

Review of Literature

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Literature Review

- Most important part of research
 - Research is based on existing knowledge
- Every research starts with this, but no end

Types of Publications

- Books
- Thesis
- Manuals
- Patents
- Journal articles
- Conference papers
- Standards
- Trade magazines
- Newspaper articles
- Infomercials
- Advertisements
- Web sites
- Apps
- AI Tools

Types of Publications

- Observe, read and understand **purpose and role** of each type of publication
- Primary and secondary sources
- Always cite primary source
- Peer review – an important quality check method

Peer Review Process

- Review of manuscript by fellow researchers
- Single blind or double-blind process
- Reviewer may comment on anything
 - Research methodology used, flow, language, quality of figures, images references, citation to prior art, etc.
- This is the best-known process although not perfect

Refereed Journals

- Most important and valued source – peer reviewed
- Six weeks to two years for publication
- Limited pages per article
- Published at regular intervals
- Authors list, title, journal name, volume number, issue number, page number, year is used for identification

Refereed Journals

- Report latest scientific/engineering developments and review articles
- Contents include abstract, introduction, experiment/research method, results, discussions, conclusion, acknowledgement, references, and appendix
- Short communications for quick reporting of updates

Conference Papers

- Recent developments are discussed through oral or poster presentations
- Authors must submit an abstract, extended abstract, or manuscript to conference
- Manuscripts are peer reviewed but only decision is provided without comments
- Papers may or may not be published as proceedings

Books

- Types
 - Text books
 - Reference books
 - Research books
- Text books are mostly used in UG or PG teaching
- Text books cover broad range of topics to limited depth to target large audience

Books

- Reference books covers handbooks, encyclopedia, reference, etc.
- Research books are targeted for smaller audience
- Covers topics to greater depth (state-of-the-art at the time of publication)

Patents

- Publication to protect the commercial value of the idea
- Invention is mandatory
- Contains new ideas and its novel applications
- Award of patent is not a testimonial of its claims

Thesis

- One of the useful sources
- PhD thesis generally have an associated list of publications
- Thesis provides more details than journal publications (no page limit)
- Review depends on universities

Other Publication Types

- Standards
 - Lists terminologies, experimental techniques, specifications, etc.
 - Reviewed and updated frequently by a committee
- Newspaper articles
 - Lack scientific depth and rigor
 - Author is not a practicing engineer/researcher
- Trade magazines

Other Publication Types

- Infomercials, white papers, and application notes
 - Information in the form of video clips, and short or long articles in a company's website
 - Generally used to promote the product
 - Helps in knowing the features and applications of a particular product
- Advertisements – not a reliable source

Other Publication Types

- Internet and Wikipedia
 - These may be secondary sources
 - Articles may be, may not be written by experts
 - Look for referencing, author's list, and date of publication

Steps in the Literature Review Process

- 1. Define the research question**
- 2. Determine inclusion/exclusion criteria**
 - Think about relevant dates, geographies (and languages), methods, and conflicting points of view
- 3. Choose databases and conduct the search**
- 4. Review your results**
 - Save your search results in a citation management tool (such as Zotero, Mendeley or EndNote)
 - De-duplicate your search results

Steps in the Literature Review Process

5. Synthesize the information gathered

- Evaluate the strengths and weaknesses of individual sources and evaluate for bias, methodologies, and thoroughness
- Develop your conclusions

6. Analyze the information gathered

- Are there gaps in the literature?
- Where has significant research taken place, and who has done it?
- Is there consensus or debate on this topic?

Steps in the Literature Review Process

7. Write the literature review

- Pick an organizational structure, i.e., themes, approaches, concepts, methodologies.
 - For example: Background, Current Practices, Critics and Proponents, Where/How this study will fit in
- Organize your citations and focus on your research question and pertinent studies
- Compile your bibliography

<https://guides.lib.utexas.edu/c.php?g=1060589&p=7710319>

Literature Survey

- Search using keywords
- Select relevant papers
 - Date, type, citations, etc. of publication may influence
- Read the paper
- Go to the reference wherever necessary and read the paper

Summary

- Literature review has no end
- Various types of publications
- Measure of research impact
- Literature survey method