

How to Conduct an Effective Literature Review and its Management

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Abstract:

Literature review can be instructive, evaluative, and useful synthesis of a specific topic. It can establish what is familiar and unfamiliar in the particular area, identify areas of disagreement, and help develop questions that need further research. Literature can be reviewed through different sources. Despite of the type, a good review is identified by the author's efforts to evaluate and critically scrutinize the appropriate work in the field. With the growth in Internet industry, researching for scientific materials has now become trouble free. Students can get information on any topic through academic search engines and also the development of Mobile Apps for searching the scientific Literature allows you full text access to current research, thereby internet serves as supporting tool to conduct research.

Keywords: Literature review, Databases, Search engines, Mobile apps, Reference managers

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I. INTRODUCTION

A literature review is a method used to gather knowledge that exists in relation to a particular topic or problem. This information can be found in various sources such as books, journals etc. once you identified the literature, the next step is to process the information through critical analysis. The purpose of the study is how to conduct a literature review effectively.

II. SOURCES OF LITERATURE REVIEW

Sources serve as the building blocks of the literature review. Adequate sources not only tell the reader about prior research regarding a topic, they also inform the author of previous research findings. Although, it is vital to know where the sources are located, and which sources are allowable to use in the literature review.

III. LITERATURE CAN BE OBTAINED FROM THE FOLLOWING SOURCES:

1. Primary sources
2. Secondary sources
3. Tertiary sources

1. Primary Sources

Literature review mostly depend on primary sources that is research reports, which are description of studies written by researchers who conducted them. A primary source is written by a person who developed the theory or conducted the research, or is the explanation of an investigation written by the person who conducted it.

2. Secondary Sources

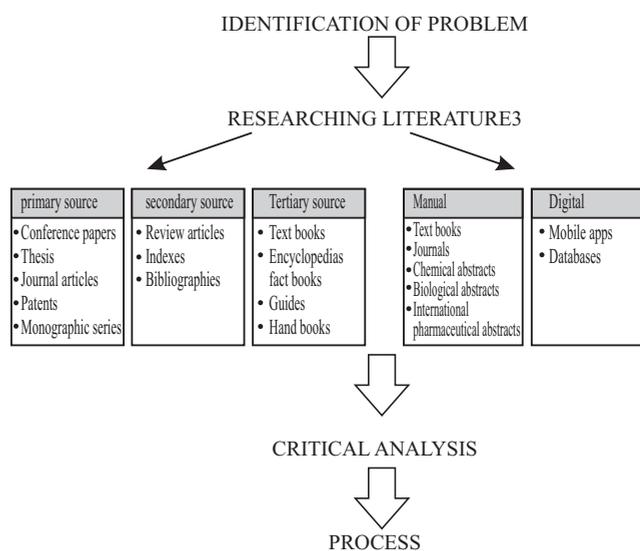
Secondary source research documents are description of studies prepared by someone other than the original researcher. They are written by people other than the

individuals who developed the theory or conducted the research. The secondary sources may be used when primary sources are not available

3. Tertiary sources

Tertiary literature sources also called as “search tools” are designed either to help to locate primary & secondary literature or to introduce a topic.

The following is the flowchart to conduct an effective literature review



Flow chart no.1

III. USING THE INTERNET AS A SUPPORT TOOL TO CONDUCT RESEARCH

The following steps are involved in conducting research

- Locate references - literature review

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- Gathering data
- Investigating data
- Dissemination

The Internet can be used to support all these.

Using Databases to locate a subject specific collection:

It is a searchable gathering of information. It contains thousands of articles which you can search simultaneously and quickly to find articles with higher relevancy than searching the individual journals. It is subject specific.

1. Basic sciences databases

- **International Pharmaceutical Abstracts (IPA):** It covers all aspects of pharmaceutical science, practice literature, drug development, Pharmacoeconomics, toxicity, regulation, and technology. It contains information from over 800 journals since 1970 published worldwide.
- **Biosis Citation Index:** It is a Life science and biomedical research database. It includes cited references to primary journal literature on vital biological, medical research findings and discoveries of new organism. This is useful when searching for studies related to specific organism.
- **SciFinder:** It Includes information which provides easy access on structures of chemical substances, reactions, compounds, drug development, and manufacturing.

2. Clinical databases

- **Pub Med:** Pub Med provides access to millions of citations for biomedical literature from MEDLINE, life science journals, and online books.
- **Embase:** Embase provides access to over more than 29 million citations for biomedical articles that focuses on drugs and pharmacology, medical devices and clinical medicine.
- **CINAHL Complete:** It is the most comprehensive database of full-text for nursing and allied health journals from 1937 to present and also includes access to scholarly journal articles, research instruments, dissertations, magazines, evidence-based care sheets and books.

3. Generaldatabases

These databases include multiple subjects.

- **Scopus:** It is a large abstract and citation database of peer-reviewed literature in science, technology, medicine, social sciences, arts and humanities and includes bibliometrics tools to track, analyse and visualize research.
- **Web of Science:** The Web of Science platform connects the Web of Science Core Collection to regional citation indexes, patent data, specialized subject indexes, and an index of research data sets.
- **Google Scholar:** It is a freely accessible database which allows you to search wide range of academic literature.

4. Social Sciences databases

- **PsycINFO:** It Includes journal articles, books, reports, theses, and dissertations from 1806 to present in psychological, social, behavioral, and health sciences.

- **ERIC:** The education resource information center is an online digital library of education research and information.
- **Global Health:** It is a Public health database and covers at both international and community levels..
- **EconLit:** It is a reliable source for economic citations and abstracts.

Using a Search Engine to locate a publication:

Literature research is the most important step of writing a scientific paper. With the development in Internet, researching for scientific materials has now become very easy. Students can get information within few clicks through academic search engines. Search engine is a service that allows internet to search for content. A user enters keywords into a search engine and receives a list of results. There are many academic search engines which provide information on a wide range of topics from engineering to natural science. This article will focus on some revolutionized search engines which have highest level of credibility.

- BioOne:** BioOne contains academic resources for biological, environmental and ecological sciences. It is an excellent search engine focused in biological, ecological and environmental sciences. Founded in 1999, it started as NGO and later became an online academic journal directory. It gives free access to over 25000 institutions all over the world.
- Bioline International:** Bioline is among the most trusted and authentic search engines that has peer-reviewed academic journals on public health, food and nutritional security, food and medicine and biodiversity. Launched in 1993, it has 70 journals across 15 countries. It provides open access to quality research journals published in developing countries. It promotes exchange of ideas through academic resources.
- CiteSeerX:** CiteSeer X is a digital library and an online academic journal that offer information within the field of computer and information science. It offers many other exclusive features to facilitate the students with the research process that include: ACI – Autonomous Citation Indexing, reference linking, citation statistics, automatic metadata extraction and related documents. It was developed in 1997, and it is the first online academic database and has since evolved into a more dynamic and user-friendly academic search engine.
- Directory of Open Access Journals:** Director of Open Access Journals (DOAJ) is free search engine for scientific and scholarly resources. The directory offers a huge range of topics within scientific areas of study. It is among the richest sources of scholarly database with over 8,000 journals available on different topics and all the journals are thoroughly peer-reviewed.
- Google Scholar:** Google Scholar is a freely accessible academic search engine that indexes academic information from various web resources. The Google Scholar lists information across an array of academic resources, mostly are peer-reviewed. It was founded in 2004, and it is one of the widely used academic resources for researchers and scholars.

6. **Get CITED:** Get CITED is another powerful tool for searching scientific information. It is an online academic database that indexes academic journals and citations. It allows every member from academia to contribute in its database resources. It has over 3,000,000 publications written by more than 3,00,000 authors. It is a one-stop platform that offers everything related to academic publications such as chapters, conference papers, reports and presentations. You can even browse through the bibliographies to search related details. Furthermore, you can find information on any author and his published works. The two 'most outstanding' features of this academic search engine tool include: 'a comprehensive database' and 'discussion forum'.
7. **Microsoft Academic:** Microsoft academic was developed by Microsoft. It has about 207,515,140 publications written by 251,237,206 authors. It indexes a range of scientific journals from computer science and engineering to social science and biology. It has brought in many new ways to search academic resources, such as papers, authors, conferences and journals. This academic search engine allows you to search information based on authors or domains.
8. **New Journal of Physics:** New Journal of Physics is an online open access, peer reviewed scientific journal covering research in all aspects of physics as well as interdisciplinary topics where physics is a core theme. Founded in 1998, it is co-founded by the Institute of Physics and Deutsche Physikalische Gesellschaft.
9. **PLOS ONE:** It was founded in 2006, which provides a free access platform to everyone searching for science and medicine. All the articles published on PLOS ONE are published after going through a strict peer-reviewed process. This academic database has a detailed procedure for publishing a journal and can find plenty of articles and academic publications.
10. **Science and Technology of Advanced Materials:** It was first published in 2000; the science and technology of advanced materials became online in 2008. This peer-reviewed academic journal offers open access to academic journals on all aspects of materials science including synthesis, processing, theoretical analysis, phase and structural analysis, properties, characterization engineering and applications.
11. **Science Direct:** It is a full-text scientific database of scientific and medical research. It has content from 3,500 journals and almost 34,000 e-books. The journals are grouped into four categories that is physical sciences and engineering, health sciences, life sciences and social sciences and humanities.

Using mobile apps for searching the scientific literature:

Mobile apps allow you to search for and find out that an article exists. There are various methods of authenticating users. Some require to sign up for an account. Here is a list of apps and mobile websites for accessing scholarly information on mobile device. All of the apps listed are free to download, but may require a user to be affiliated with an institutional subscriber in order to access content.

1. ACS Mobile

Works on: Android, Apple

It requires the user to be on the institutional network or VPN, or requires an individual subscription for full text access. Non-subscribers can still browse article abstracts. This app is good for discovering recent work.

2. ArXiv

Works on: Android, Apple

It has open text access to 1430309 e-prints in Physics, Mathematics, Nonlinear Sciences, Computer Science, Quantitative Biology, Quantitative Finance, Statistics, electrical engineering and economics.

3. EBSCOhost

Works on: Android, Apple, mobile website

EBSCOhost is a spontaneous online research platform used by thousands of institutions and millions of users worldwide. EBSCOhost helps researchers to find information quickly.

4. Geoscience World

Works on: Mobile website

It is a comprehensive resource for research in earth science. Users from institutions with a subscription can browse and read the geosciences literature. Read the HTML version of an article or download the PDF.

5. Google Scholar

Works on: Mobile website

Any mobile user can search Google Scholar for free, and often get access to freely available documents. If you are using your mobile device at your institution, and if your institution has configured their Google Scholar library links, you will also see links connecting you to library resources. This website is great for discovering content.

6. iResearch

Works on: Apple

It offers full text access to American Institute of Physics Journals enables users to save PDF files locally to the device and view them offline.

7. PubMed

Works on: Android, Apple, Mobile website

PubMed is a free index to the biomedical literature, with links to publishers' websites for full text and links to PubMed Central for free full text.

8. SciFinder

Works on: Mobile website

For those affiliated with an institution with access, you'll need your SciFinder username and password to look up journal literature or look for chemical information by substance name or CAS registry number.

9. Sciverse Scopus Alerts

Works on: Android, Apple, Mobile website

It is the largest abstract and citation database of peer reviewed literature from more than 5000 publishers.

IV. WHEN TO STOP SEARCHING?

Knowing when to stop searching for literature is as important as knowing how to go about searching. Setting a clearly-defined scope will help, as it will focus your search to specific areas and set it within a publication timeframe. Establishing clear boundaries will make it easier to determine when you've carried out an exhaustive search. As your literature review develops it's likely you will need to adjust these boundaries from time to time. Another indicator of having exhausted the literature is when you keep coming across similar viewpoints and theories and are no longer uncovering new information.

V. REFERENCE MANAGERS

A reference manager is the software used to handle references while writing. References can be handled manually but the reference manager allows for greater flexibility and efficiency.

Many different reference management tools are available - some are available for free while others are not. Most pieces of reference management software can help you to:

- Import citation information from databases and library catalogues
- Collect, organize, and annotate citations
- Generate bibliographies and format footnotes or endnotes in a variety of styles

Some of the popular reference management tools are Zotero, EndNote, Mendeley and Note express

Zotero : Zotero is a research tool that helps users to collect and organize sources. It is a free, open-source program that can be downloaded as a Firefox browser extension, and it works with Windows, Mac, or Linux systems. With the help of this reference management tool we can annotate and organize research results which includes video, Save information about a reference which includes author, title, and other publication information, Create libraries and save searches, and share collections with other people, Attach files, links, notes, and pdfs to records, Store a screenshot of a web page, Export information as formatted citations in word processing programs, Tag and sort records and perform advanced searches, Extract citation information from imported PDF documents, View records in your personal collection when offline, Cite records in any language.

EndNote: EndNote is a software package that helps you organize citations and create a bibliography. Citations can be automatically exported from many databases, library catalogues and journal sites. The University of Manitoba Libraries does not offer a site license for Endnote. EndNote can be purchased from the University Bookstore for \$149.99 for students, \$199, 99 for staff and Upgrade cost is \$129.99. Members of the University of Manitoba community have free access to EndNote Web, a web-based version of EndNote which is intended to be used with EndNote Desktop.

Mendeley: Mendeley is a free reference manager, pdf organizer and academic social network. Using Mendeley, you can extract data from your PDFs which allows you to index and organize your collection for easy searching and citing. Mendeley is a desktop application but also has an

online component so we need to download the software onto your computer in order to get started. Mendeley also offers users a mobile option for iPhone, iPod Touch, iPad and Android.

Note express: Note Express is fully committed to R&D of the bibliographic search & management system. This multi-language system is a perfect assistant for researchers to search, download and manage bibliographic data and dissertations with high efficiency. Founded in 2003, Note Express is fully devoted to R&D of the bibliographic search and management system with its newly-upgraded software Note Express--the most professional system of bibliographic search and management in China. This multi-language system is a perfect assistant for researchers to search, download and manage bibliographic data and dissertations with high efficiency. Note Express can generate references lists of different output styles through the add-in in your word processor. Note Express has been completely adopted by the following academic organizations that is Tsinghua University, Peking University, College of Medicine of Beijing University, Beijing Normal University, Capital Medical University, Chinese Academy of Social Sciences, Chinese Academy of Fishery Sciences and etc.

VI. CONCLUSION

A good review can be a key tool to the practitioner, providing a succinct summary and analysis of the relevant information in a given area. A review can be knowledgeable, challengeable, and understandable. There are many rewards related with producing a useful piece of work. One of the most frequent reasons for rejection of journals is the study of duplicate work that's already been published. Therefore, it is important to keep up with published works in your field and use a structured search strategy to make sure it is genuine and authentic.

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