

# How to Write an Effective Literature Review

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# Outline

- 1 What is a Literature Review?
- 2 Types of Literature Review sources
- 3 Context of a Literature Review
- 4 Questions that a LR should answer
- 5 A bad example of a Literature Review
- 6 A good example of a Literature Review
- 7 Summary
- 8 References

# What is a Literature Review?

It is a **critical description** of the literature relevant to a particular research

A Literature Review (LR) should

- never be just a list of previous work
- contain the works that you consulted in order to develop your research
- provide justification/background for the research undertaken:
  - The LR guides the reader to understanding the contribution of the work by pointing out the shortcomings/gaps of the state of the art
  - If you leave this task to the reader, your paper **may be rejected**

## Types of Literature Review sources

- **Journal articles** (surveys, research papers). Provide technical up-to-date information (last 2 years) about a research topic.
- **Books**. Recent research monographs can be useful in your literature review. Do not include citations of textbooks not in your LR, but you can use them in later sections of your paper.
- **Conference proceedings**. They provide information about the latest/unpublished research. In general, less reliable than a journal paper. Always cite the journal paper version if available.
- **Government or corporate reports**. Depending on your field of study can be a useful source of information. They may outline general research lines a particular organization is interested in funding.

## Types of Literature Review sources

- **Theses and dissertations.** Can be useful sources of information. However they can be difficult to obtain, parts of the research presented may have to be treated with caution.
- **Specialized magazines.** Sometimes these are considered as reputable as a journal. Other types of magazines can provide a good starting point to find more reputed work.
- Other sources include **newspapers** and **the Internet**. These can point you to the more reputed sources; in general avoid citing them directly in your LR.

# Context of a Literature Review

A Literature Review (LR) can appear as

- part of a research paper introduction
- part of a thesis (or thesis chapter) introduction
- a section in a research proposal

To write an effective LR, we need to understand its relation with other **parts of an introduction**:

## I. Motivation

- Overall motivation to study a particular set of problems
- It can include a few citations of a survey, a book, or some authoritative general reference
- It includes also a research question or a thesis statement

## Context of a Literature Review

- II. **Literature review.** It should contain all citations except for the few in the motivation part
- It consists of several paragraphs depending on the point/topic/approach that you address
  - Each paragraph starts with a sentence explaining the subtopic/approach first, possibly in contrast with previously mentioned approaches
  - Then, specific references supporting the taken approach are given
  - Each reference should be analyzed briefly pointing to a specific aspect (a solution) and a shortcoming of the work that will be addressed by your research
  - Comparisons between references within the same subtopic can be made

## Context of the Literature Review

III (a). **Contributions** (of a paper/thesis chapter.) Once you have provided evidence that there are holes in knowledge in the current state of the art, you present specific problems that are addressed in the paper **precisely filling those gaps**

III (b). **Implications for further research** (research proposal.) Once the state of the art has been presented, you present plausible ideas or theories that you can use to fill the existing gaps

references to any research work, or better, none, in order to **make the statement of contributions stronger** or emphasize the relevance of the research.



## Questions a LR should answer

The following should be answered by a literature review:

1. What do we already know in the immediate area concerned?
2. What are the characteristics of the key concepts or the main factors or variables?
3. What are the relationships between these key concepts, factors or variables?
4. What are the complementary existing theories/approaches?

## Questions a LR should answer

5. Where are the inconsistencies or other shortcomings in our knowledge which these works have not solved?
6. What views need to be (further) tested?
7. What evidence is lacking, inconclusive, contradictory or too limited?
8. Why study (further) the research problem?
9. What contribution can the present study be expected to make?
10. What research designs or methods seem unsatisfactory?

## A bad example of a Literature Review

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.

SELEZOV and ZHELEZNYAK (1965) conducted experiments on scour of sea bottom in front of harbor seawalls, basing on the theoretical investigation of solitary wave interaction with a vertical wall using Boussinesque type equation. It showed that the numerical results were in reasonable agreement with laboratory experimental data.

## Why is it bad?

- It offers a summary of previous research, answers question 1
- Does not answer any other question. It does not evaluate the summarized research, does not show any relationship between theories
- Organized by listing authors, presented using chronological order, instead of organized using the research (key concepts or theories). A chronological order should be avoided
- It is not critical
- It does not relate to the writer's research

## A good example of a Literature Review

Automated storage and retrieval systems (AS/RS) are being introduced into the industry and warehousing at an increasing rate. Forecasts indicate that this trend will continue for the foreseeable future (see [1]). Research in the area of AS/RS has followed several avenues. Early work by Hausman, Schwarz and Graves [6, 7] was concerned with storage assignment and interleaving policies, based on turnover rates of the various items. Elsayed [3] and Elsayed and Stern [4] compared algorithms for handling orders in AR/RS. Additional work by Karasawa et al. [9], Azadivar [2] and Parry et al. [11] deals with the design of an AS/RS and the determination of its throughput by simulation and optimization techniques.

Several researchers addressed the problem of the optimal handling unit (pallet or container) size, to be used in material handling and warehousing systems. Steudell [13], Tanchoco and Agee [14], Tanchoco et al. [15] and Grasso and Tanchoco [5] studied various aspects of this subject. The last two references incorporate the size of the pallet, or unit load, in evaluation of the optimal lot sizes for multi-inventory systems with limited storage space. In a report on a specific case, Normandin [10] has demonstrated that using the 'best-size' container can result in considerable savings. A simulation model combining container size and warehouse capacity considerations, in an AS/RS environment, was developed by Kadosh [8]. The general results, reflecting the stochastic nature of the flow of goods, are similar to those reported by Rosenblatt and Roll [12]. Nevertheless, container size was found to affect strongly overall warehousing costs.

In this paper, we present an analytical framework for approximating the optimal size of a warehouse container. The approximation is based on series of generalizations and specific assumptions. However, these are valid for a wide range of real life situations. The underlying assumptions of the model are presented in the following section.

## Why is it good?

- Grouped similar information
- Shows the relations between different works
- It is organized following the outline presented earlier
- It is organized around **ideas** and not **researchers**

# Summary

In order to write a good LR, remember that:

- Write with a purpose, a research problem in mind
- Select references that are only relevant to your work
- Establish relationships with different works and your own
- Write and rewrite

**Questions?**

## Some links

The Literature Review: A Few Tips on Conducting It: <http://www.utoronto.ca/writing/litrev.html>

The Literature Review: <http://www.library.cqu.edu.au/litreviewpages/>

How to Write a Literature Review: <http://library.ucsc.edu/ref/howto/literaturereview.html>

How to Write a Literature Review:

[www.unc.edu/depts/wcweb/handouts\\_pdf/Literature%20Review.pdf](http://www.unc.edu/depts/wcweb/handouts_pdf/Literature%20Review.pdf)

Writing at University. Literature Review:

<http://www.canberra.edu.au/studyskills/writing/litreview.html>

The Literature Review: <http://www.deakin.edu.au/library/litrev.html>

Research and Writing: using the literature: <http://www.clet.ait.ac.th/EI21LIT.HTM>

Academic Writing: Reviews of Literature

<http://www.wisc.edu/writing/Handbook/ReviewofLiterature.html>

Dissertation Doctor (Humorous, Human Interest Side - but some good advice as well)

<http://www.dissertationdoctor.com/>