



# Systematic Literature Review

How to establish a foundation for your research and write your first paper

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# Points Covered



**What is a literature review and why is it so important?**



**Methodology of Systematic LR.**



**How to draft your search keywords and research questions?**



**How to conduct a spiral review to reach your point of research?**



**How to prepare your knowledge base and paper repository for your research?**



**Quick demo on tools,**

**Google Scholar**

**Jabref**

**Microsoft Excel**

**Referencing and citation in Microsoft Word**



# What is a literature review and why is it so important?

- A discussion of your knowledge about the topic under study
- A discussion of your knowledge that is supported by the research literature
- A foundation for the study – where you should start your study

The literature is “the works you consulted in order to understand and investigate your research question.”



# What is a Literature Review?

- The selection of available documents (both published and unpublished) on the topic, which contain information, ideas, data and evidence written from a particular standpoint to fulfill certain aims or express certain views on the nature of topic.
- Exploring how the research in a specific area of interest is to be investigated
- The effective evaluation of the documents in relation to the research being proposed.



# What Literature Review Looks Like?

- NOT a summary of articles
- Conceptually organized synthesis of the results of your search
- **MUST**
  - Organize information and relate it to the research question
  - Synthesize results into what is and isn't known
  - Identify controversy when it appears in the literature
  - Develop questions for further research



## What Literature Review Is NOT?

- **A study-by-study, or article-by-article, description of studies previously done**
- **A re-statement of the studies previously done**
- **A brief overview of articles**



# Why Literature Review?

- to identify **gaps** in the literature
- to **avoid reinventing the wheel** (at the very least this will save time and it can stop you from making the same mistakes as others)
- to **carry on** from where others have already reached (reviewing the field allows you to build on the platform of existing knowledge and ideas)
- to identify other **people** working in the same fields (a researcher network is a valuable resource)



# Why Literature Review?

- to increase your **breadth of knowledge** of your subject area
- to provide the **intellectual context** for your own work, enabling you to position your project relative to other work
- to identify **opposing views**
- to put your work into **perspective**
- to demonstrate that you can access **previous work** in an area
- to identify information and ideas that may be **relevant to your project**
- to identify **methods** that could be relevant to your project



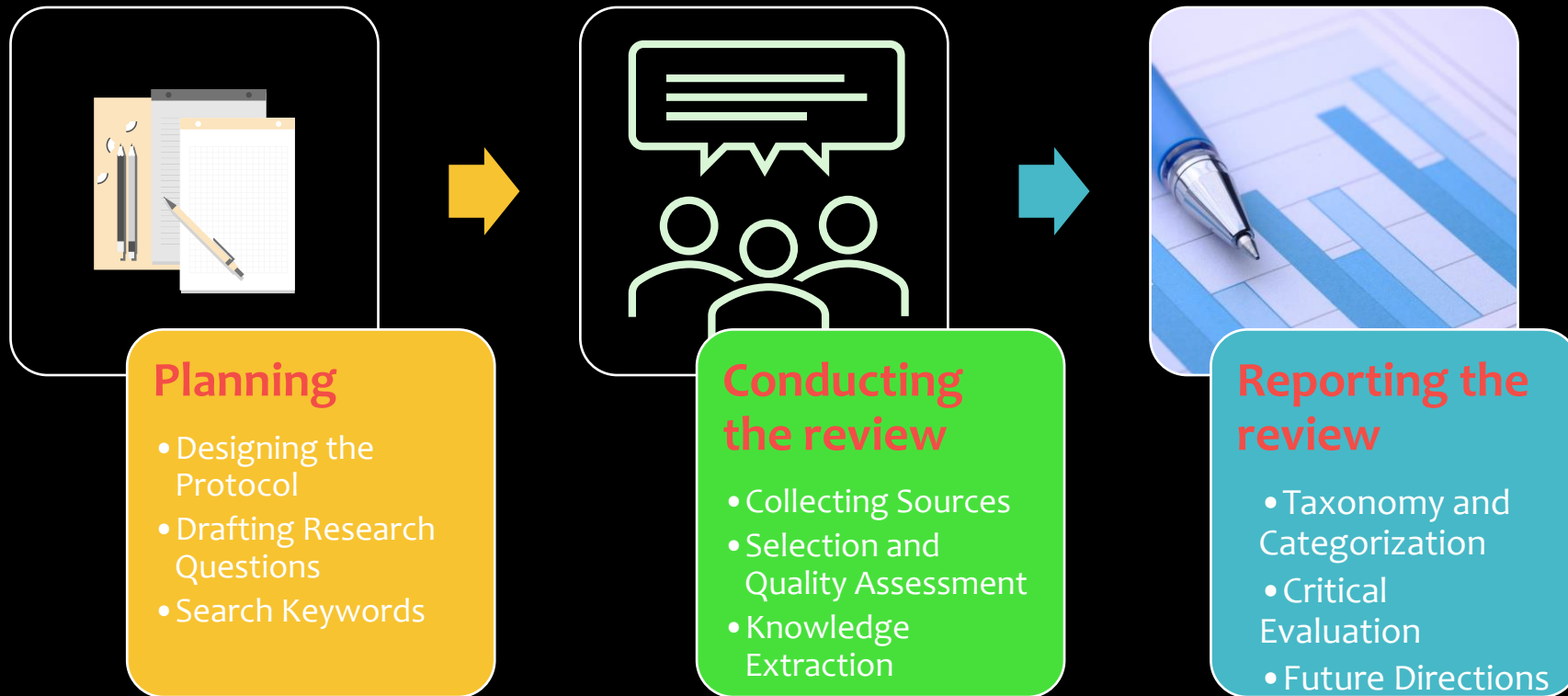


# Systematic Literature Review

- A **Systematic Literature Review** is a means of identifying, evaluating and interpreting all available research relevant to a particular research question, or topic area, or phenomenon of interest.
- Individual studies contributing to a systematic review are called primary studies; a systematic review is a form a secondary study.
- An SLR is a methodologically rigorous review of research results.
- The aim of an SLR is not just to aggregate all existing evidence on a research question;
- It is also intended to support the development of evidence-based guidelines for practitioners and Researchers.



# Methodology and Phases of an SLR.



# ? Search key-words and research questions?

- RQ1: What is “Your Topic or Field” and its related topics?
- RQ2: What is the classification of “Your Topic or Field” techniques and methodologies?
- RQ3: How to create a methodology or solution in “Your Topic or Field”?
- RQ4: What is the performance metrics that evaluate solutions and proposals in “Your Topic or Field”?

# Search key-words and research questions?

- Transfer Questions into Search Key-words, start with General Trendy Words!!
- Use advanced search and synthesize a search query
- Think about prompt engineering for GPTs



# Selection and Quality Assessment

- Relevance to Topic
- Publisher and Source
- Authors
- Citation
- Critically Analyzing the Literature



# Critically Analyzing the Literature

- **Abstract**
  - the author's description of the study
  - related to your area of interest?
  - conclusions relevant?
- **Statement of the Problem**
  - restate the topic
  - problem stated clearly?
  - purpose?
  - significance?
- **Hypothesis or Research Question(s)**
  - Clearly stated?
  - Relevant?
  - Related to your area of interest?
- **Assumptions**
  - Explicit assumptions?
  - Implicit assumptions
  - Similar to yours?



# Critically Analyzing the Literature

- **Delimitations**
  - How was the study narrowed?
  - Which considerations are relevant to your study?
- **Definitions**
  - Key concepts & terms?
- **Method**
  - research design?
  - population & sample?
  - measurement?
  - procedures?
- **Findings**
  - make sense?
  - what do they say about your area of interest?



# Critically Analyzing the Literature

- Discussion
  - Presented clearly?
  - Meaningful interpretations?
  - Implications discussed?
  - Suggestions or recommendations?
  - Limits to practical application?
- Conclusion
  - What did you learn?
  - Re-state your new knowledge





# Knowledge Extraction

## Critical Evaluation

- What do you already know about the subject? Major works?
- Is there a gap in the knowledge of a particular subject?
- Has the author formulated any problem statements/issues?
- What is the orientation of the research?
- What is the theoretical framework of the author?
- Are there further researches by other researchers?
- Who are the main players in the research communities?



# Knowledge Extraction

## Critical Evaluation

- Is the analysis accurate and relevant?
- What is the strength and weakness of the research?
- How is the article (conf proceeding / journal) related to your research question(s)?
- What is the methodology /methods/ issues/ problems that past researchers identified?
- How do past research can give an impact to your own work?



# Knowledge Extraction

- Field of Study
- Keywords in the paper
- Problem and/or application
- Methodology and/or framework
- Most Important Points
- Results and/or Solution
- Challenges
- Future Study



# How to conduct a spiral review to reach your point of research?



1. Selection of Specific Field or Points and Highlighting the papers
2. Repeating the Process:
  1. New Keywords
  2. Citations: Updates and focus



## knowledge base and paper repository

- Use the tools to download full text,
- Index and identify your papers



# Writing your Review Articles

- Introduction and Problem Definition
- Concepts, Issues and Challenges
- Document your SLR
- Taxonomy and Categorization
- Critical Evaluation
- Pave the way for your own research
- Future Directions



## Quick demo on tools

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# Questions and Comments

