

Research Foundations in Computer Science

Unit III

Reviewing the Literature

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Review of Previous Weeks

- **What is research?**
 - **Systematic activity that leads to new knowledge**
- **Why is research important?**
 - **Forms the basis for development**
- **Where can we find a research document?**
 - **Primary sources**
 - Theses , journal articles, conference papers, technical reports, preprints, university department web pages, research lab sites, etc.
 - **Secondary sources**
 - Books, Government reports, etc.

Review of Previous Weeks

- **How does one find documented research?**
 - **Browsing**
 - **Targeted searching**
 - **Using indexes and databases**
- **Why is it important to read the documented researches before starting one's own research?**
 - **To get (new) ideas**
 - **Know the terminology**
 - **Know the methods of research in the area**
 - **Know the people doing research in the area**
 - **Avoid repeating what others are doing**
 - **Compare your findings with others**

Review of Previous Weeks

Research literature [past research]

(from journal articles, conference papers, theses, etc.)



Current research

(from conference call for papers, research labs, departmental web sites, etc.)



Future research

(the research you want to do)

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Outline for Today

Reviewing the Literature

1) What is a review of the literature?

2) Why review?

3) When to review?

4) How to review?

5) Writing the review of literature.

6) What is the end product?

1) What is a Review of the Literature?

- A report of what has been published on a particular topic by scholars and researchers.
- A discussion of what knowledge and ideas have been established on a topic, and what their strengths and weaknesses are.
- A review of literature is organized around ideas; it allows the reader to understand the basis for this particular research project.
- A review of literature is not in itself primary research, but it reports the findings of others.

1) What is a Review of the Literature? (Cont.)

- Its purpose is to summarize, synthesize and analyze the arguments of others.
- It should describe and analyze the knowledge that exists and what gaps occur in research related to your chosen research topic (this should clarify the relationship between your own research and the work that has previously been done).
- It should reveal similarities and differences, consistencies, inconsistencies, disagreements, or areas of improvement or extension from previous research.

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1) What a Review of the Literature is not?

- ✗ An annotated bibliography
- ✗ A set of summaries
- ✗ A descriptive list of the material available
- ✗ A chronological catalog of all of the sources
- ✗ A collection of quotes and paraphrasing from other sources
- ✗ A summary of available resources without any critical description or components

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2) Why Review?

- To gain a full and in-depth understanding of a topic.
- To provide you with ideas to define or revise your own research topic.
- To determine if your proposed research subject has been done before and avoid duplication.
- To avoid errors made in similar research.
- To enable you to place your study within its context (i.e. so that you can show how your research will add to the existing sum of knowledge).
- To provide you with information with which to compare and contrast your findings.

2) Why Review? (Cont.)

- Goal is to bring the reader up to date with current literature on a particular topic
- Review will
 - provide background information needed to understand the study
 - show readers you are familiar with significant and/or up-to-date research relevant to the topic
 - establish the importance of the topic
 - justify your choice of objectives, framework, and method
 - establish your study as one link in a chain of research that is developing knowledge in your field
- Forms the basis for future research that is needed in the area

3) When to Review?

- Before you begin the research
- As you are doing your research
- After you have completed your research

Review is a continuous process.

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4) How to Review?

Key steps:

- **Information seeking** : The ability to scan the literature efficiently to identify relevant resources.
- **Critical assessment** : The ability to apply principles of analysis to identify unbiased and valid studies.
- **Writing up** : Synthesizing the information.

4) How to Review? (Cont.)

- Compile a bibliography
- Select relevant resources
- Look at each resource
 - What is the problem they were investigating?
 - What is the objective of the research?
 - What methods did they use?
 - What did they find (results)?
 - What do the results mean (discussion)?
- Synthesize the findings
- Are there consistencies? inconsistencies?
disagreements? suggested areas for further research?

5) Writing the Reviewing of Literature

- Find a focus
- Develop a proposal (thesis) statement
- Organize
 - Introduction
 - Body
 - By themes
 - Present evidence, but use quotes sparingly
 - Summarize and synthesize
 - Conclusion / Summary
- Revise, revise, revise, ...

6) What is the End-Product of a Review ?

End-product of a review is a report that:

- is organized around and related directly to the thesis or research objectives you are developing.
- Synthesizes results into a summary of what is and is not known.
- identifies areas of argument, disagreement or improvement based on the literature.
- formulates questions that need further research.

Upon completion of reading the report, reader should be able to see clearly why and how you are going to conduct the research.