

Course 3. Research methodology

Introduction

Most academic writings require a critique of prior and relevant body of writings as an essential holistic feature on a specific subject matter.

This sort of literary **enquiry is critical** in academic writing **to ensure that existing knowledge** is discussed to grasp their convergences and divergencies logically.

It is also **necessary to uncover gaps** that exist in a specific area of knowledge, **as well as to explore the knowledge** needed to make progress in that area of knowledge. This type of writing is crucial to curate—i.e., by building, generating and disseminating—knowledge as part of an in-situ (part of a section) or ex-situ (standalone) writing project. In whichever way or form it is completed, it is always meant to create “a firm foundation for advancing knowledge” within a literary work or academic writing.

Research process consists of series of actions or steps necessary to effectively carry out research.

These actions or steps are;

- Formulating the Research Problem
- **Extensive Literature Survey**
- Developing the Research Hypothesis
- Preparing the Research Design
- Determining the Research Design
- Collecting the Research Data
- Execution of the Project
- Analysis of Data
- Hypothesis Testing
- Generalization and Interpretation
- Preparing of the Report or Presentation of the Result

At the very outset, the researcher or the student must decide **the general area of interest or aspect of a subject matter** that he would like **to inquire into** and then **research problem** should be **formulated**.

Once the problem is formulated the student should undertake extensive literature survey connected with the problem. For this purpose, the abstracting and indexing journals and published (table 1)

or unpublished bibliographies are the first place to go to academic journals, conference proceedings, government reports, books etc. must be tapped depending on the nature of the problem.

Table 1. Sources of published scientific information for a literature search.

| Literature Search Sources | Focus |
|----------------------------------|---|
| Research articles | Focused on the original investigation on specific scientific subjects/themes and are expected to produce innovative or new contributions to the subject being investigated. |
| Review articles | Usually published in journals, which in most cases, survey the state-of-the-art in a particular field. |
| Edited proceedings | The volume of articles presented at a congress or conference that is compiled into a volume and edited by an editor or group of editors. |
| Edited books | The books published by several chapter contributors but edited by an editor or group of editors. |
| Books or book chapters | Specific chapter contributions in edited books. |
| Conference papers | Presented at workshops, congresses, conferences or other forms of scientific fora. |
| Theses | Academic dissertations published or unpublished in lieu of graduation from a university or research institution. |
| Textbooks | Specialist books published on specific academic subjects for classroom teaching. |
| Online/electronic based articles | Published materials on academic or professional websites that are available in digital form. |
| Newspaper/magazine articles | Articles that tackle scientific or professional subjects and are published in national newspapers or magazines. |
| Technical reports | Institutional publications that may be useful for accessing primary data, graphs, maps and figures relevant to a project, topic or subject of research interest. |
| Preprints | Preprints are pre-publication versions of scientific papers made accessible to the public before its formal peer review and publication in a scientific journal. |
| Scientific posters | Posters are a method of presenting scientific findings in conferences through a combination of texts, images, figures and graphics. They serve as hybrid means of scientific communication between an oral presentation and a manuscript. |

1. Literature searching

A literature search is the process of **seeking** out and **identifying** the existing literature related to a topic or question of interest.

The literature search is a **fundamental step in conducting credible research**. It involves systematic and thorough scouting to identify **all types of published works** relevant to a **specific topic** or subject under investigation.

Literature search can also be viewed as an organized foraging for published works in a well-structured and efficient way to locate scholarly evidence on the subject in books, journals, organizational/government documents and the internet.

2. Purpose of a literature search

The reasons for conducting literature search are numerous that include drawing information for making evidence-based guidelines, a step in the research method and as part of academic assessment. However, the main purpose of a thorough literature search is to formulate a research question by evaluating the available literature with an eye on gaps still amenable to further research.

Literature search is used for the following purposes:

- **Designing a project:** A major motivation for performing a literature search is to help identify a research question that is worth pursuing. Performing a thorough and complete literature search can help identify a gap in your knowledge, understanding or capabilities that is worth investigating.
- **Writing a background section:** The role of the background section of an academic paper is to explain to readers how your study fits into the wider field. Performing a literature search for previously published articles related to your study is an important first step in gathering the information and resources you need to write this section.
- **Writing the introductory chapter to your thesis:** Similar to a background section, the introduction to a thesis provides the context for a project by describing what the state of the field is, what unanswered question the project addresses and why answering this question is important and/or useful to other researchers. Performing a literature search can help you put together a strong argument for the relevance and significance of your work to the field at large.

- **Writing a review paper:** When writing a review of a specific topic, performing a thorough literature search is crucial to ensuring that you have adequately covered the state of the field and have not missed any important or relevant papers.

3. Literature search procedure

Before starting a search, you should keep in mind that:

- There is **no ideal search methodology**, it is perfected with use.
- There is no single way to perform the search. There may be **alternative possibilities**, although some will be more effective and exhaustive than others.
- The search always responds to a **previous need for information**, generated by academic (research work, doctoral thesis, development of a project...) or work-related reasons.

Literature search is a complicated process and to make it successful it must involve several steps:

- **Define your research question(s)** First think carefully about what you actually need to find out: there are likely to be a number of questions to be answered.
- **Choose a database to use to carry out your search(es)** identify the appropriate database for each question you need to answer.
- **Design your search strategy/ keywords according to the resource being used** Make sure you find out how your chosen database works because it may not be like Google! Each library database has its own 'syntax' or rules for a search.
- **Conduct search(es), evaluate results** We recommend that you invest time and effort in this part of the process: if you can get your search strategy right, it will save you time in the long run as you'll avoid reading a lot of irrelevant literature.
- **Refine search strategy and repeat as necessary** Take a look at the first few results: how many of them are really relevant? If the answer is 'not many', go back and try a different search strategy.
- **Keep a record of your searches** Keeping track of which databases you have searched and which search terms you used will help you to avoid wasting time by repeating the searches at a later date. You normally need to register and login to a database to save your searches online.

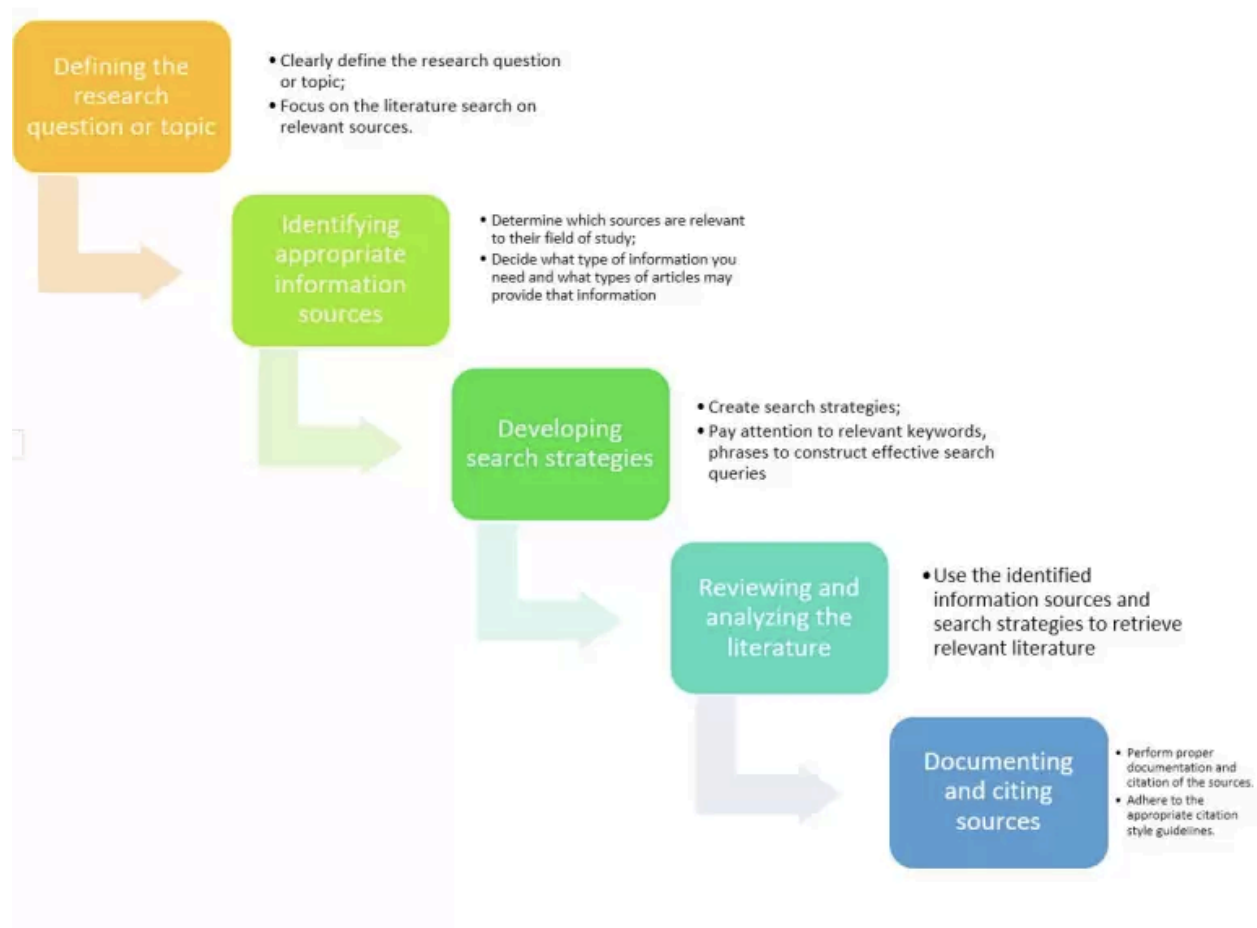


Figure 1. Process of literature search