

Topic 13. How to write a literature review?

This lecture will help you understand what a literature review for a PhD thesis is, why and how it is written, and how to structure a literature review and a list of references.

Let's start from the question "What is a literature review?"

First of all, a literature review involves a systematic identification of necessary information related to a research problem.

By definition, a literature review is a critical summary of all published work on a particular topic:

- it analyzes specific issues;
- it identifies trends in research;
- it points out research gaps in existing literature.

So, this is a very important part of every research, including, of course, yours.

Second question: "What is the purpose of a literature review?"

In a research, literature review is mainly used to:

- define the problem that you plan to research further
- reveal gaps in previous research by reviewing the findings or theories found
- show how your study relates to or differs from previous studies

Ideally, a good literature review should present the frontiers of knowledge in the research area and answer the questions:

What is known based on previous studies?

What has yet to be found out or what can be investigated further?

You have to remember, writing a literature review is not just about summarizing the articles and books that you have read, but you have to analyze all this information.

The following key steps are important for writing a literary review:

- focus on **Keywords**: identify the keywords, including variables, from your research topic or research problem.
- **Search Good Resources**: find articles based on the key words by searching through good resources (databases/ journals). Write down the reference for the articles used too.
- **Extract Key Info**. Extract the key information from the resources.
- **Compare and Contrast**. Critically compare the info that you have gathered from various articles. Analyze and synthesize.
- **Link and justify**. Make a link to your research problem and provide good justifications.

Third question: "What are the key components of a literature review?"

It depends on the type of literature itself.

For theoretical literature, these would be
the definition of concepts, keywords
different views of the concepts
and the relationship of the concept to others

For the empirical literature, these would be findings from related studies and comparison of findings

And the most important question is What to look for in articles?

I would advise the following:

Get to know the aims and objectives of the study

Find related concepts. Not all, but at least the key variables mentioned in the objectives.

Learn about the Method. You need to understand how the previous study was conducted (e.g., target samples, data collection procedures, etc.)

Study the Results. Synthesize the key findings especially by relating to your own research problem, not just the conclusions.

You can write your literature review using one of the following approaches: Chronological approach or Thematic approach.

In the chronological approach you describe each work in succession, starting with the earliest available information.

Here are some tips for using the chronological approach

Use this structure when you want to focus on how ideas or methodology have progressed over time.

Group and discuss your sources in order of their publication date.

Record the research and developments in each group.

Check how the field has developed over the years.

In the thematic approach that you are most likely to use, you organize and discuss existing literature based on themes or theoretical concepts you feel are important to understanding the topic.

Here are some tips for using the thematic approach

Remember that you need to do much more than summarizing each study.

Analyze existing knowledge on the topic with regard to certain important issues.

Draw the readers' attention to new angles or perspectives.

Start listing citations you may include in your paper.

And last, but not least, the structure of a literature review. What are the main elements of a literature review? The structure of literature review consists of introduction, methods, body (or main part), discussion & conclusion, references. Let's take a close look on these components. Here are tips on how to organize your literary review.

Introduction. Set some context; provide information about the field of study, the relevance of the chosen topic within the field, and the focus of the literature review.

Methods. Help readers understand your approach, describe the criteria used to select the sources or the way in which you have presented information.

Body. A chronological model has different paragraphs for different time periods; a thematic model has subtopics based on the different themes.

Discussion & Conclusion. Summarize the main contributions of significant studies, raise and discuss questions about the topic and field, clearly mention gaps in research, if any, and possible suggestions for further study.

Reference. Prepare a complete reference list that includes every important detail of all the sources you have referred to.

Let's think one more time why you are writing a literature review? Yes, because you need it for your master's thesis. Let's think about the place of the literature review in the structure of your thesis

Most master's theses are structured as shown below. Each part may be split into several chapter. But the parts commonly appear in the following order:

Title page

Acknowledgement (Optional)

Summary

Table of Contents that lists all chapters and subchapters of your thesis and provides the page number where each chapter starts

1. Introduction

2. Literature Review

3. Data Collection (or Research Methods)

4. Analysis (or Results & Discussion)

5. Conclusions

List of references

Appendix (Optional)

By the way, there is no mandatory length of a master's thesis. Most well-written theses have between 50 and 80 pages.

Be aware that your master's thesis will only be evaluated based on the written document and the defense.

If you did some nice work (that you might have shown to your adviser at some point) and forget to add it to your written document, it cannot be evaluated alas!

So, the literature review is a core element of your thesis and shows that you are capable of working scientifically. As you explain what other researchers have found on your topic, the reader will realize that you know this topic extremely well. This will build trust that you can provide a piece of work yourself that is scientifically relevant.

Equally important, you will need to identify a gap in the literature that you intent to fill. This is how you justify your thesis, and it helps the reader to assess the importance of your work. This gap may be methodological ("I will develop a new method that is able to answer my research question, which previously applied methods cannot as well."), use new data ("Other researchers used database X, but I will use data retrieved by Y."), or a new application ("This method has never been applied to the city of Almaty.").

All this together is the correct answer to the question "Why are you writing a little review?"

How to structure your Literature Review?

Imagine you're making a new model of mobile phone. You'd need to look at old models to see how other people are designing them (and so you know how yours will differ) and to see how they are made. You'll need to look for their flaws, and get an idea of where they can be improved.

That's because you can't make something new if you don't know what the old one looks like.

The literature review is the same. You use it to make the case for your research by surveying the work that's already been done in your discipline (and sometimes beyond). It's a bit like a family tree. You use it to trace the lineage of your study. Putting it in its place.

A literature review has three objectives:

Summarize what has already been discussed in your field, both to demonstrate that you understand your field and to show how your study relates to it.

Highlight gaps, problems or shortcomings in existing research to show the original contribution that your thesis makes.

Identify important studies, theories, methods or theoretical frameworks that can be applied in your research.

There are ten steps involved in conducting a literature review:

- 1) Pick a broad topic, read broadly!
- 2) Find the way in
- 3) Find out Who's saying what and when
- 4) Take notes
- 5) Narrow down the field
- 6) Narrow down the sources
- 7) Snowball. That means "increase quickly". If a plan, problem, idea, etc. snowballs, it quickly grows bigger and more important
- 8) Think about questions that haven't been asked
- 9) Write early, write quickly and write relevantly
- 10) Prepare a complete reference list that includes every important detail of all the sources you have referred to.

List of references

Here your list all references that are cited in your work, and only those references. References you read but did not cite do not appear here. After all, they were not relevant enough for this thesis to be cited, so they do not belong in your list of references.

It is strictly advised to use a documentary-note style, which means you put a number in your text to cite sources of information and the reference list is in numerical order. In text citations are in square brackets and in order of citation (the first citation is [1] the next is [2]).

For example, "Thus, papers [1-4] use such a method (short description), the authors of [5, 6] propose a different approach (short description), etc.

There are some examples of documentary-note styles developed by American Medical Association (AMA), American Psychological Association (APA) and National Library of Medicine (NLM) (Table 1)

Table 1 Examples of documentary-note style reference

<p>AMA</p>	<p>Collins LM, Dziak JJ, Li R. Design of experiments with multiple independent variables: a resource management perspective on complete and reduced factorial designs. <i>Psychol Methods</i>. 2009;14(3):202-224. doi:10.1037/a0015826</p>
<p>APA</p>	<p>Collins, L. M., Dziak, J. J., & Li, R. (2009). Design of experiments with multiple independent variables: a resource management perspective on complete and reduced factorial designs. <i>Psychological methods</i>, 14(3), 202–224. https://doi.org/10.1037/a0015826</p>
<p>NLM</p>	<p>Collins LM, Dziak JJ, Li R. Design of experiments with multiple independent variables: a resource management perspective on complete and reduced factorial designs. <i>Psychol Methods</i>. 2009 Sep;14(3):202-24. doi: 10.1037/a0015826. PMID: 19719358; PMCID: PMC2796056.</p>

Let's see what these styles have in common. The authors of the article, the title of the article, the name of the journal (full or abbreviated), its volume and number, year of publication, page numbers and DOI (digital object identifier) or URL of the paper are indicated everywhere.

You should do the same. Find complete information about the source you are interested in and take notes on this paper.

Self-control assignment

To test yourself, find 10 research papers (conference papers, journal articles, monographs, book chapters, patents) for your literature review and make a list of references. Use APA style to design your list. Papers should be mostly up-to-date (at least published in the last 10 years). Please, keep and revise this list to write your Literary Review.

Write in English a short literature review of your research topic with an up-to-date bibliography. A literature review on the topic of your dissertation should be written on the basis of an analysis of relevant (over the past 10 years) journal articles, books and patents in the field of your research (with a complete list of references). You should use a documentary-note style, which means you put a number in your

text to cite sources of information and the reference list is in numerical order. In text citations are in square brackets [1] and in order of citation (the first citation is 1 the next is 2). The literature review should contain no less than 10 references, a clearly formulated scientific or technical problem and a comparison of different approaches to solving it, justification of the approach you have chosen and end with a statement of the goal of your research. (For example, "Thus, papers [1-5] use such a method (short description), the authors of [6, 7] propose a different approach (short description), etc., their advantages are such and such, but their implementation requires the use of complex and expensive equipment, while a simpler and cheaper approach can be used (a brief description of the proposed approach). The goal of this dissertation research is as follows ... ")

You can find helpful additional information using the references [1-9], which were also used for developing this lecture.

References

1. A quick guide to writing a literature review
Source: <https://www.slideshare.net/keemanxp/writing-a-literature-review-a-quick-guide>
2. How to write a literature review. Source:
<https://www.slideshare.net/DanielC70/how-to-write-literature-review-article>
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4. Typical Structure of a Master's Thesis. Source:
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5. A structured approach to presenting PhD theses: notes for candidates and their supervisors by Chad Perry. Source:
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6. How to Structure a PhD Thesis by Dr. Max Lempriere. Nov 21, 2019. Source:
<https://www.thephdproofreaders.com/structuring-a-thesis/how-to-structure-a-phd-thesis/>
7. How to write a literature review. Global Health with Greg Martin. Source:
<https://youtu.be/rnHvO5aRXq0>
8. Research proposal literature review. Source: https://youtu.be/bCh_3VqwTnI
9. Let's Write: First Lines and Literature Review of Research Thesis. Source:
<https://youtu.be/hesAOR17wFc>

Congratulations, you have completed the Topic 13 of this course!

Your learning outcomes are as follows:

You are able to demonstrate an understanding of what a literature review is and why a You are able to list the main components of a PhD thesis

You are able to explain the structure of summary, introduction and literature review for your thesis

You are able to explain the structure of the Research Methods chapter and Research Ethics meaning, the structure and content of the Chapter 3 (Presentation of data findings and Discussion) and the Conclusion section, Appendices and References.

You learned about the full structure of a PhD thesis and you are able to use this information for your future work.

You are able to prepare a well-structured, coherent and consistent thesis.