

How to Write a Literature Review

Where does it fit? – A literature review is a self-contained assessment of what has been written on the topic or topics identified in the statement of objectives. The literature review may be a chapter in a thesis or dissertation or may be part of the introduction or background section of a paper or a report. The literature review should not be a simple summary of previously published work, but it should be a *critical analysis* of the relationship between the cited literature and your work.

Before Writing – Complete the following steps before writing a literature review.

- **Identify your focus** – If you are not careful, a literature review can involve an enormous amount of material. It is very important to identify the specific focus of your work. In addition to the statement of objectives it is often useful to consider your results and conclusions and ask how they will compare with those existing in the literature. You will want to review all the literature that helps others understand your results and put them into context with what is already published.
- **Conduct a literature search** – Complete your initial literature search by making sure you have identified all the relevant material prior to finalizing the documentation of your work. Search databases available through the library or online using key words extracted from your statement of objectives. The literature reviews of other papers can be very helpful for finding relevant work and new key words or terms that can be used in search engines.
- **Read the relevant literature critically** – A critical analysis requires *critical reading* and *critical writing*, and the critical reading must be done before writing the literature review. Critical means analytical, logical or fact based. Analysis means to break something down and to study its parts. An analysis requires that you determine the essential, relevant features of the object and how these features interact with each other and with the object's surroundings. Ask the following questions about what you are reading.
 - a. What is the author's purpose?
 - b. What are the strengths and weaknesses of the author's logic, conclusions and recommendations?
 - c. How do the methods, results and conclusions relate to my work?

While Writing – Complete the critical analysis by writing a critique of the relationship between the cited documents and your work. Your critique should clearly put your work into context and lay the foundation needed for readers to understand the contribution of your work. Critical writing includes the following features.

- **Summaries** – Concisely summarize the relevant methods, results, conclusions or recommendations presented in each document cited in your literature review. Be sure to avoid plagiarism when summarizing the cited literature.
- **Evaluations** – Describe the strengths and weaknesses of the relevant methods, conclusions and recommendation that are addressed in each of cited work.
- **Discussions** – Describe the benefits of extending or building on a cited work, how the shortcomings in a cited work can be overcome or how discrepancies between cited works can be resolved.
- **Citing and listing** – All of the literature referenced must be cited in the text and listed at the end of the document. There are numerous acceptable styles for citing and listing references. Normally, the style is prescribed by the venue (journal, proposal, company). If a style is not prescribed select an example you like and follow it consistently. Examples of engineering

styles can be found on the internet for The American Society of Mechanical Engineers (ASME) (search “ASME Style Manual”) and IEEE, (search IEEE Style Manual).

- **General Citing Rules** – Attribute ideas, thoughts and conclusions to the person(s) who made them as clearly as possible; usually within the sentence where the idea is introduced. For example:

Kirkland [1] concludes that the preferred transmission for an SAE Baja car is a CVT followed by a fixed gear reduction.

After Writing – Consider the following questions after completing a draft of the document, and use these considerations to revise and improve the literature review.

- Have you cited all the relevant literature in your literature review?
- Does your critical analysis of the prior literature persuade a reader that you have thoroughly investigated and understand the issues relevant to your work?
- Is the evidence and reasoning supporting your critique of the cited literature persuasive?
- Can a reader describe the relationship between your work and the work described in the cited literature?