoning backdoor attacks on wireless federated learning, and the defense mechanisms: A comprehensive survey." *IEEE Communications Surveys & Tutorials* (2024). **(Q1, IF: 35+)**

- Qu, Youyang, Md Palash Uddin, Chenquan Gan, Yong Xiang, Longxiang Gao, and John Yearwood. "Blockchain-enabled federated learning: A survey." *ACM Computing Surveys* 55, no. 4 (2022): 1-35. **(Q1, IF: 15+)**

- Qu, Youyang, Shui Yu, Wanlei Zhou, Sancheng Peng, Guojun Wang, and Ke Xiao. "Privacy of things: Emerging challenges and opportunities in wireless internet of things." *IEEE Wireless Communications* 25, no. 6 (2018): 91-97. **(Q1, IF: 10+)**

- Xu, Chenhao, Youyang Qu, Yong Xiang, and Longxiang Gao. "Asynchronous federated learning on heterogeneous devices: A survey." *Computer Science Review* 50 (2023): 100595. **(Q1, IF: 10+)**

Google Scholar: https://scholar.google.com.au/citations?user=r4dyoBEAAAAJ&hl=en Citation: 3490 H-index: 33

Purpose of a Literature Review

The literature review is a critical look at the existing research that is significant to the work that you are carrying out.

- To provide background information
- To establish importance
- To demonstrate familiarity
- To "carve out a space" for further research

Characteristics of Effective Literature Reviews

- Outlining important research trends
- Assessing the strengths and weaknesses of existing research
- Identifying potential gaps in knowledge
- Establishing a need for current and/or future research projects

Steps for Writing a Lit Review

- Planning
- Reading and Researching
- Analyzing
- Drafting
- Revising

Planning

What Type of Literature Review
Am I Writing?

Planning

- Focus
  - What is the specific thesis, problem, or research question that my literature review helps to define?
  - Identifying a focus that allows you to:
    - Sort and categorize information
    - Eliminate irrelevant information
- Type
  - What type of literature review am I conducting?
  - Theory; Methodology; Policy; Quantitative; Qualitative

Reading and Researching

What Materials Am I Going to Use?

Reading and Researching

- Collect and read material.
- Summarize sources.
  - Who is the author?
  - What is the author's main purpose?
  - What is the author's theoretical perspective? Research methodology?
  - Who is the intended audience?
  - What is the principal point, conclusion, thesis, contention, or question?
  - How is the author's position supported?
  - How does this study relate to other studies of the problem or topic?
  - What does this study add to <u>your</u> project?
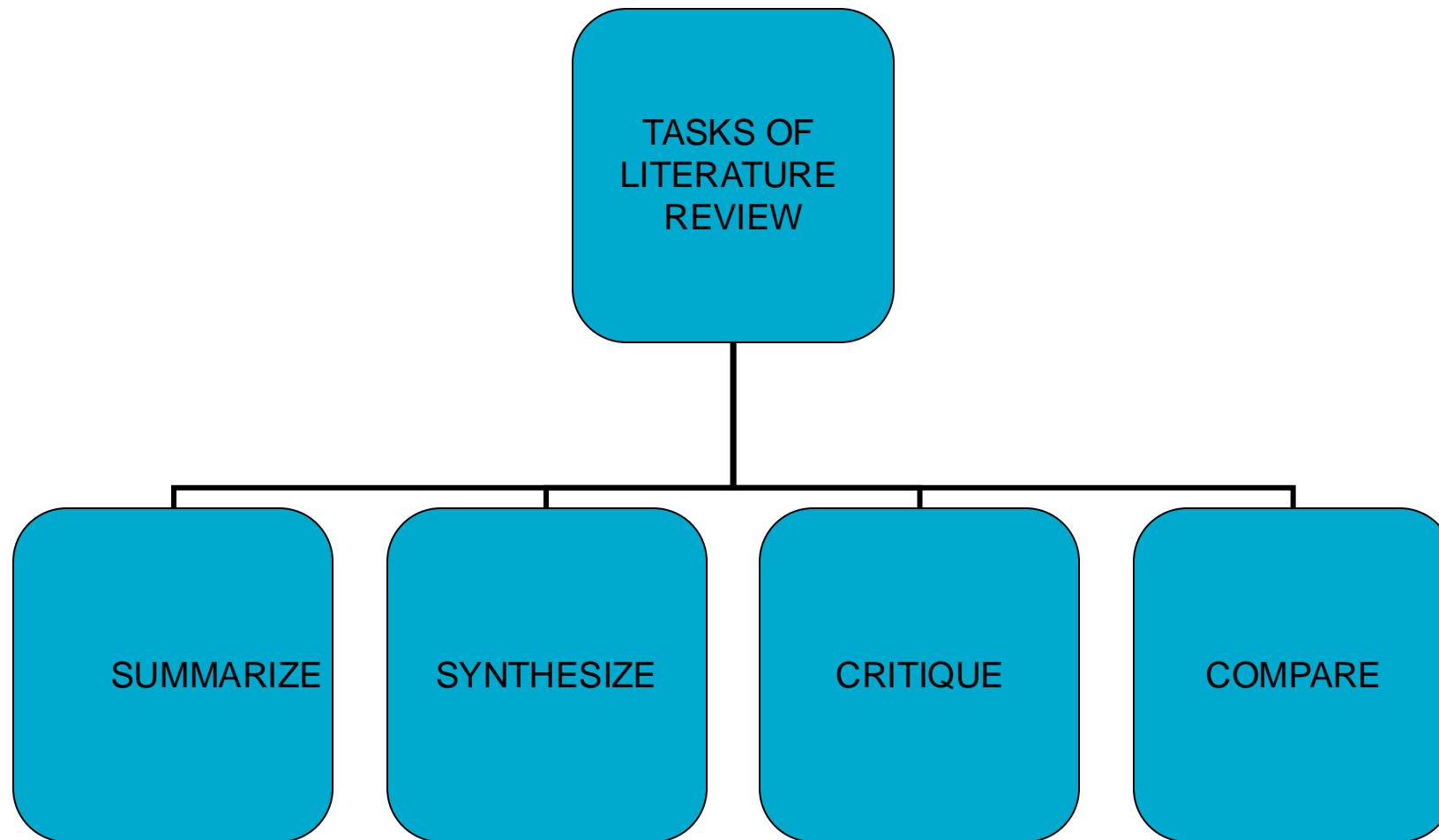- Select <u>only</u> relevant books and articles.

Analyzing

How Do I Assess
Existing Research?

Australia's National Science Agency

Analyzing Sources

- A literature review is never just a list of studies—it always offers an argument about a body of research

- Analysis occurs on two levels:
  - Individual sources
  - Body of research

Four Analysis Tasks of the Literature Review

Summary and Synthesis

In your own words, summarize and/or synthesize the key findings relevant to your study.

- ⑩ What do we know about the immediate area?

- ⑩ What are the key arguments, key characteristics, key concepts or key figures?

- ⑩ What are the existing debates/theories?

- ⑩ What common methodologies are used?

Sample Language for Summary and Synthesis

- Normadin <u>has demonstrated</u>…
- Early work by Hausman, Schwarz, and Graves <u>was concerned</u> with…
- Elsayed and Stern <u>compared</u> algorithms for handling…
- Additional work by Karasawa et. al, Azadivar, and Parry et. al <u>deals with</u>…

Example: Summary and Synthesis

Under the restriction of small populations, four possible ways [to avoid premature convergence] were presented. <u>The first one</u> is to revise the gene operators. . . .<u>Griffiths and Miles applied</u> advanced two-dimensional gene operators to search the optimal cross-section of a beam and significantly improve results. <u>The second way</u> is to adjust gene probability. <u>Leite and Topping adopted</u> a variable mutation probability and obtained an outperformed result.

Example: Summary and Synthesis

<u>Piaget's theory of stages of cognitive development and Erikson's stages of psychosocial development are</u> commonly used for educational psychology courses (Borich & Tombari, 1997; LeFrancois, 1997; Slavin, 1997). <u>Piaget described characteristic behaviors</u>, including artistic ones such as drawing, as evidence of how children think and what children do as they progress beyond developmental milestones into and through stages of development.

Comparison and Critique

Evaluates the strength and weaknesses of the work:

- How do the different studies relate? What is new, different, or controversial?

- What views need further testing?

- What evidence is lacking, inconclusive, contradicting, or too limited?

- What research designs or methods seem unsatisfactory?

Sample Language for Comparison and Critique

- In this <u>ambitious but flawed study</u>, Jones and Wang…
- These general results, reflecting the stochastic nature of the flow of goods, <u>are similar</u> to those reported by Rosenblatt and Roll…

Example: Comparison and Critique

- The critical response to the poetry of Phillis Wheatley <u>often registers disappointment or surprise</u>. Some critics have <u>complained</u> that the verse of this African American slave is <u>insecure</u> (Collins 1975, 78), <u>imitative</u> (Richmond 1974, 54-66), and <u>incapacitated </u>(Burke 1991, 33, 38)—<u>at worst, the product of a "White mind</u>" (Jameson 1974, 414-15). Others, <u>in contrast</u>, <u>have applauded</u> Wheatley's critique of Anglo-American discourse(Kendrick 1993,222-23), her revision of literary models…

Example: Comparison and Critique

- The situationist model <u>has also received its share of criticism</u>. One of the most frequently cited <u>shortcomings</u> of this approach centers around the assumption that individuals enter into the work context *tabula rasa.*

Evaluative Adjectives

- Unusual
- Small
- Simple
- Exploratory
- Limited
- Restricted
- Flawed

- Complex
- Competent
- Important
- Innovative
- Impressive
- Useful
- Careful

Analyzing: Putting It All Together

Once you have summarized, synthesized, compared, and critiqued your chosen material, you may consider whether these studies

- Demonstrate the topic's chronological development.

- Show different approaches to the problem.

- Show an ongoing debate.

- Center on a "seminal" study or studies.

- Demonstrate a "paradigm shift."

Analyzing: Putting It All Together

- What do researchers KNOW about this field?

- What do researchers NOT KNOW?

- Why should we (further) study this topic?

- What will my study contribute?

Drafting

What Am I
Going to Write?

Drafting: An Overview

To help you approach your draft in a manageable fashion, this section addresses the following topics:

- Exigency
- Thesis Statement
- Organization
- Introduction and conclusion
- Citations

Thesis Statements

The thesis statement offers an argument about the literature. It may do any of or a combination of the following:

- Offer an argument and critical assessment of the literature (i.e. topic + claim).
- Provide an overview of current scholarly conversations.
- Point out gaps or weaknesses in the literature.
- Relate the literature to the larger aim of the study.

Examples: Thesis Statements

1) In spite of these difficulties we believe that preservice elementary art teachers and classroom teachers <u>need some knowledge of stage theories of children's development</u>…[then goes on to review theories of development]

2) Research on the meaning and experience of home has proliferated over the past two decades, particularly within the disciplines of sociology, anthropology, psychology, human geography, history, architecture and philosophy. . . . Many researchers now understand home as a multidimensional concept and acknowledge the presence of and need for multidisciplinary research in the field. <u>However,</u> with the exception of two exemplary articles by Després (1991) and Somerville (1997) <u>few have translated this awareness into genuinely, interdisciplinary studies of the meaning of home.</u>

Examples: Thesis Statements

3) Polyvalency refers to the simultaneous binding of multiple ligands on one entity to multiple receptors on another. Polyvalent interactions are ubiquitous in nature, with examples including the attachment of viruses to target cells, bacteria to cells, cells to other cells, and the binding of antibodies to pathogens. . . . <u>In this article, I review recent developments in polyvalency and discuss the numerous opportunities</u> for chemical engineers to make contributions to this exciting field, whose applications include drug discovery, tissue engineering, and nanofabrication.

4) In this article, we <u>review and critique</u> scholarship on place-based education in order to consider the ingredients of a critical place-based pedagogy for the arts and humanities. . . <u>We begin by reviewing</u> ecohumanism's call for a more locally responsive education in light of the marginalization of place and community…

Organization

Five common approaches to organizing the body of your paper include:

- Topical
- Distant to close
- Debate
- Chronological
- Seminal Study

Topical: Characteristics

- Most common approach

- Breaks the field into a number of subfields, subject areas, or approaches

- Discusses each subsection individually, sometimes with critiques of each

- Most useful for organizing a large body of literature that does not have one or two studies that stand out as most important or a clear chronological development

Topical: Typical Language

- Three important areas of this field have received attention: A, B, C.
- A has been approached from two perspectives F and G.
- The most important developments in terms of B have been…
- C has also been an important area of study in this field.

Distant to Close: Characteristics

- A type of topical organization, with studies grouped by their relevance to current research.

- Starts by describing studies with general similarities to current research and ends with studies most relevant to the specific topic.

- Most useful for studies of methods or models.

Distant to Close: Typical Language

- Method/Model M (slightly similar to current research) addresses …

- Drawing upon method/model N (more similar to current research) can help . . .

- This study applies the procedure used in method/model O (most similar to current research) to . . .

Debate: Characteristics

- Another type of topical approach, with a chronological component.

- Emphasizes various strands of research in which proponents of various models openly criticize one another.

- Most useful when clear opposing positions are present in the literature.

Debate: Typical Language

- There have been <u>two (three, four, etc.) distinct approaches</u> this problem.

- The <u>first model</u> posits…

- The <u>second model</u> argues that the first model is wrong for three reasons. Instead, the second model claims…

Chronological: Characteristics

- Lists studies in terms of chronological development

- Useful when the field displays clear development over a period of time

  - Linear progression

  - Paradigm shift

Chronological: Typical Language

- This subject was <u>first studied</u> by X, who argued/found…

- In (date), Y <u>modified/extended/contradicted</u> X's work by…

- Today, research by <u>Z represents the current state of the field</u>.

Seminal Study: Characteristics

- Begins with detailed description of extremely important study.

- Later work is organized using another pattern.

- Most useful when one study is clearly most important or central in laying the groundwork for future research.

Seminal Study: Typical Language

- The <u>most important research</u> on this topic was the study by X in (date).

- Following X's study, <u>research fell into two camps</u> (extended X's work, etc.)

Introductions

- Indicate scope of the literature review.
- Provide some background to the topic.
- Demonstrate the importance or need for research.
- Make a claim.
- Offer an overview/map of the ensuing discussion.

Example: Introduction

- There is currently much controversy over how nonhuman primates understand the behavior of other animate beings. On the one hand, they might simply attend to and recall the specific actions of others in particular contexts, and therefore, when that context recurs, be able to predict their behavior (Tomasello & Call, 1994, 1997). On the other hand, they might be able to understand something of the goals or intentions of others and thus be able to predict others' behaviors in a host of novel circumstances. Several lines of evidence (e.g., involving processes of social learning; Tomasello, 1997) and a number of anecdotal observations (e.g., Savage-Rumbaugh, 1984) have been adduced on both sides of the question, but few studies directly address the question: Do nonhuman primates understand the intentions of others?

Conclusions

- Summarize the main findings of your review.
- Provide closure.
- Explain "so what?"
- Implications for future research.

  OR

- Connections to the current study.

Example: Conclusion

- In summary, although there is some suggestive evidence that chimpanzees may understand others' intentions, there are also negative findings (e.g., Povinelli et al., 1998) and a host of alternative explanations. As a consequence, currently it is not clear whether chimpanzees (or other nonhuman primates) distinguish between intentional and accidental actions performed by others. In contrast, there are several studies indicating that children as young as 14 months of age have some understanding of others' intentions, but the lack of comparative studies makes it difficult to know how children compare to apes. This study is the first to directly compare children, chimpanzees, and orangutans with the use of a nonverbal task in which the subjects were to discriminate between the experimenter's intentional and accidental actions.

Citing Sources

If it's not your own idea (and not common knowledge)—DOCUMENT IT!

- Paraphrase key ideas.

- Use quotations sparingly.

- Introduce quotations effectively.

- Use proper in-text citation to document the source of ideas.

- Maintain accurate bibliographic records.

Citing Sources: Things to Avoid

- Plagiarism
- Irrelevant quotations.
- Un-introduced quotations.

Examples: Citing Sources

- Quoting: "Despite pleasant depictions of home life in art, the fact remains that for most Seventeenth-century Dutch women, the home represented a curtailment of some degree of independence. Art historian Laurinda Dixon writes that "for the majority of women, however, home was a prison, though a prison made bearable by love and approval" (1995, p. 136).

- Paraphrasing: Despite pleasant depictions of home life in art, the fact remains that for most Seventeenth-century Dutch women, the home represented a curtailment of some degree of independence. Art historian Laurinda Dixon argues that the home actually imprisoned most women. She adds that this prison was made attractive by three things: the prescriptions of doctors of the day against idleness, the praise given diligent housewives, and the romantic ideal based on love and respect (1995, p. 136).

Revising

How Can I
Fine-tune My Draft?

Some Tips on Revising

- <u>Title</u>: Is my title consistent with the content of my paper?
- <u>Introduction</u>: Do I appropriately introduce my review?
- <u>Thesis</u>: Does my review have a clear claim?
- <u>Body</u>: Is the organization clear? Have I provided headings?
- <u>Topic sentences</u>: Have I clearly indicated the major idea(s) of each paragraph?
- <u>Transitions</u>: Does my writing flow?
- <u>Conclusion</u>: Do I provide sufficient closure?
- <u>Spelling and Grammar</u>: Are there any major spelling or grammatical mistakes?

Writing a Literature Review: In Summary

- As you read, try to see the "big picture"—your literature review should provide an overview of the state of research.

- Include only those source materials that help you shape your argument. Resist the temptation to include everything you've read!

- Balance summary and analysis as you write.

- Keep in mind your purpose for writing:

  - How will this review benefit readers?

  - How does this review contribute to your study?

- Be meticulous about citations.

Thank you

Privacy Technology Research Group, Data61
Youyang Qu

Youyang.QU@data61.csiro.au