

Literature Review

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Outline

- ◉ Literature review functions
- ◉ Literature review advantages
- ◉ Literature review characteristics
- ◉ When to start reviewing process?
- ◉ What to look for?
- ◉ Where to look?
- ◉ How to read?
- ◉ How to record?
- ◉ How to write?
- ◉ Pitfalls
- ◉ How to improve?

Literature review functions

- To justify
 - research question
 - theoretical or conceptual framework
 - method
- To develop and refine your research idea
- To establish the importance of the topic
- To provide background information
- To demonstrate your understanding
 - To show familiarity with significant and/or up-to-date research relevant to the topic

Literature review functions

- “Not a shopping list” of everything that exists
- To combine both summary and synthesis
 - **Summary**
 - Recap of the important information of the source
 - Analyze critically a segment of a published body
 - **Synthesis**
 - Re-organization
 - Reshuffling information
 - Critical combination of previous research
- Provide new interpretation of old material or combine new with old interpretations

Literature review Advantages

- Make sure that you are not working on solved or saturated problem
 - Prevent duplication of effort
- Help you correctly identify the problem
- Lead you to the field
 - Speak and understand the same language (such as concept, abbreviation, notation) as other researchers
- Let you learn from other experiences

Literature review Advantages

- ⦿ Educate you about research restrictions and awareness
- ⦿ Show you related research pools of knowledge
- ⦿ Show you how to compare your work
 - Tools, data test set, benchmark
- ⦿ Help you map out a clear research relationship

Literature review Advantages

- ◉ To establish your study as one link in a chain of research that is developing knowledge in your field
- ◉ Not **plagiarize**
 - Give credit: cite other research work properly
- ◉ Reader can trace back for more specific information as required
- ◉ Standard references and citation, for other researchers, reduce searching time

Literature review characteristics

- ⦿ Broad (General) review
- ⦿ Related field review
- ⦿ Related specific topic review

When to start reviewing process?

- ◎ **After roughly select the interesting topic**
 - Before starting other research activities
 - Before identify the clear research problem
 - Broad review

When to start reviewing process?

- ◉ **During working on your research**
 - Continuously review currently / new-coming research
 - Keep up to date information about related work
 - Related field review / Related specific topic review
 - To find a particular technique or method
 - Very targeted search
 - Refine your scope

What to look for?

- ◉ Identify keywords
 - Start searching based on keywords
- ◉ Where do keywords firstly come from?
 - Broad review
 - Content of background section (not the literature review section)

What to look for?

- How to screen search results
 - May get lots by the keyword
 - *Check relevancy*
 - Read the abstract and summary
 - *Check date*
 - Obsolete in old articles
 - *Check authority*
 - Article source
 - Author credibility
 - Impact of the article

Where to look ?

⊙ Real users

- Discuss / Interview

⊙ Academic database

- <http://ieeexplore.ieee.org>
- <http://portal.acm.org>
- <http://www.sciencedirect.com>
- <http://isiknowledge.com>
- <http://www.scopus.com>
- <http://search.ebscohost.com>
- <http://www.scirus.com>
- <http://www.springerlink.com>
- <http://scholar.google.com>

How to read?

Speed reading: Skim (I)

◎ Meaning

- To get only the **general information**
- To grab the main idea of the paper
- Not read every word
- However, still roughly understand

How to read?

Speed reading: Skim (II)

- ◉ Skimming steps
 - Read the title
 - Read the authors' name
 - Look at the references
 - **Carefully read the first paragraph (Abstract)**
 - Read the sub-topic and the first sentence of each paragraph
 - Read through with fast speed and look for
 - Main idea, Clue words
 - **Carefully read the conclusion**
- ◉ Practice skimming by
 - Read newspaper and magazine
 - Select a book in a library before check it out

How to read?

Speed reading: Scan (I)

◎ Meaning

- To get only **specific information**
 - Such as name, date, word
 - Example: looking for a person in the phonebook

How to read?

Speed reading: Scan (II)

○ Scanning steps

- Make up your mind about **what are you looking for (Keyword)**
- Let your eyes move slightly fast line-by-line
- Read 2-3 sentences at a time
- **Look only** for your **keyword**
- If keyword is found, read the particular sentence
- Mark the sentence

○ Practice scanning by

- Find a keyword in an introduction section

How to record? (I)

- ◉ Manage what you have read
 - Bibliographic details: Title, year, authors, publication source
 - Supplementary information: For Internet article, time it is retrieved
 - Using reference management tools e.g. **Endnote**
- ◉ Archive the paper
 - Keep (pdf) files handy for retrieval

How to record? (II)

- ◉ Note what you found
 - Brief Summary of content
 - Key words, evaluative comments
 - Write down interesting points
 - Concept, problems, awareness
 - Your **Engineering Journal**
 - Help you writing a paper or thesis

Before writing (I)

○ Clarify

- Clear objective
- What types of sources (books, journal articles, websites)?
- Should you summarize, synthesize, or critique your sources
- Should you evaluate your sources?
- Should you provide subheadings and other background information, such as definitions and/or a history?

Before writing (II)

- ◉ Look for other literature reviews in your area of interest
- ◉ Narrow the topic
 - Thousands of articles and books on most areas of study
 - Roughly pick a number of sources to be included
- ◉ Consider whether your sources are current
 - **More than 3-5 years old**, Information could be obsolete

Literature Review Development

- ◉ Similar to primary research
- ◉ Requires four stages:
 1. **Problem formulation**
 - ◉ Identify topic or issues
 2. **Literature search**
 - ◉ Find relevant materials
 3. **Data evaluation**
 - ◉ Determine which literature makes a significant contribution to the understanding of the topic
 4. **Analysis and interpretation**
 - ◉ Discuss and conclude of pertinent literature

Structure of the literature review (Type I)

Break down literature review into **two parts**

1. Preliminaries
2. Related Works

Structure of the literature review (Type I)

1. Preliminaries

- Give a description of main techniques, algorithms or methodologies
- Very common in development project

Structure of the literature review (Type I)

2. Related works

- Identify the similarity done by researchers
 - Describe them one by one with brief summary of your own
 - Group similar works together and compare and contrast them
- Point out what makes your project different from others
- Important part of research project
- Can have both or either of them

Structure of the literature review (Type II)

Break down literature review into **three parts**

1. Introduction
2. Body of the review
3. Conclusion

Structure of the literature review (Type II)

1. Introduction

- Provide reader with scale and structure of your review
- Serves as a kind of map

2. Body of the review

- Should be evaluative and not merely descriptive
 - Possible reasons for **similarities**
 - Or **differences** between studies
 - **Not** a mere **identification** of them

Structure of the literature review (Type II)

3. Conclusion

- Sum up main findings of your research
- Aims of the study you are proposing to do
- Provide reader with a coherent background

Typical ways of organizing review

- ◉ Chronological
- ◉ By publication
- ◉ By trend
- ◉ Thematic (Theme)
- ◉ Methodological
- ◉ Questions for Further Research

Plan your Review

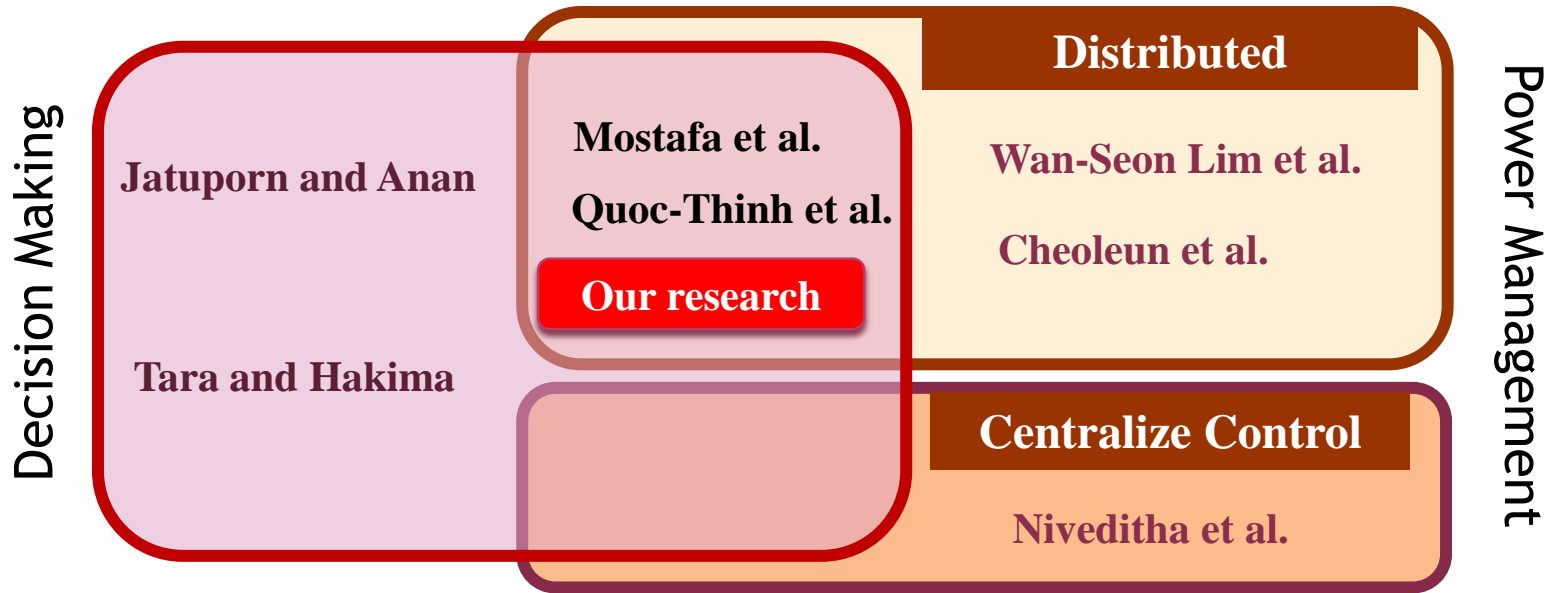
◉ Map / Tree

- Use tools such as **MindMap**
- Draw pictures
- Link between concepts and processes
- Show relationship between ideas and practice
- Show how topic branches out into subthemes

◉ Table

- Classify your thought in tabular form

Related work in Diagram (Method used)



Comparison Table

Related Work	Characteristics						Evaluation Matrix			
	Always Best Connect	Static Scanning Time	Dynamic Scanning Time	Centralized	Decentralized	Decision making	Power Supply Level	Motivation	Location Detection (GPS)	Idle Mode
Quoc-Think et al. (2008)	√	√			√	√	√	√	√	√
Cheoleun et al. (2007)	√		√		√			√	√	
Wan-Seon et al. (2008)			√		√				√	
Mostafa et al. (2009)	√	√			√	√	√			
Niveditha et al. (2008)				√						
Jatuporn and Anan (2007)	√	√				√				
GU Chen et al. (2008)	√	√				√				
Tara and Hakima, (2009)	√		√		√	√	√	√		√
Proposed Work	√	√			√	√	√	√	√	√

How to write? (I)

- **Not** summarized by authors or years
 - Literature review is **not just a simply list**
 - **Not just describe** detail about each one of them, one at a time
- Create your own categories
 - Summarize from your understanding
 - Classified by method/algorithm usage, layering, solving approach

How to write? (II)

- Pin point for
 - Main concept
 - Important of unsolved problem
 - Agreement
 - Argument: supported with valid evidence
 - Method usage
- Distinguish clearly between **fact** and **opinion**
- What are you going to do
 - Problem statement
 - Your method with reason

Note on writing review

- ◎ By Dr.Sutreera (Prince of Songkla University)
 - *One place (a particular topic) in the review must be supported by more than one paper*
 - *One paper maybe appeared in more than one place*

Bad Example

Until recently many researchers have shown interest in the field of coastal erosion and the resulting beach profiles. They have carried out numerous laboratory experiments and field observations to illuminate the darkness of this field. Their findings and suggestions are reviewed here.

JACHOWSKI (1964) developed a model investigation conducted on the interlocking precast concrete block seawall. After a result of a survey of damages caused by the severe storm at the coast of USA, a new and especially shaped concrete block was developed for use in shore protection. This block was designed to be used in a revetment type seawall that would be both durable and economical as well as reduce wave run-up and overtopping, and scour at its base or toe. It was proved that effective shore protection could be designed utilizing these units.

HOM-MA and HORIKAWA (1964) studied waves forces acting on the seawall which was located inside the surf zone. On the basis of the experimental results conducted to measure waves forces against a vertical wall, the authors proposed an empirical formula of wave pressure distribution on a seawall. The computed results obtained by using the above formula were compared well with the field data of wave pressure on a vertical wall.

Good Example

1 Introduction

With the popularity of IEEE 802.11 based wireless local area networks (WLAN) capable of providing high data rates ranging from 1 Mbps up to 54 Mbps, the demands of multimedia services for mobile users are growing. Various kinds of multimedia applications such as streaming video, Internet phone and net meeting, require differentiated quality-of-service (QoS) guarantees because of their differentiated traffic types. Thus, the provision of QoS in 802.11 medium access control (MAC) becomes increasingly important. Most of current 802.11 MAC employ distributed co-ordination function (DCF) [1], a random access protocol based on a carrier sense multiple access with collision avoidance (CSMA/CA), on account of its distributed nature for the simplicity of implementation [2]. To provide multimedia services in such contention-based networks, fairness is of particular concern because the QoS performed essentially depends on the sharing of transmission mediums among users.

The fairness of IEEE 802.11 DCF has been largely investigated in previous works [2–14]. The study reported by Koksal *et al.* [3] shows that 802.11 DCF presents short-term unfairness of channel sharing due to the backoff protocol in CSMA/CA, which can therefore make a significant impact on delay-sensitive applications like real-time audio and streaming video [3]. However, Berger-Sabbatel *et al.* [4]

A cross-layer adaptive algorithm for multimedia QoS fairness in WLAN environments using neural networks

Wang, C.; Lin, T.; Chen, J.-L.;

Communications, IET

Volume: 1 , Issue: 5

Digital Object Identifier: [10.1049/iet-com:20060264](https://doi.org/10.1049/iet-com:20060264)

Publication Year: 2007 , Page(s): 858 - 865

IET JOURNALS

Good-Bad Literature Review

Good	Bad
a synthesis of available research	an annotated bibliography
critical evaluation	confined to description
appropriate breadth and depth	narrow and shallow
clarity and conciseness	confusing and longwinded
rigorous and consistent methods	constructed in an arbitrary way

Tips on writing (Language Focus I)

◎ Sentence

- Express one idea in a sentence

◎ Paragraph

- Group sentences that express and develop one aspect of your topic
- Use a new paragraph for another aspect or another topic

Tips on writing (Language Focus II)

◉ Consistent Grammar

- Appropriate use of commas, colons and semi-colons
- Incorrect use of punctuation can affect the meaning

◉ Transition Words

- Use link words to show contrast of your argument
- e.g. 'hence', 'therefore', 'but', 'thus', 'as a result', 'in contrast'

Tips on writing (Language Focus III)

- ◉ Create a balance between direct **quotation** (citation) and **paraphrasing**
- ◉ Avoid too much direct quoting
- ◉ When you are citing a specific author's findings
 - Use past tense (e.g. found, demonstrated)

Tips on writing (Language Focus IV)

- ◉ Writing about an **accepted fact**
 - Use present tense (e.g. demonstrates, finds)
- ◉ Citing several authors or making a **general statement**
 - Use present perfect tense
 - ◉ e.g. have shown, have found
 - ◉ e.g. little research has been done

Pitfalls

- Vagueness
 - Include too much information
 - Include **too obvious** or **have no interest** to the audience in the literature review
 - Include **not very relevant (important)** literature -- consider the reader
- Limited range
- Insufficient information
- Omission of
 - Contrasting view
 - Recent work

How to Improve ?

- ⦿ Regularly attending conferences
- ⦿ Join research discussion group (e.g. in your lab)

References

- ◉ Writing literature reviews
<http://www.monash.edu.au/lls/llonline/writing/general/lit-reviews/index.xml>
- ◉ Skim and Scan
http://cc.domaindx.com/chantana/pre_read.htm
- ◉ สุธีระ ประเสริฐสรรพ. สนุกกับงานวิจัย. สำนักงานกองทุนสนับสนุนการวิจัย , 2544
- ◉ JP 612 Research Methodology, ภาค 2 ปีการศึกษา 2549, ดร.พัชรพร แก้วกฤษฎาวงศ์ และ อ.สุภาพร ศรีสัตตรัตน์
- ◉ Literature Review, by anonymous, Week 2 Lecture Mar 16, 2006
- ◉ Literature Review and Referencing, Gerry S. Doroja, MSCS Department of Computer Science, Xavier University - Ateneo de Cagayan
- ◉ SMM4999 - Literature Review, Dr. Lili Ann