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Faculty of Architecture, Urbanism, Civil Engineering and Hydraulics

Department of Architecture

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PREFACE

This course, entitled *Introduction to Documentary Research and Thesis Writing*, is designed for third-year undergraduate students to provide them with the fundamental knowledge and methodological tools required for academic research and scientific writing. In higher education, students are increasingly required to search for reliable information, analyze academic sources critically, and present their ideas in a clear and structured manner. Therefore, mastering documentary research techniques and academic writing has become essential for the successful completion of final-year projects and future professional or research activities.

The main objective of this course is to guide students through the different stages of academic work, from identifying and collecting relevant information to organizing, writing, and presenting a scientific document. It also aims to develop students' critical thinking, analytical skills, and ability to communicate research findings effectively and rigorously. Throughout this course, students will learn how to conduct documentary research using academic sources, apply appropriate citation and referencing methods, avoid plagiarism, structure a dissertation or thesis, and prepare professional academic presentations. Practical examples and application exercises are included to help students connect theoretical concepts with real academic situations.

The present document is organized into two main parts. The first part focuses on the fundamentals of documentary research and introduces students to the principles, methods, and techniques used in academic research. It covers the definition and importance of documentary research, the different types of academic sources, research methodologies, and strategies for collecting and organizing information. Students also learn essential research techniques such as note-taking, summarizing, paraphrasing, citation methods, referencing styles, and ways to avoid plagiarism.

The second part is dedicated to thesis writing and practical applications. It guides students through the different stages involved in designing and preparing a final-year dissertation or thesis. This part includes selecting a research topic, formulating research objectives, structuring academic work, and applying academic writing conventions. Students are also introduced to formatting rules, editing techniques, and methods for presenting research clearly and professionally. Finally, the course provides practical examples and application exercises to help students apply theoretical knowledge to real academic research situations and prepare effectively for oral presentations and thesis defense.

This course is intended not only to support students in the preparation of their final-year dissertation but also to encourage academic integrity, intellectual curiosity, and scientific rigor that will benefit them throughout their academic and professional careers.

Semestre 5 : Conduite Opérationnelle de Projets

Unité d'Enseignement	VHS	V.H hebdomadaire					Coeff	Crédits	Mode d'évaluation	
	15 sem	C	TD	TP	Atelier				CC	EXM
UE fondamentale							10	18		
UEF5 (O/P)										
ORDONNACEMENT ET GESTION DES DELAIS	45h	1h30	1h30				3	5	50%	50%
OUTILS DE LA QUALITE	45h	1h30	1h30				3	5	50%	50%
PROJET 5	90h				6h		4	8	100%	
UE méthodologie							5	9		
UEM5 (O/P)										
TOPOGRAPHIE	45h	1h30	1h30				2	3	40%	60%
ORGANISATION DE CHANTIERS	45h	1h30	1h30				2	3	50%	50%
MANAGEMENT 1	45h	1h30	1h30				1	3	40%	60%
UE transversale							3	3		
UET5 (O/P)										
NTIC DANS LE PROJET URBAIN ET ARCHITECTURAL	22h30	1h30					1	1		100%
INITIATION A LA ECHERCHE DOCUMENTAIRE ET A LA REDACTION DU MEMOIRE	22h30	1h30					1	1		100%
LANGUE ETRANGERE 5	22h30	1h30					1	1		100%
Total Semestre 5	382h30	12h	7h30		6h	25h30	18	30		

Modalités d'évaluation

Nature du contrôle	Pondération en %
Examen	100%
continu	
Total	100%

Fig 1. *Course Academic Information (According to the Course Canvas)*

General information

Course Title: Introduction to Documentary Research and Thesis Writing

Teaching Unit: Discovery / Transversal Unit 5

Number of Credits: 1

Coefficient: 1

Total Weekly Hourly Volume: 1 hour 30 minutes

Lectures (hours per week): 1h30

Tutorials / Directed Work (hours per week): 00h00

Practical Work (hours per week): 00h00

Prerequisites: Foreign Language; Writing Methodology; Presentation Methodology.

General Objective of the Course

To provide students with the necessary tools to search for and effectively use relevant information in their final-year project. The course also aims to help students progress through the different stages involved in writing a scientific document, emphasize the importance of communication, and teach them how to present their work in a rigorous, clear, and pedagogical manner.

Learning Objectives

To provide students with knowledge and skills related to the design and preparation of a final-year dissertation/thesis.

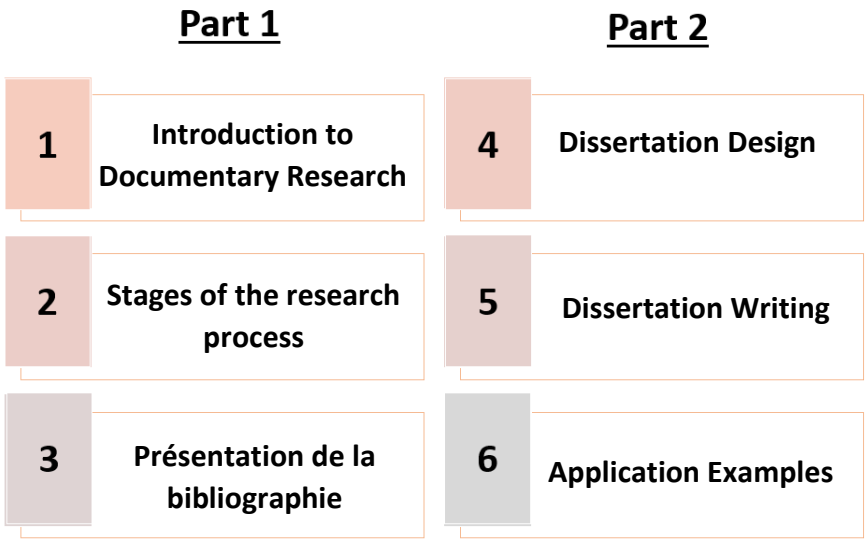


Fig 2. *Overview diagram of chapters covered in this course*

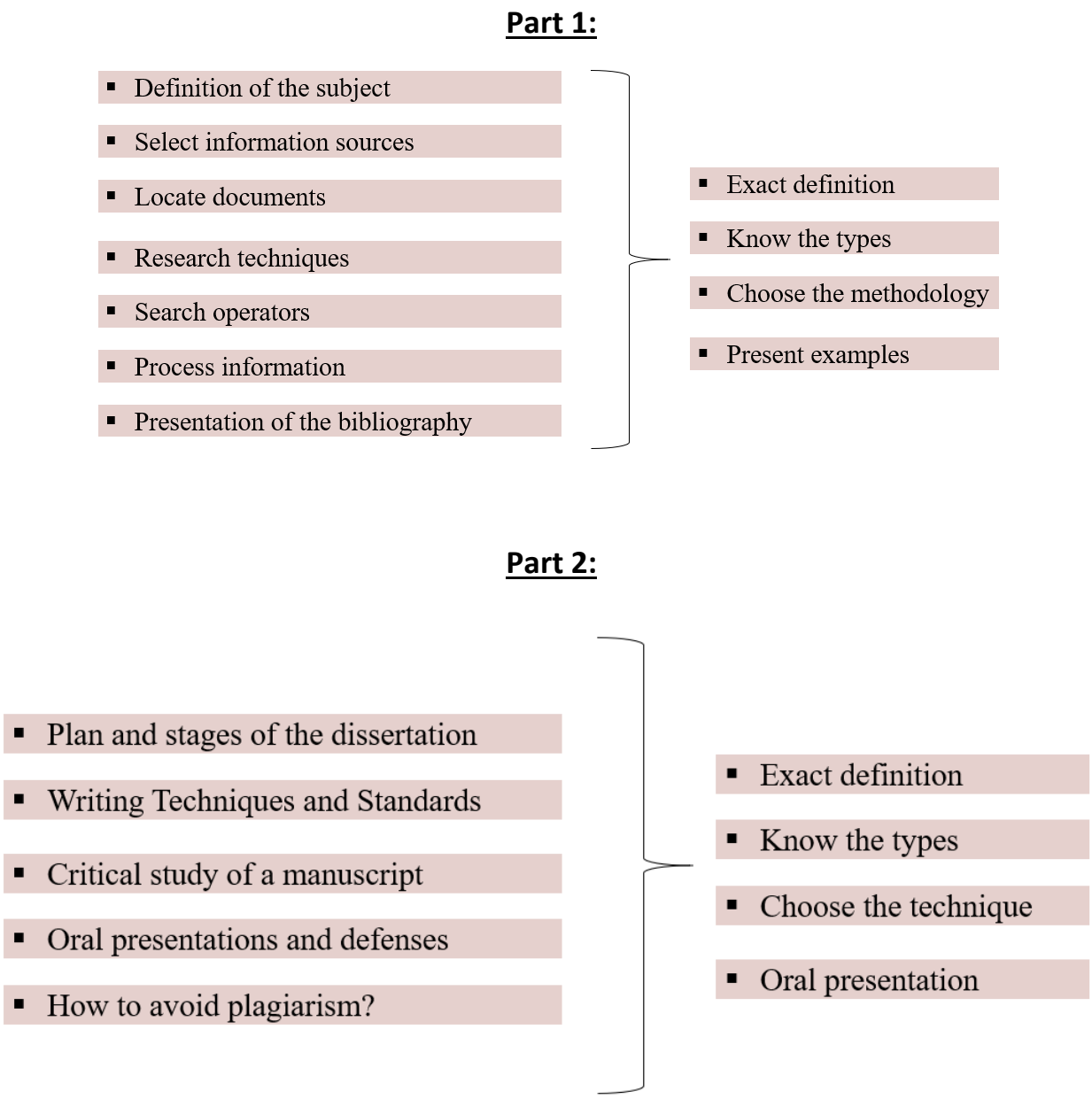


Fig 3. *Overview diagram of the main points covered in this course*

CHAPTER 1:

DOCUMENTARY RESEARCH

INTRODUCTION

Documentary research is a fundamental component of scientific inquiry that focuses on the systematic identification, collection, analysis, and interpretation of existing information. These sources may include books, journal articles, reports, official documents, archives, and digital resources. Unlike empirical research, which involves the direct collection of data from the field, documentary research relies on already published or recorded information. It plays a crucial role in helping the researcher understand the theoretical background of a topic, refine research questions, and position the study within the existing body of knowledge.

This chapter provides a detailed presentation of documentary research and its key dimensions. It begins by defining what documentary research is and explaining its main characteristics, objectives, and importance in academic work. It then examines the relationship between documentary research and literary research, highlighting how both approaches are interconnected while also serving different purposes in scientific investigation. The chapter also discusses the types of resources used in documentary and literary research, including primary sources such as original documents and reports, and secondary sources such as books, reviews, and scientific articles. Particular attention is given to the evaluation of sources in terms of credibility, relevance, and reliability, which is essential for ensuring the quality of the research work. Furthermore, the documentary methodology is presented as a structured approach that guides the researcher in organizing, classifying, and analyzing information effectively. This includes techniques such as note-taking, thematic classification, synthesis of ideas, and critical reading, all of which contribute to building a coherent theoretical framework.

Finally, the chapter outlines the different stages of the research process, starting from the identification of the research topic, through the collection and selection of documents, to the analysis and synthesis of information. Each stage is essential in ensuring the rigor and validity of the research. Overall, this chapter emphasizes that documentary research is not merely a preliminary step, but a continuous and essential process that supports the entire scientific investigation.

1.1. Introduction to Documentary Research

1.1.1. What is Documentary Research?

Documentary research is a fundamental step that precedes any empirical or field-based study. It involves the systematic collection and analysis of existing information drawn from official, academic, and technical documents. Starting from a clearly defined research topic, documentary research consists of identifying, locating, and selecting relevant documents from reliable sources (McCulloch, 2013; BASCHWITZ et al., 2010). This process enables researchers to build a solid knowledge base, understand the current state of research, and frame their study within an existing scientific context. By gathering and reviewing prior work, researchers can refine their research questions, avoid duplication, and ensure that their investigation is grounded in established knowledge.

More broadly, documentary research can be defined as a structured and methodical approach that aims to identify, retrieve, and process diverse types of information, including statistical data, bibliographic references, scientific articles, and institutional reports. It plays a crucial role in the development of a literature review, which is essential in disciplines such as medicine, engineering, architecture, and social sciences (Creswell and Creswell, 2023). This approach is not only systematic but also iterative, meaning that the researcher continuously refines search strategies and sources as new insights emerge. The objective is to achieve the highest possible level of relevance and, ideally, exhaustiveness in the information collected.

The effectiveness of documentary research depends on a strong understanding of available information sources and the ability to use appropriate research tools and strategies. Academic databases such as Google Scholar, Scopus, and Web of Science provide access to peer-reviewed scientific publications and are widely used in academic research (BASCHWITZ et al., 2010). In addition, institutional repositories, university libraries, and reports from international organizations constitute valuable sources of reliable information. Mastery of search techniques, including the use of keywords and Boolean operators, is essential for efficiently navigating these resources and identifying high-quality documents (Snyder, 2019).

Another critical aspect of documentary research is the evaluation and organization of information. Researchers must assess the credibility, relevance, and accuracy of each source, often using criteria such as authority, currency, and purpose. Once collected, the information must be carefully organized, synthesized, and integrated into a coherent framework. This process supports the construction of a well-structured literature review, which highlights key findings, theoretical approaches, and research gaps. Ultimately, documentary research provides the foundation for rigorous scientific work by ensuring that new studies are informed by, and contribute to, the existing body of knowledge.

Several authors and academic institutions have emphasized the importance of documentary research in the scientific process. Creswell (2014) and Ridley (2012) highlight the role of literature reviews in structuring research design, while Booth (2011) underscores the importance of engaging critically with sources. Practical guidelines for conducting documentary research and writing literature reviews are also provided by institutions such as the Purdue Online Writing Lab and the University of Leeds Library, which offer widely recognized resources for students and researchers.

1.1.2. Documentary and literary research

Documentary research differs from literary research mainly in the nature, purpose, and type of documents analyzed. This distinction is widely recognized in research methodology, where different types of sources serve different scientific objectives.

In documentary research, the focus is on objective, factual, and often technical sources. These include academic articles, theses, official reports, statistical data, regulations, and other institutional documents. The goal is to collect reliable and verifiable information that can support scientific analysis, build a literature review, or prepare an empirical study. This approach is essential in disciplines such as engineering, architecture, medicine, and social sciences, where accuracy and evidence-based reasoning are fundamental. Documentary sources play a key role in structuring research design and grounding studies in existing knowledge. Similarly, the University of Leeds Library emphasizes that documentary research is central to building a rigorous and comprehensive literature review (Creswell and Creswell, 2023).

In contrast, literary research deals with interpretative and narrative sources, such as books, novels, essays, and newspaper articles. The objective is not only to gather information but also to analyze ideas, themes, writing styles, and meanings expressed by authors. This type of research is more common in the humanities and is concerned with understanding cultural, historical, and

philosophical perspectives rather than producing measurable or technical data. Engaging critically with texts and interpreting arguments is central to scholarly inquiry in literary studies (Bizup et al., 2016). In addition, resources such as the Purdue Online Writing Lab provide guidance on analyzing and interpreting textual sources in academic writing. Table 1 summarizing the main documents used in documentary and literary research:

Table 1. *Main Documents Used in Documentary and Literary Research (Author, 2026)*

Documents for Documentary Research	**Documents for Literary Research**
Documentary research makes it possible to collect informative data through the study of official or academic documents.	Literary research makes it possible to collect informative data from literary works available on the subject.
• Specialized journals or academic articles	• Books, monographs
• Theses and dissertations	• Newspaper articles
• Statistical, graphical, image, and infographic documents	• Dictionaries, encyclopedias
• Official documents (laws, decrees, regulations, public contracts)	• Glossaries
	• Various narratives
	• Archives

1.1.3. Documentary and literary research: Type of resource

To conduct documentary research, students can rely on several types of documents, which may be accessed through different sources, including libraries, bibliographic databases, and the Internet. Access to these resources can be obtained through different channels. Traditional libraries remain a fundamental source, offering physical and digital collections as well as access to specialized archives. In addition, bibliographic databases such as Scopus, Web of Science, Google Scholar, and institutional repositories provide systematic access to scientific literature and facilitate advanced searches using keywords and thematic filters. Furthermore, the Internet represents an important complementary resource, enabling access to open-access publications, governmental and organizational websites, and digital libraries (Creswell & Creswell, 2023; Okoli, 2015). The combination of these sources ensures a comprehensive and critical review of existing knowledge, which is essential for building a solid theoretical framework and supporting the scientific rigor of the research. Figure 4 presents the different types of resources that can be used.

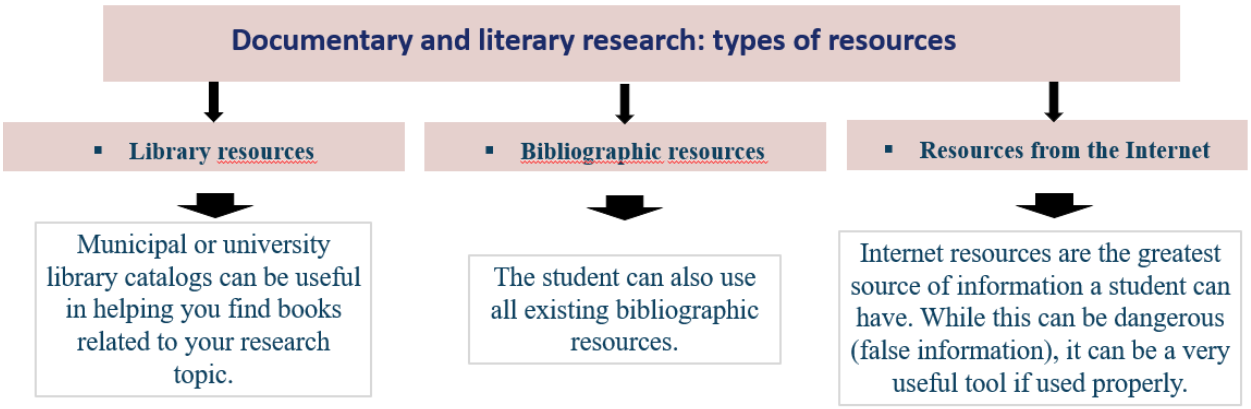


Fig 4. *Types of resources (Author, 2024)*

As part of documentary research, the student can consult several types of documents. He or she must rely on official documents such as:

- A periodical of a specialized journal,
- A doctoral thesis or dissertation,
- A patent,
- A statistical data,
- A picture,
- An infographic,
- An official document (law, decree, regulation, public contract).

1.1.4. Documentary methodology

It is a set of steps that allow the search, identification, and retrieval of documents related to a specific subject by developing an appropriate search strategy (McCulloch, 2013). In a context of information overload (infobesity) and the diversity of information sources and supports, the processes of documentary research and information validation require the implementation of an effective methodology (Bawden and Robinson, 2022).

Preliminary questions must first be addressed:

- What is the nature of the work to be produced? The type of output determines the depth and format of documentary research. For example:

- *A presentation in architecture may require visual references such as precedent projects, case studies, and diagrams.*
- *A dissertation or thesis requires a deeper theoretical and methodological framework, including urban theories, architectural concepts, and peer-reviewed literature.*

- *An article focuses on a specific research question, often supported by comparative case studies or experimental design approaches.*
- *A research report or studio project may integrate both analytical and design-oriented documentation such as plans, sections, and site analysis.*

➢ What is the expected level of information? The level of detail depends on the academic requirement:

- *Basic information: introductory books on architecture, general encyclopedias, and design manuals may be sufficient to understand fundamental concepts (e.g., principles of sustainable architecture or architectural styles).*
- *More specialized information: requires consultation of scientific journal articles, conference proceedings, technical reports, doctoral theses, and architectural standards (e.g., thermal comfort standards, urban density studies, BIM methodologies, or seismic design guidelines).*

➢ What is the nature of the information required? Depending on the research objective, different types of information may be needed:

- *Theoretical and conceptual frameworks (e.g., modernism, vernacular architecture, parametric design)*
- *Statistical and quantitative data (e.g., urban density, energy consumption in buildings, population growth in cities)*
- *Technical and graphic documentation (e.g., architectural drawings, construction details, structural systems, GIS maps)*
- *Case studies (e.g., analysis of projects such as the Sydney Opera House or contemporary sustainable housing developments)*

➢ How up-to-date should the information be? The required level of recency depends on the subject:

- *For historical or architectural heritage studies, older archival documents, drawings, and historical references are essential (e.g., Ottoman, colonial, or Islamic architecture).*
- *For contemporary topics, such as sustainable architecture, smart cities, or digital fabrication, the most recent research findings, recent projects, and up-to-date technical standards are necessary.*

- *In some cases, a combination of both is required, such as comparing traditional passive cooling techniques with modern energy-efficient* building systems.

Figure 5 presents a summary of the preliminary questions and their use within the research methodology process.

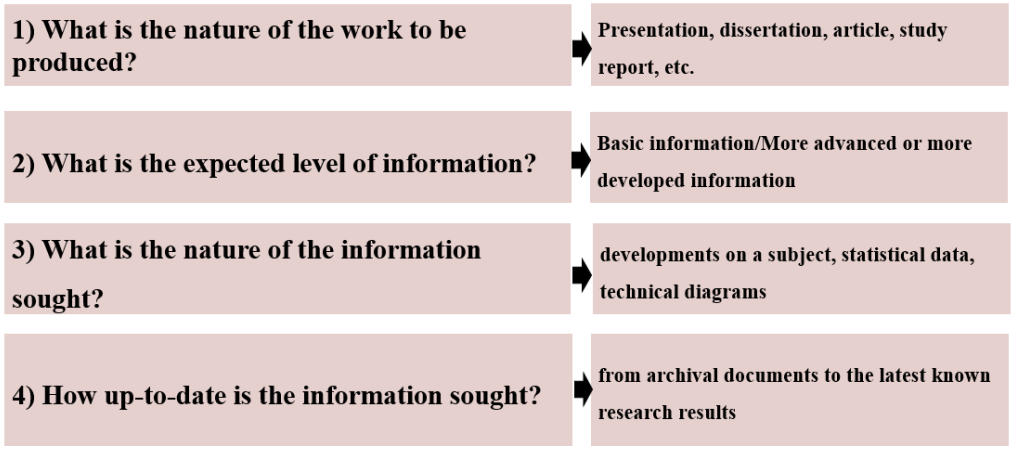


Fig 5. *Summary of the preliminary questions to be addressed in the research methodology (Author, 2024)*

1.1.5. The different stages of the research process

The documentary research methodology is structured around five successive steps:

1) Preparing the research
2) Selecting information sources
3) Searching for and locating documents
4) Evaluating the quality and relevance of sources
5) Implementing a documentary monitoring system (information watch)

The documentary research methodology is structured around five successive stages. The first stage consists of preparing the research by clearly defining the research topic, objectives, and keywords. The second stage involves selecting relevant information sources such as books, journal articles, databases, and institutional reports. The third stage is dedicated to searching for and locating the required documents using libraries, bibliographic databases, and online platforms. The fourth stage focuses on evaluating the quality, credibility, and relevance of the collected sources. Finally, the fifth stage consists of implementing a documentary monitoring system (information watch) in order to continuously update and track new scientific and technical information related to the research topic.

A detailed discussion of these steps will be provided in the following sections.

1.2. STAGES OF THE RESEARCH PROCESS

1.2.1. Preparing the research

The purpose of a good research methodology is to support the production of academic work that combines thorough documentation with scientific rigor. The first step in a documentary approach is to clearly define the subject and understand it from a broad, global perspective. This can be achieved by consulting general sources that provide an overview of the topic. Selecting a research topic is equally crucial in producing a strong academic paper (Kumar, 2018). The chosen topic shapes the direction of the study, influences the researcher's level of engagement and motivation, and determines how the work contributes to existing knowledge. Many students struggle to find a topic that is both interesting and academically relevant. To address this challenge, it is important to adopt a clear, step-by-step strategy that helps in selecting a research topic that is both manageable and meaningful.

1.2.1. a. Identification and Choice of subject

The identification of an appropriate research topic is not a matter of chance but the result of a deliberate and systematic process. Adopting a structured approach enables the development of a topic that is both relevant and conducive to academic success (Baschwitz, 2010). In this context, prior knowledge, personal interest, and alignment with the academic framework constitute essential criteria for topic selection. These factors not only sustain the researcher's motivation but also ensure consistency and coherence throughout the research process.

1.2.1. b. Principle: From the General to the Particular

The initial stage of documentary research follows a structured progression from a broad understanding to a more focused and precise definition of the subject (https://bu.univ-avignon.fr). This involves several key actions:

- Question the subject in all its dimensions (theoretical, practical, historical, and contextual),
- Formulate the core idea in a clear and concise sentence,
- Identify and select the most important concepts related to the topic,
- Search for synonyms and related terms to broaden the scope of investigation.

This phase plays a crucial role in structuring the research. It should allow the researcher to:

(a) Clearly define and pose the research problem: this stage should allow the researcher to clearly define and formulate the research problem. A well-defined problem helps identify the main issue to be investigated, specify the objectives of the study, and formulate relevant research questions or hypotheses. Without a precise research problem, the study may lack focus and coherence. Therefore, the researcher must carefully analyze the topic, identify the context of the problem, and determine its scientific or practical relevance.

(b) Identify documentary needs by determining what type of information is required (scientific articles, reports, books, data, etc.): Depending on the research objectives, the researcher may need scientific articles, books, conference proceedings, theses, official reports, statistical data, technical documents, or case studies. Identifying these needs in advance makes the documentary search more efficient and avoids collecting irrelevant or excessive information. It also helps the researcher select reliable and credible academic sources.

(c) Select and refine the key concepts and keywords necessary to effectively query documentary sources and databases: Keywords should include the main concepts of the study, as well as synonyms, related terms, and scientific terminology commonly used in the field. A well-prepared list of keywords improves the quality and precision of the search results and facilitates access to relevant references.

By following this approach, the researcher ensures a solid foundation for conducting a rigorous, coherent, and well-documented academic study. At this stage, the documentation used will mainly concern dictionaries and encyclopedias (paper or online), manuals or review articles.

- ***Example showing how to identify and structure a research subject in project management, following the "general → particular" approach:***

The process of identifying and structuring a research subject in project management begins with a general theme, such as project management in construction, and then explores key questions related to challenges, delays, costs, digital tools, and contextual factors. This reflection helps narrow the focus to a specific topic, such as the use of BIM to improve project performance. The subject is then clearly formulated in a single sentence, followed by the identification of key concepts and related terms to guide research. Next, a precise research question is defined, for example how BIM helps reduce delays and control costs. Finally, relevant documentary needs are identified (articles, case studies, reports, standards), leading to a well-defined research subject:

evaluating the role of BIM in improving cost and time performance in construction project management. Figure 6 presents a framework for identifying a research subject in construction project management.

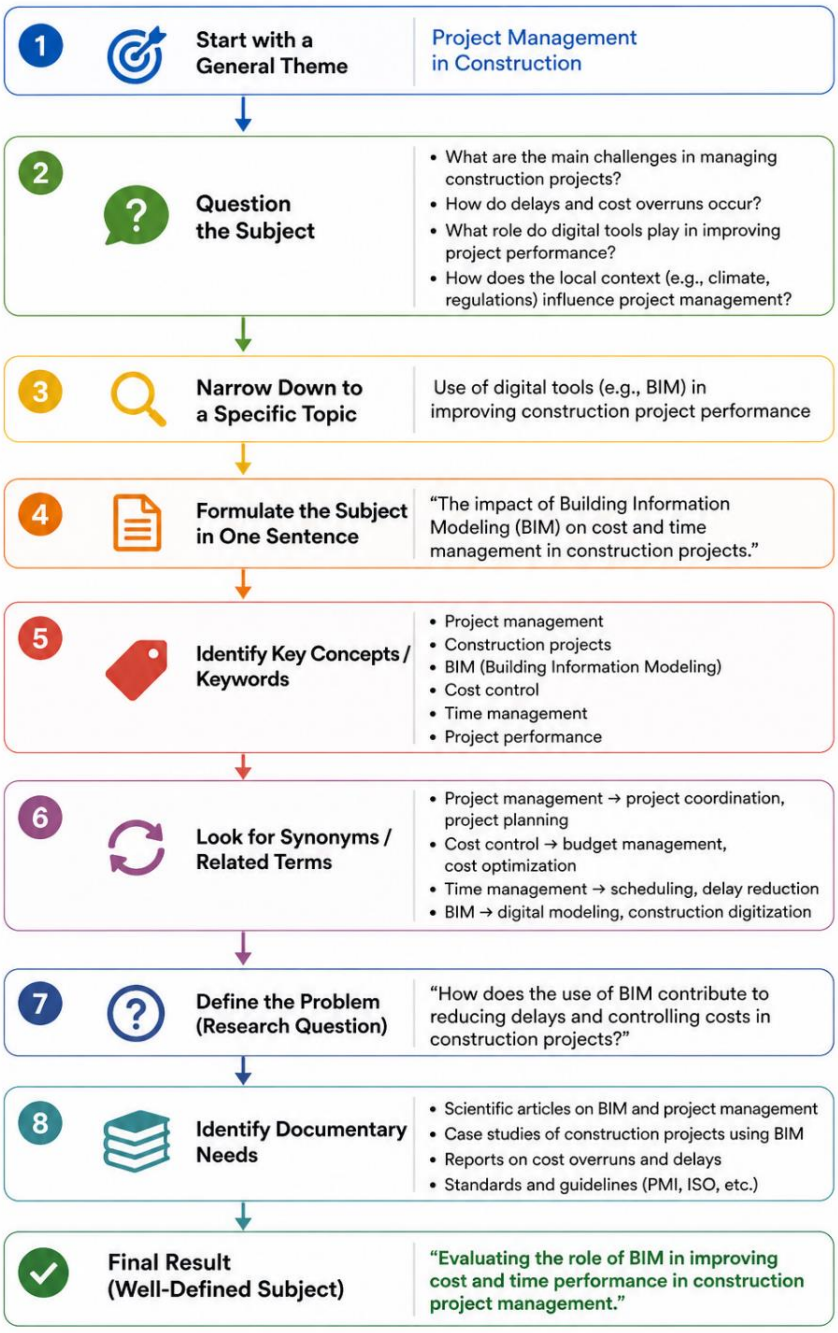


Fig 6. *Methodological Framework for Selecting a Research Topic in CPM (Author)*

1.2.1. c. The QQQOCP method

The method dates back 20 centuries, to the Roman Empire, with Quintilian's so-called hexameter. Its English version is known as the "5 W's": Who says What? Where? When? and why? The approach consists of collecting and analyzing all relevant available information by asking as

many questions of all kinds regarding a predefined problem, situation, or subject (https://bu.univ-avignon.fr). The idea is to think constructively in order to identify the main causes of the problem, the rationale behind a specific project, and to define the main outlines of an action plan, etc.

The QQOQCP method enables a detailed analysis of a situation in a constructive way, based on a systematic questioning process. It helps to examine the problem from every angle, break it down into all its dimensions, adopt different perspectives, and broaden the range of possible solutions (Claude, 2020). This tool makes it possible to explore a topic comprehensively and identify appropriate solutions. It also helps to sort and organize relevant information according to a logical sequence, ranging from "What" (description of the situation in question) to "Why.". The different components of this method are shown in Figure 7.

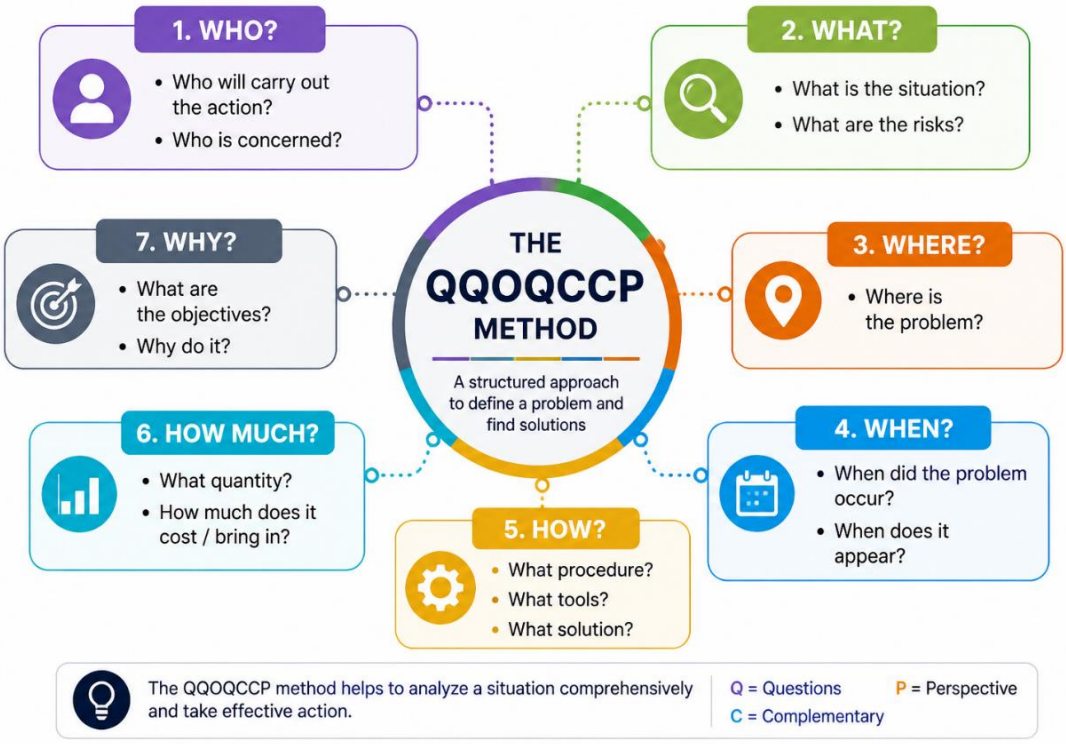


***Fig** 7. Methodological Framework for Selecting a Research Topic in CPM (Author)*

- ***Who? = Who are the people involved?*** This involves identifying the different stakeholders involved. This question may refer to individuals, roles, departments, skills, or types of actors involved (employees, clients, suppliers, service providers, etc.). The questions to ask include, among others:
  - Who identified the problem?
  - Who initiated the questioning?
  - Who is responsible for the project or the case?

- Who is at the origin of the problem?
- Who is directly concerned?
- Who is impacted?
- Who needs answers?
- Who should be contacted?

- ***What? = What aspects interest me?*** This question is used to clearly and precisely define the problem at hand, focus on the project to be implemented, etc. The idea is to determine the nature of the problem as well as its consequences, and to better define the different aspects of a project. Thus, the questioning may include:
  - What is it exactly about?
  - What is the current situation?
  - What are the consequences?
  - What are the risks?
  - What has been implemented to try to solve the problem?
  - What feedback has been obtained?
  - What has worked? Conversely, what has not met the initial expectations?

- ***Where? This question is used to describe the location and precisely situate things in space. The focus is on:***
  - Where does the problem occur? In which country, building, department, team, etc.? On which product, machine, or workstation?
  - At which stage does the difficulty appear?
  - Is the location of the problem accessible?

- ***When? = What is the period concerned?*** This question concerns temporality. The aim is to determine the time-related circumstances (frequency, duration, predictability, etc.) of the problem. The questioning may include:
  - When exactly did the problem occur?
  - How long has this issue been present?
  - Following which specific event did it appear?
  - Does the problem occur regularly? If so, how often?
  - At what moment does the problem arise?

- **How? = What approaches or points of view should be considered? (historical, sociological, economic, political, etc.)**: This question defines how the problem occurs, as well as how actors respond and with which means (this aspect can also be treated separately as a specific inquiry):
  - How does the problem manifest itself?
  - How do the different stakeholders react?
  - What procedures are in place and followed? What instructions exist?
  - How does the regulation govern this type of situation?
  - What methods are used?
  - How is the company, department, or team organized?
- **How much? (How many?)** Often included in the previous point, this question aims to quantify the resources—human, financial, technical, temporal, etc.—that are available and/or required to address the situation. Typical questions include:
  - How much time is available to solve the problem?
  - What budget is available?
  - How many machines, tools, positions, departments, etc. are involved?
  - How many service providers can we consult?
  - How much does the defect cost the company?

- **Why?** The final dimension of the questioning focuses on causes, root origins, and also the intended objectives. For each of the previous questions (Who, What, Where, When, How, How much), it is useful to ask "why" and "for what purpose" in order to carry out a constructive analysis. This helps to understand the reasons and usefulness behind each identified element and to define the goals more clearly, enabling a deeper understanding of the problem and more effective problem-solving.

- **Or ? = Is the subject confined to a specific geographical area?**
- **For what ? = How important is the subject in the current context?**

Figure 8 shows a diagram of the application of the QQOQCP method in Construction Project Management (CPM).

Fig 8. *Diagram Illustrating the Application of the QQOQCP Method for Structuring CPM (Author)*

1.2.1. d. Formulate the subject

- **A short sentence:** The topic should be expressed in a short sentence, if possible, in the form of a question and using meaningful terms. This research statement should be as precise as possible.
- **Key concepts**: Each term in the statement is important and will correspond to concepts/key words that will be used to develop the research equations.
- **A selection of terms**: It is advisable for each concept to look for one or more synonyms or associated terms as well as their translation into English.

1.2.1. e. Narrow or broaden the topic

Defining a research subject is a critical step in any scientific work. It requires finding a balanced scope, neither too broad nor too narrow, in order to ensure clarity, feasibility, and scientific relevance.

- ***When the subject is too general or too broad:*** A subject that is too general covers an excessively wide field of study. This situation leads to several important difficulties:

- Overabundance of documentation, making the literature review heavy and difficult to synthesize
- Lack of focus, which may lead to dispersion of ideas and unclear research objectives
- Superficial treatment of the topic, as the researcher attempts to cover too many aspects at once
- Difficulty in defining a clear research problem, which weakens the scientific contribution

What should be done? To address this issue, the subject must be progressively narrowed and delimited by:

- Selecting one specific dimension or aspect of the problem
- Defining a precise geographical scope (city, region, country, or type of site)
- Specifying a temporal frame (a defined period or project phase)
- Focusing on a clearly identified case study or context

This narrowing process is not a limitation. On the contrary, it strengthens the research by making it more precise, structured, and scientifically rigorous, provided that the choice is clearly justified.

- ***When the subject is too specific or too narrow:*** Conversely, a subject that is too restricted can also create methodological problems:

- Limited scientific depth, making the study difficult to generalize or interpret
- Scarcity of documentation, which complicates the literature review
- Fragmented information sources, requiring excessive effort to collect relevant data
- Reduced analytical perspective, limiting the ability to connect the topic to broader issues

What should be done? In this case, the subject must be repositioned within a broader framework by:

- Situating the topic within a larger scientific or thematic context
- Linking it to related disciplines or complementary issues
- Expanding the scope to include additional influencing factors or variables
- Highlighting its relevance within broader research or professional challenges

This approach allows the researcher to enrich the analysis, improve interpretation, and strengthen scientific value.

1.2.2. Selection information sources

After analyzing and delimiting the research topic, it is necessary to carefully select the most relevant information sources in order to conduct rigorous documentary research. This process is based on two complementary dimensions (Snyder, 2019). The first concerns the types of documents that are required, such as monographs, journal articles, theses, conference papers, and other academic works. These documents differ in their level of detail, scientific depth, and purpose, which makes their selection essential depending on the research objectives.

The second dimension refers to the types of resources used to access this information. These include library catalogs, which help identify available books and printed materials; academic databases, which provide access to peer-reviewed articles and scientific publications; web search engines, which allow broader but less specialized exploration; and specialized portals, which focus on specific disciplines and ensure more targeted and reliable information retrieval. Together, these two dimensions ensure a balanced and efficient documentary research process.

1.2.2. a. Selection of Document Types

For document types, their selection depends on the level and nature of the information required (Ridley, 2012). The main categories include:

- Dictionaries and encyclopedias: These are useful for understanding a subject and defining its key concepts, especially when dealing with new or unfamiliar terms.
- Books or monographs: These are particularly useful for in-depth research. This category includes:
  - – Manuals, which provide updated and structured overviews of a specific topic;
  - – Mementos, which offer a quick and synthetic understanding of a subject;
  - – Précis, which examine a specific aspect of a topic in greater detail;
  - – Conference proceedings, which present the papers and discussions from academic conferences;
  - – General or specialized periodicals, which help keep up to date with recent research findings and current issues in a given field.

A monograph *is a non-periodic scholarly work that provides an exhaustive and detailed study of a specific and clearly defined subject, object, or individual (*Reitz, 2004).

- Theses, dissertations, and research reports (grey literature): These are high-level scientific documents that are particularly useful for addressing specific and focused research questions.

- Specialized documents (maps, patents, images, statistical data, etc.): Their use depends on the disciplinary field and the methodological approach adopted in the research.
- Official documentation: This refers to all formal documents published by public authorities, including laws, decrees, regulations, public contracts, and institutional or administrative records.

1.2.2. b. Selection of Resource Types

For the types of resources, their selection depends on the nature of the subject and the type of documents sought (Machi and McEvoy, 2009; Kumar, 2018).

- Library catalogs: These are multidisciplinary tools that are essential for locating printed and physical documents. Examples include:
  - The catalog of Avignon University Library
  - The collective catalog of French universities (SUDOC: http://www.sudoc.abes.fr)
  - WorldCat, the global library catalog (http://www.worldcat.org/)
  - The catalog of the National Library of France (http://catalogue.bnf.fr)
- Bibliographic databases: These are structured collections of bibliographic references related to a specific subject, field, or type of document. They provide access to academic publications such as journal articles, conference papers, and research reports.
  - Multidisciplinary databases: JSTOR, DOAJ, Web of Knowledge. These platforms cover a wide range of academic disciplines and provide access to scholarly journals, articles, and research outputs from different fields.
  - Specialized databases: arXiv.org (focused on mathematics and physics). These databases concentrate on specific scientific domains and provide highly targeted and up-to-date research materials.
  - Databases with full-text access: Thèses.fr, thesis.univ-biskra. These platforms allow direct access to the complete text of documents, particularly theses and dissertations.
  - Databases with partial or restricted access: Persée, Francis. These resources provide bibliographic references and sometimes partial content, but full-text access may be limited or require institutional subscription.
- Factual databases: These databases provide directly usable information, such as numerical data, indicators, or verified facts that can be immediately applied in research.
- Text corpora: These consist of structured collections of texts gathered according to a specific theme, genre, or historical period. They are mainly used for linguistic, textual, or discourse analysis.

- Web resources: These include a wide range of online materials such as websites, digital libraries, institutional platforms, and online repositories. Their relevance depends on their reliability, academic value, and the credibility of the source. They include:

1. Specialized search engines:
   - Google Scholar (http://scholar.google.fr/)
   - Google Books (http://books.google.fr/)
   - Economics SearchEngine (http://ese.rfe.org/)
   - Scirus(http://www.scirus.com/)
   - Isidore (http://www.rechercheisidore.fr/)
   - Theses.fr (http://www.theses.fr/),

2. A directory of sites
   - Open Directory Project (http://www.dmoz.org/World/Fran%C3%A7ais/) was created in 1998 and was managed by a large community of volunteer editors from around the world.
   - A directory of sites

3. Scientific or thematic portals
   - WorldWideScience(http://worldwidescience.org)
   - Online University (http://uel.unisciel.fr)
   - Sciences.gouv.fr (http://www.science.gouv.fr/)
   - Legifrance(http://www.legifrance.gouv.fr/)
   - International Center for Scientific Research (http://www.cirs.fr)

1.2.2. c. Choose the sources to consult

To ensure comprehensive coverage of the subject, it is important to identify which documentary resources should be consulted. Indicate in the right-hand column which ones are necessary (see Table 2).

Table 2. *Documentary Search Criteria Table (https://bu.univ-avignon.fr/)*

Category	Options	
Period to cover	Recent documentation; Retrospective documentation (from … to …)	
Geographical coverage	Quebec documentation; Canadian documentation; American documentation; European documentation; Documentation from other countries	
Language of the documentation	French; English; Other language	

Fields to cover	Disciplinary (specify); Multidisciplinary (specify)	
Nature of the information required	Theoretical; Empirical; Historical; Statistical; Scientific and technical; Popularization	
Types of documents	Archives; Journal articles; Periodical articles (journals/reviews); Audiovisual documents; Cartographic documents (maps); Handbooks (manuals); Laws and regulations; Monographs (books); Reports; Government publications; Statistical series; Theses and dissertations; Other (specify)	

The table presents a structured way to define and select the documentary sources needed for a research study. It first specifies the time period to be covered, which may include recent documents or retrospective sources depending on the scope of the research. It also highlights the importance of geographical coverage, which can range from local (e.g., Quebec or Canadian documentation) to international sources such as American, European, or other foreign documentation, depending on the research objectives.

In addition, the language of the documents may include French, English, or other languages. The field of study can also be either disciplinary or multidisciplinary. It also defines the nature of the information required, such as theoretical, empirical, historical, statistical, scientific and technical, or popularized knowledge. Finally, it lists the types of documents that can be consulted, including archives, journal articles, books (monographs), reports, government publications, statistical data, maps, audiovisual materials, theses, and other relevant sources. Together, these criteria help ensure a comprehensive and well-structured selection of information sources for research.

1.2.3. Searching for and locating documents

The objective of this stage is to identify and select relevant resources such as dictionaries, encyclopedias, academic websites, databases, and other digital or physical media (e.g., CD-ROMs). These resources form the foundation for building reliable and structured knowledge on the research topic (Pochet, 2005). To efficiently organize and retrieve useful sources, it is recommended to use bookmarks or reference management tools. To effectively use search tools, two main types of skills are required:

- Technical skills: related to the practical use of search engines and databases (e.g., using advanced search options, filters, Boolean operators, and navigation techniques)

- Conceptual skills: related to the ability to define and refine relevant keywords, understand thematic categories, and structure search queries according to the research objectives.

This step consists of systematically querying selected sources using various research techniques in order to gather documentation relevant to the subject. It represents a crucial phase in the research process, as the quality of the collected information directly influences the quality of the analysis. During this stage, the following actions are undertaken:

(1) Question the various selected sources by means of research equations,

(2) Record the results relevant queries

(3) Obtain primary documentation.

1.2.3. a. Research question

After preparing the research by defining the topic, identifying the concepts, and defining the terms related to the research, the next step is to write the search equation, by replacing the concepts with the terms (keyword, descriptor, expression, allowing the subject to be represented) found and taking into account the limitations of the question (Claude, 2020). To create a search equation (linking terms together, excluding others, etc.), you need to use various logical tools such as...Boolean operators AND, OR, NOT (which allow you to combine, include, or exclude one or more terms), the limitations and sometimes the truncation. The use of Boolean operators enhances both the visual clarity and the effectiveness of search queries. In addition, correctly formulated search query determines the quality of the result. It can sometimes be tricky to write because the tools vary from one source to another. Figure 9 illustrates how research can be conducted using Boolean operators.

- AND is used to combine keywords, making the search more precise and focused.
- OR allows the inclusion of alternative terms, making the search broader and more flexible.
- NOT (EXCEPT) is used to exclude irrelevant terms, helping to refine the results.

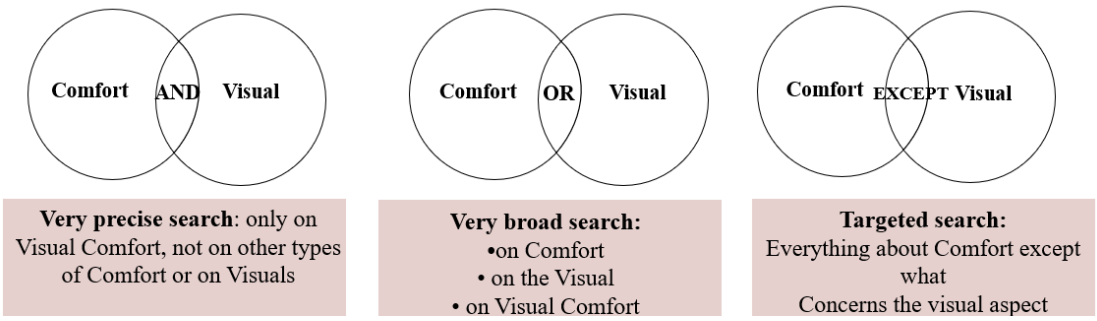


Fig 9. *Example of using Boolean operators (Author, 2024)*

1.2.3.b. Search techniques

Other search techniques, such as truncation, parentheses, quotation marks, and the use of filters or limitations, can be very useful at this stage of the research process (https://bu.univ-avignon.fr/).

- **Truncation*** (e.g., using symbols like *): allows the researcher to search for multiple variations of a word at once and to extend (broaden) the search to all words having the same root (e.g., archit* retrieves architecture, architect, architectural).
- **Parentheses ()**: are used to structure and organize complex search queries, especially when combining several keywords and Boolean operators. (e.g., If we want to travel into space but it doesn't matter whether we go to Mars or Venus, we can write travel AND (Mars OR Venus). They allow us to establish a priority in a complex search equation.
- **Quotation marks (“ ”):** help to search for exact phrases, ensuring that the words appear together in the specified order.
- **Limitations or filters**: specifying the language(s) chosen, the dates selected, the types of documents or subject area help refine results and improve their relevance.
- **Quotation marks « »**: allows you to launch a search on a "string of characters" (same words in the same order. It is particularly useful when a search returns too many results or to search for a specific phrase, e.g., "VISUAL COMFORT". For example, if you search for space shuttles, you would write "space shuttles". Otherwise, the search engine or database will search for the two words separately, which will give you irrelevant results.

Examples illustrating the use of search techniques are presented in Figure 10.

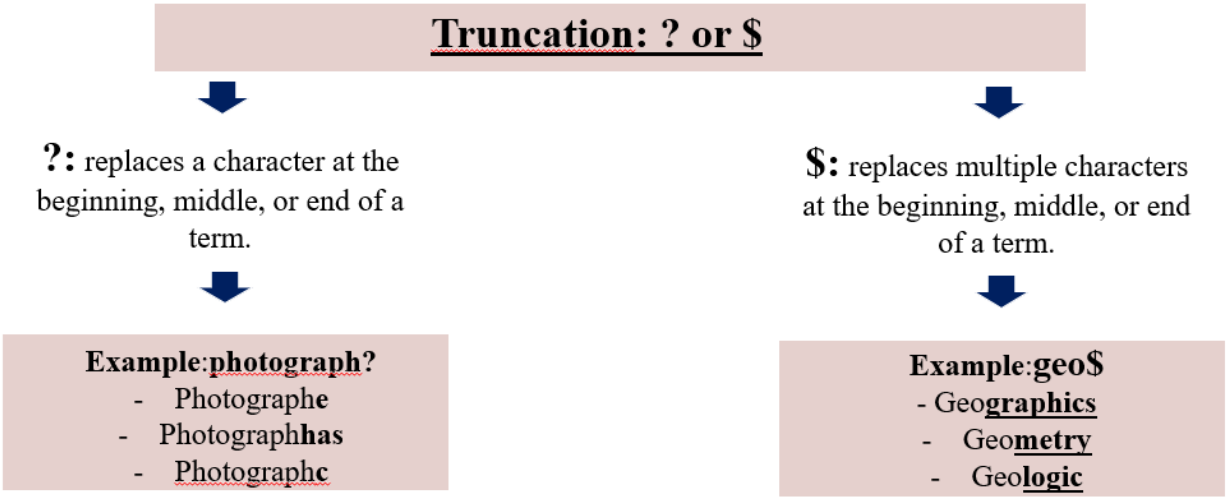


Fig 10. *Example of using search techniques (Author, 2024)*

Table 3 promotes a rigorous, methodical, and disciplined approach to research, thereby enhancing both the efficiency of information retrieval and the academic quality of the resulting work. It serves as a structured framework for developing an effective research strategy, organizing the process into interconnected stages that ensure a logical and systematic progression from a general idea to a precise and operational search strategy.

The first section, Research Topic, establishes the foundation of the entire process. By requiring a concise, one-sentence summary that highlights key concepts, it promotes clarity and focus from the outset. This step is essential, as an ill-defined topic often results in unfocused searches and irrelevant findings. The Concept Plan (Keywords) section translates the research topic into searchable components. By dividing the topic into core concepts (Concepts 1–4) and identifying synonyms or related terms, it supports the development of a comprehensive and flexible search strategy. The use of Boolean operators—AND to combine concepts, OR to incorporate synonyms, and NOT to exclude irrelevant terms—ensures an effective balance between precision and scope. This structured approach helps mitigate the risks of overly narrow or excessively broad searches, which are common challenges in academic research.

The Research Question section represents a crucial stage in refining the search process. By transforming the concept plan into a formal search equation in both French and English, it underscores the importance of multilingual research and adaptability across different databases. This step also reinforces the logical relationships between concepts through the appropriate use of operators and parentheses. Finally, the Limitations section introduces essential parameters that frame the research. By defining criteria such as publication date, language, geographic scope, and type of document, it ensures that the results remain relevant, up-to-date, and aligned with the research objectives. These constraints are vital for managing information overload and maintaining the quality and reliability of selected sources.

Table 3. *A Framework for Developing an Effective Research Strategy (https://bu.univ-avignon.fr)*

Section	Subsection	Details
Research Topic	Description	Summarize your topic in one sentence, including all aspects you wish to address. Highlight key concepts.
Concept Plan (Keywords)	Concept 1	
	Concept 2	
	Concept 3	
	Concept 4	
	Concept 5 (NOT)	Terms to exclude

	Synonyms / Related Terms	Use OR to include alternative terms for each concept
	Operators	Use AND between concepts; NOT to exclude terms
Research Question	French	_____
	English	_____
Limitations	Year of publication	
	Language / Geographic coverage	
	Type of document / Information	

1.2.3. c. Research Logbook

The use of a research logbook is essential for conducting a rigorous and well-structured literature search. It allows the researcher to systematically record all steps of the research process, ensuring transparency and reproducibility. A search sheet (or search slip) should be prepared to list the main keywords related to the topic, along with their possible synonyms and variations. This helps refine search strategies and avoid overlooking relevant information (https://bu.univ-avignon.fr/).

The logbook should include details such as the databases or search engines used, the search equations applied, and the dates of each query. It is also important to note the number and relevance of results obtained, as well as any adjustments made to the search strategy. By keeping track of successful and unsuccessful queries, the researcher can optimize future searches. Additionally, the research logbook facilitates the organization and classification of collected sources, making it easier to retrieve information later. Overall, it is a valuable tool for improving the efficiency, consistency, and reliability of the literature review process. To conduct a rigorous literature search, it is recommended to use a search sheet in which the keywords and their possible synonyms are listed, and to maintain a research logbook, as shown in Table 4.

***Table 4**. Research Sheet and Logbook for Conducting a Literature Search (https://bu.univ-avignon.fr)*

Source consulted (database, catalogue, website, etc.)	**Date**	**Keywords / search equation used**

1.2.3. d. Terminology

It is important to clearly distinguish between a primary document and a secondary document, as both play different roles in the research and literature review process (https://bu.univ-avignon.fr/).

- **A primary document** is an original and direct source of information. It contains first-hand data or original results produced by the author or researcher without interpretation by others. These documents are considered the most authentic level of information because they report findings exactly as they were observed or produced. Examples include scientific research articles presenting experimental results, field surveys, technical reports, theses and dissertations, architectural project reports, raw statistical data, official documents, and case studies. Primary documents are essential in research because they provide the foundation of evidence on which knowledge is built.
- **A secondary document**, on the other hand, is produced by analyzing, interpreting, summarizing, or synthesizing primary sources. It does not present new or original data but instead helps to organize and explain existing knowledge. Secondary documents are useful for understanding broader perspectives, identifying trends, and gaining an overview of a topic. Examples include textbooks, review articles, literature reviews, encyclopedias, critical analyses, and handbooks. These documents are often used at the beginning of a research process to understand the general context of a subject.

The main difference between the two lies in the level of originality and interpretation. Primary documents provide direct evidence and raw information, while secondary documents offer interpretation and structured understanding of that information. In research practice, both are complementary: primary sources are used to obtain accurate data, while secondary sources help situate that data within a wider academic or theoretical framework.

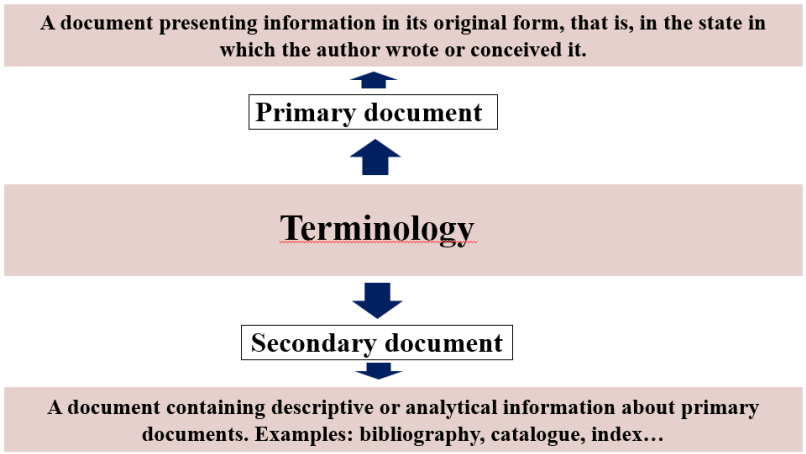


Fig 11. *Terminology Definitions in Documentary Research (https://bu.univ-avignon.fr/)*

1.2.3. e. Concepts of noise and silence

In information retrieval, two fundamental concepts must be considered: noise and silence (https://bu.univ-avignon.fr/). These concepts help evaluate the effectiveness of a search query and often indicate the need to reformulate or refine the search strategy:

- **Noise:** refers to the set of irrelevant documents retrieved in response to a query during an information search. In this case, the system returns a large number of documents that do not correspond to the user's actual information needs. As a result, the relevant information becomes hidden or buried within an excessive volume of unrelated data, making it difficult to identify useful sources. Noise is often caused by overly broad keywords, poor use of search operators, or lack of precision in the query formulation.
- **Silence:** refers to the set of relevant documents that are not retrieved during the search process. In this situation, the search engine fails to display important information that actually exists in the database. This may lead the researcher to incorrectly assume that no relevant information is available on the topic. Silence is usually caused by overly restrictive queries, missing keywords, or incorrect use of Boolean logic.

1.2.3. f. Case sensitivity (uppercase letters, stop words)

In information retrieval systems such as databases, library catalogues, and search engines, certain rules must be respected to ensure efficient and accurate results. Among these rules, case sensitivity and the use of stop words play an important role in improving search performance.

- **Rule 1:** Use of lowercase letters and absence of accents: It is strongly recommended that, when performing a search in any database or library catalogue, users should write keywords using only lowercase letters and without accents. This practice ensures better compatibility across different search systems, as some databases may not correctly recognize uppercase characters or accented letters. Although many modern systems are not strictly case-sensitive, standardizing queries in lowercase helps avoid inconsistencies and improves the reliability of search results. It also reduces the risk of missing relevant documents due to formatting differences.
- **Rule 2:** Stop words and their role in search queries: Stop words are common grammatical words that generally do not carry significant meaning in information retrieval. These include articles (a, an, the), prepositions (in, on, at, for), conjunctions (and, or, but), and pronouns (he, she, it, they). In most search systems, these words are automatically ignored

because they do not contribute to the meaning of the query and may unnecessarily increase the number of results (noise).

However, stop words can become important in specific cases, particularly in exact phrase searches, where the sequence of words must be preserved. For example, in titles, quotations, or technical expressions, these words help maintain the correct meaning of the phrase. In such cases, removing stop words could alter the sense of the search and lead to incomplete or incorrect results. To optimize information retrieval, users should focus on meaningful keywords while minimizing unnecessary linguistic elements. Proper handling of case sensitivity and stop words contributes to more precise, relevant, and efficient search results in academic and professional research contexts

1.2.3. g. Information extraction

Once relevant information has been identified during the research process, it must be systematically collected and extracted for further use. This phase, commonly referred to as information extraction or data gathering, involves organizing previously identified sources into a usable form that supports analysis and interpretation. Information may be presented in various formats, including written texts, visual materials such as images, diagrams, and charts, as well as digital formats like HTML pages, PDF documents, and PowerPoint presentations (https://ist.inrae.fr/). Consequently, researchers are required to manage and process information originating from diverse media and structures.

The collection of information can be achieved through several approaches. These include careful reading and note-taking, paraphrasing or summarizing key ideas, and the direct copying of relevant content into a working document. In digital environments, the copy-and-paste method is frequently employed for efficiency. From a technical perspective, this stage is generally straightforward, as most accessible information can be easily retrieved and stored, provided that it is not subject to copyright or access restrictions. Nevertheless, the principal challenge at this stage is not technical but analytical. The researcher must critically evaluate and select information that is pertinent to the research objectives. This process of filtering is essential, as not all collected data is necessarily relevant or suitable for inclusion in the study.

At this point in the research process, two main options are available. The researcher may either conclude the search if sufficient and appropriate information has been gathered, or continue the investigation in order to refine the data set, enhance specificity, and explore additional sources that may contribute to a more comprehensive understanding of the topic.

1.2.3. i. Information processing

Information processing refers to the stage of research in which collected data is organized, analyzed, interpreted, and transformed into meaningful results. Once information has been gathered, it cannot be used directly; it must first be processed in order to extract relevant meaning and support valid conclusions. The researcher organizes and categorizes the collected information based on relevant themes, categories, or variables linked to the research question (https://ist.inrae.fr/). This may include comparing multiple sources, highlighting similarities and differences, and removing duplicate or irrelevant content. The primary goal is to convert raw data into a clear, structured, and usable format.

Information processing also includes detailed analysis and interpretation. The researcher critically examines the data in order to identify patterns, relationships, and significant findings. Depending on the nature of the study, this process may be qualitative, involving the interpretation of meanings and concepts, or quantitative, involving statistical analysis of numerical data.

Finally, the processed information is synthesized to produce clear and well-structured conclusions. This ensures that the collected data is not merely descriptive but actively contributes to answering the research question in a logical and evidence-based manner. Once the research process is completed, the organized information must be used appropriately. This may involve writing texts, producing structured documents with inserted images or illustrations, or performing calculations when necessary. In all cases, the information must be presented in accordance with academic and ethical standards, including respect for copyright and proper use of sources.

1.2.4. Evaluating the quality and relevance of sources

1.2.4. a. What elements should be evaluated?

The selection of documents must be based not only on their quality but also on their relevance to the work to be done. A quick exploration is necessary to assess the relevance of content. This will require analyzing the following elements:

- **Document Title:** For a book, you need to look at the one listed on the title page.
- **Summary (abstract)**: it can be found in most bibliographic records taken from databases, at the beginning or end of periodical articles and often on the back cover of books
- **Table of Contents**: it allows for a better appreciation of the content (plan and logic of the argument) and for clearly identifying the chapters that may be relevant.
- **Tables, graphs, etc.:** They can help in understanding the subject and be useful for the work.

- **Nature of the document**: determine whether it is an educational, research or popularization document
- **Introduction and conclusion:** Consulting them allows us to understand the initial question and the conclusions the author draws from it...

1.2.4. b. What are the main criteria for source reliability?

Evaluating the reliability of documentary sources is an essential step in academic research. Not all information available in books, articles, or on the Internet is accurate, scientific, or trustworthy. Therefore, researchers must critically analyze sources before using them in their work. Several important criteria can help determine the reliability and credibility of a source (https://www.scribbr.fr/). This evaluation mainly concerns:

- The author, the publisher of the resource
- The document's publication date
- The resource domain (URL address)
- The site's objective
- The reputation, the site's popularity index
- The content of the information (structure, argumentation, sources, etc.)
- The Author and the Publisher of the Resource

The credibility of a document often depends on the qualifications and expertise of its author. Researchers should verify whether the author is a specialist in the field, affiliated with a recognized institution or university, and whether they have published other scientific works on the same topic. The publisher is also important. Academic publishers, universities, scientific journals, and official institutions generally provide more reliable information because their publications usually undergo peer review or editorial control. In contrast, anonymous publications or documents from unknown organizations may be less trustworthy.

- **The Document’s Publication Date**

The publication date is another essential criterion, especially in scientific and technical fields where knowledge evolves rapidly. Recent publications usually contain updated data, current theories, and recent discoveries. However, older sources may still be valuable when dealing with historical information or foundational theories. Researchers must therefore evaluate whether the document is sufficiently up to date for their research objectives.

- **The Resource Domain (URL Address)**

For online resources, the website domain can provide useful information about reliability. Certain domains are generally considered more trustworthy:

- **.edu** → educational institutions and universities
- **.gov** → government institutions
- **.org** → non-profit organizations
- **.ac** → academic institutions in some countries

- **The Site's Objective**

Understanding the purpose of a website or document is essential. Some resources are designed to inform and educate, while others may aim to sell products, promote opinions, influence readers, or provide entertainment. Reliable academic sources should present information objectively and avoid excessive bias or emotional language. Researchers should always question the intention behind the publication.

- **The Reputation and Popularity of the Site**

The reputation of a source is another indicator of reliability. Well-known scientific journals, recognized universities, research centers, and official organizations generally provide high-quality information. Researchers can also verify whether the source is frequently cited by other academic works or recommended by specialists in the field. A widely recognized and referenced source is usually more credible.

• The Content and Quality of Information

The quality of the content itself must also be evaluated. Reliable information is generally:

- Clearly structured and well organized
- Supported by evidence, references, and citations
- Based on logical argumentation and scientific methodology
- Free from major grammatical or factual errors
- Consistent with other reliable sources

1.2.4. c. Framework for evaluating the reliability and quality of information

Table 5 provides a structured framework for evaluating the reliability and quality of information sources, especially online content. It functions as a checklist designed to help readers critically assess the credibility, relevance, and overall usefulness of the information presented. It focuses on a few key ideas: identifying the target audience, understanding the author's role and credibility, and checking whether the topic is clearly presented and well-structured. It also emphasizes the

importance of evidence (references, citations), objectivity (distinguishing facts from opinions), and acknowledging different viewpoints. Additionally, it highlights the need to verify the timeliness of information, the separation of ads from content, and the presence of sources and external links. Finally, it encourages checking whether the author can be contacted.

Table 5. *Framework for Assessing the Reliability and Quality of Information Sources (https://www.scribbr.fr/)*

Question	Details / Criteria
Who is the target audience? (LEVEL)	- General public? - Specialist audience? - Informed audience? - School audience? - Which socio-cultural category(ies)?
In what capacity does the author provide information or express themselves?	- In their own name - On behalf of the organization they represent - On behalf of the organization responsible (editor) of the site
Is the topic clearly stated on the homepage?	- Introduction - Problem statement presented - Plan announced - Summary (author-type abstract)
What information is provided?	
Is the announced topic treated or only partially?	
Does the author refer to schools of thought or scientific work?	- Explicit references - Citations - Notes
Does the author mention controversies about the topic?	
Does the information require updating?	- Date of publication - Date and frequency of updates
Is factual information clearly distinguished from opinions?	
Are advertisements clearly separated from the information?	
Does the author provide their sources?	- Bibliography - Useful addresses
Does the author refer to other sources of information?	- Bibliography (annotated or not) - Webography (annotated or not) - Links to reliable external sites - Functional links
Can the author be contacted for further information?	- Postal address, phone, fax, email address

1.2.5. Implementing a documentary monitoring system

1.2.5. a. Main Aspects and Steps of Documentary Monitoring

Implementing a documentary monitoring system (also called information monitoring system) is a natural extension of the research process. Instead of repeatedly searching for new information, you set up tools that automatically notify you when relevant content is published. This system helps you stay continuously updated in a specific field. As your research evolves, new articles, reports, or data may appear. Without monitoring, you risk missing important developments or wasting time

repeating the same searches (https://bu.univ-avignon.fr/). A monitoring system solves this by automating the tracking of information sources.

To implement it effectively, you first need to define your monitoring scope. This includes identifying your topic, refining your keywords, and selecting reliable sources such as academic journals, professional websites, databases, or news platforms. The quality of your monitoring depends heavily on how precise and relevant these initial choices are. Next, you configure monitoring tools. These can include:

- Alerts from search engines (e.g., keyword alerts)
- Academic database notifications
- RSS feeds from websites or journals
- Email newsletters or platform subscriptions

Once set up, these tools will automatically send notifications, usually by email or through an app, whenever new content matches your criteria. This ensures you receive real-time or periodic updates without manual effort.

An important aspect of documentary monitoring is filtering and evaluation. Not all incoming information will be useful. You still need to assess the relevance, credibility, and quality of the content—using criteria like those in your earlier evaluation table (sources, objectivity, timeliness, etc.). This prevents information overload and keeps your research focused. Additionally, a good system includes organization and storage. Collected information should be sorted, tagged, and archived using tools like reference managers, note-taking apps, or databases. This allows you to easily retrieve and use the information later.

1.2.5. b. Research profile

A research profile is a personalized configuration that enables users to automate, refine, and continuously update their information searches across various tools and platforms. It is a key component of an effective documentary monitoring system (https://bu.univ-avignon.fr/). To implement this approach, users must create a search profile for each selected tool, such as databases, search engines, journal publisher websites, or blogs. This profile typically involves saving a search query along with filters that refine its scope, and subscribing to the results of this automated query. When available, this functionality generally requires the creation of a user account.

At its core, a research profile is built by saving a search strategy within a specific tool. This strategy combines keywords, Boolean operators (AND, OR, NOT), and filters such as date range, subject area, language, and document type. Instead of re-entering these parameters for each search, the system stores them and automatically reruns the query at regular intervals.

Developing an effective research profile begins with careful query design. This involves identifying precise keywords, as well as synonyms and related terms, in order to capture relevant information while minimizing irrelevant results. The use of Boolean operators and exclusion criteria further refines the search, improving both accuracy and efficiency. Ultimately, the quality of the initial query directly determines the relevance and usefulness of the automated results. Once the query is defined, you enhance it with filters and limits. These may include:

- Publication dates (e.g., last 5 years)
- Type of documents (articles, reviews, reports)
- Subject categories or disciplines
- Language preferences

The information research process is presented in Figure 12.

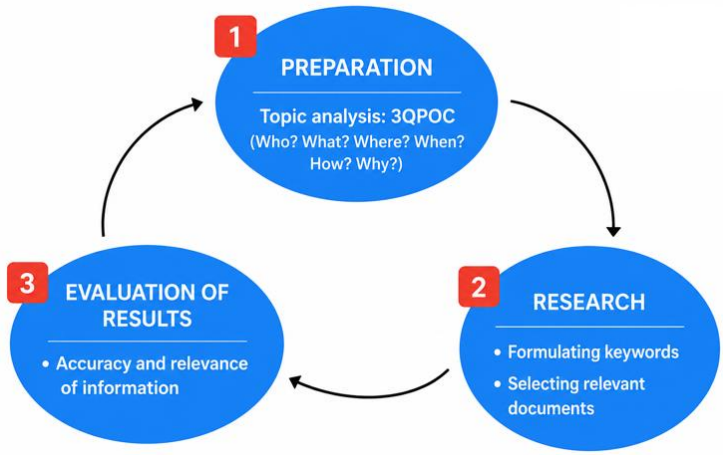


Fig 12. *The information research process (https://www.scribbr.fr/)*

These filters ensure that the monitoring remains focused and relevant, especially in large databases where results can quickly become overwhelming. After saving the query, you can subscribe to updates. Most platforms offer alert systems that notify you when new results match your profile. Notifications may come via Email alerts (daily, weekly, or monthly), RSS feeds, or Platform

dashboards or mobile apps. This turns your research into a dynamic process, where new information is continuously pushed to you instead of being manually searched.

In many cases, setting up a research profile requires creating a user account. This allows the platform to store your preferences, manage your alerts, and sometimes provide additional features such as saving articles, exporting citations, or organizing results into folders. However, creating a research profile is not a one-time task. It requires regular evaluation and adjustment. As your research topic evolves, you may need to update keywords or add new ones, modify filters, remove irrelevant sources, and adjust alert frequency. Without this maintenance, your profile may either miss important information or produce too many irrelevant results.

1.2.5. c. Example of documentary research

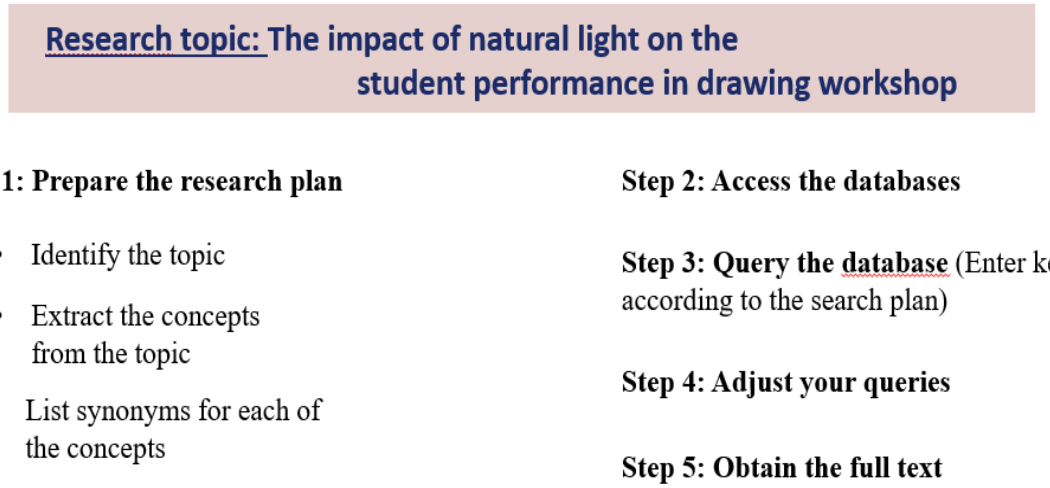


Fig 13. *Example of Documentary Research Process (Author)*

1.2.5. d. Summary of the workflow

1) Prepare the research plan: This is where you define *exactly what you want to study and how you will search for information*.

a) Define the research question: Instead of a broad topic, turn it into a focused question such as: How does lighting (natural vs artificial, intensity, color temperature) affect student performance in drawing workshops?

b) Identify key concepts: Break your topic into keywords:

Example:

- Lighting: light conditions, illumination, natural light, artificial light, LED lighting, color temperature

- Performance: drawing accuracy, artistic quality, visual perception, student output

- Population: students, art students, learners
- Context: drawing workshop, art classroom, studio environment

c) Decide inclusion criteria:

Example:

- Studies from education, psychology, or design fields
- Focus on visual tasks or art/drawing performance
- Prefer peer-reviewed journals (last 10–15 years)

2) Access the databases: You need academic sources, not general websites.

Recommended databases:

- Google Scholar (easy starting point)
- ERIC (education-focused research)
- Scopus (broad academic database)
- Web of Science (high-quality journals)
- ScienceDirect (visual perception, environmental psychology)
- JSTOR (arts + education research)

3) Query the database: Now you actually search using keywords and combinations.

Basic search examples:

- "lighting effects on student drawing performance"
- "natural light vs artificial light art classroom"
- "illumination visual perception drawing accuracy"
- "studio lighting and artistic performance students"

Advanced Boolean search:

- Use AND / OR / NOT to refine results

Example:

- "lighting AND drawing performance"
- "(natural light OR daylight) AND (art students OR drawing workshop)"
- "illumination AND visual perception AND education"

4) Adjust your queries: This step is about improving your search results when they are too broad or too narrow.

a) <u>If results are too broad</u>: Add more specific terms:

- "color temperature"
- "LED lighting"
- "studio environment"

- "task performance accuracy"

Example refined query:

"color temperature AND student drawing performance AND classroom"

b) If results are too few: Broaden your terms:

- Replace "drawing workshop" with "visual arts education"
- Replace "performance" with "learning outcomes" or "task performance"

c) Example broader query: "lighting AND visual arts education AND student performance"

Try synonyms:

- lighting = illumination, brightness, lighting conditions
- performance = output, accuracy, creativity, visual task performance

5) Obtain the full text: Once you find relevant articles, you need the complete papers.

Ways to access full text:

- Click "PDF" or "Full Text" on Google Scholar
- Use university library access (login required)
- Check ResearchGate (authors sometimes upload full papers)
- Use institutional repositories
- If unavailable, request via "Request full text" or email the author

If paywalled:

- Look for "preprint" versions
- Search the title in Google (sometimes free copies exist)
- Use interlibrary loan (if you have academic access)

1.3. PREPARATION OF THE BIBILIOGRAPHY

1.3.1. What is a bibliography?

Bibliographic research is the first step in any scientific research or academic writing project. It involves identifying, collecting, and analyzing relevant and reliable information related to a specific scientific topic from various literature sources (Chassé et al., 1997). In fact, this process begins even before the conception of the research project or the writing phase and continues throughout all stages of the work.

A bibliography is an exhaustive and well-structured list of sources consulted during the preparation of an academic document, such as books, journal articles, conference papers, websites, videos, and other references. Whether writing a thesis, doctoral dissertation, research article, or internship report, the bibliography is essential for demonstrating the rigor, credibility, and academic integrity of the scientific approach (Berry, 2013). More specifically, a bibliography includes all the sources used in academic writing, whether they are directly quoted or paraphrased. It acknowledges the intellectual contributions of other authors and provides readers with reliable references to verify and further explore the information and arguments presented in the research.

Therefore, there are three main reasons why it is essential to prepare and include a bibliography at the end of academic work:

- Allowing the Reader to Deepen Their Knowledge: The bibliography enables readers to expand their understanding of the subject and further develop their critical thinking. By consulting the listed references, readers can easily identify and access the books, articles, and other sources used in the research in order to explore the topic in greater depth.
- Demonstrating the Quality of the Research Work: Teachers, examiners, and evaluators often assess the quality of a thesis, dissertation, internship report, or research paper through the reliability and relevance of the sources cited. A well-prepared bibliography reflects the seriousness of the research and writing process. When it contains credible, recent, and recognized references in the field, it demonstrates that the work is based on a solid scientific foundation.

- Respecting Copyright and Academic Integrity: Copyright protects intellectual and creative works. Including a bibliography at the end of a document acknowledges the contributions of the authors whose ideas, theories, and findings have been used. In this way, the researcher respects academic integrity and avoids plagiarism. In addition, plagiarism-detection tools can be used to analyze the originality of the work, and the generated report may be attached to a thesis or assignment as evidence of authenticity.

The bibliography is not only an academic requirement but also an essential scientific tool that serves two major purposes (Bhatta, 2024):

1. Avoiding Plagiarism through Proper Citation: Plagiarism refers to the use or appropriation of another person's work, ideas, or text without proper acknowledgment. Citing sources in a bibliography demonstrates intellectual honesty and ethical research practices.

2. Indicating the Sources of Information: Academic integrity requires researchers to clearly communicate the sources on which their arguments and analyses are based. The bibliography forms part of the scientific dialogue by showing the theoretical and conceptual foundations of the work. It also highlights the authors and references that influenced the research. A properly written bibliography allows readers to easily identify and retrieve the cited documents.

1.3.2. The importance of the bibliography

- The bibliography is a fundamental tool for analysis, reflection, and scientific research. It provides essential support for the development of scientific studies and academic writing projects.
- It enables researchers to collect relevant information on a specific topic and gain a comprehensive understanding of what has already been achieved and what still remains to be explored.
- It helps synthesize existing knowledge on a given scientific subject, facilitating a better understanding of research themes and contributing to their advancement.
- It also provides insight into the methods, techniques, and strategies used to address different scientific questions, while allowing comparisons between the findings of various researchers on the same topic.
- Furthermore, a bibliography enhances the credibility and academic value of the work and demonstrates respect for the contributions of researchers in different scientific fields.

- It identifies all the documents and sources consulted during the preparation of the research work.
- It reflects professional and academic ethics by acknowledging and respecting the work of other authors.
- It enables readers to verify the sources used to support arguments and research findings.
- It demonstrates the researcher's or student's level of involvement and effort in preparing the dissertation, thesis, or report.
- Finally, it helps avoid plagiarism by encouraging proper citation and referencing of sources.

There are generally two ways to cite references: either by inserting citations directly within the text after a quotation or paraphrased idea, or by presenting them in the form of a structured reference list or bibliography at the end of the document.

1.3.3. The general standard and special cases

According to Standard Z 44-005 relating to the description of bibliographic references, a bibliographic reference varies depending on both the type of document (books, journal articles, conference papers, reports, etc.) and the medium used (printed documents, online resources, CD-ROMs, and others). Each reference is composed of essential elements such as the author's name, title, edition, publisher, date of publication, and other relevant information necessary for accurate identification and citation of the document. These elements must be presented in a precise and consistent order. The main sources used to identify bibliographic information are generally the title page and cover page of the document, although additional details may also be found on the back of the title page or in other sections of the source (Chassé, 1997).

Bibliographic references must be presented in a consistent and homogeneous style throughout the document. It is important to respect standard formatting and punctuation rules, such as using no space before periods and commas but leaving one space after them, and placing one space before and after semicolons and colons. Unnecessary capital letters and unjustified abbreviations should also be avoided. Standards provide general rules that can be adapted to different types of documents and citation situations. Therefore, preparing a bibliography requires both the application of these rules and the maintenance of consistency and uniformity across all references:

1.3.3. a. Essential and optional information

Some information is required, and other information is optional. If a work was published in two volumes, it is relevant to indicate which volume is being cited. However, if there is only one

volume, it is unnecessary to specify "volume 1" in the citation. All information that helps identify a document is therefore useful. However, the name(s) of the author(s), the title of the document, and its publication date remain the fundamental information that must be included.

1.3.3. b. The authors or intellectual leaders.

- An author is not necessarily a natural person; it may also be a legal entity such as an institution, company, organization, association, or governmental body responsible for the intellectual content of the document.
- In the absence of an author: When no author is identified, the reference should indicate the person or entity responsible for the intellectual content of the document, such as the publisher, editor-in-chief, organization, or sponsoring institution. This responsible entity is cited as the author, even if it did not directly write the quoted text. If neither an author nor a responsible entity can be identified, no name should be invented or added artificially. In such cases, the reference begins directly with the title of the document. However, researchers should carefully evaluate the credibility and reliability of a source whose authorship cannot be clearly identified before deciding to cite it.
- In the presence of two or three authors: When a document has two or three authors, all authors must be cited in the bibliographic reference. The authors' names should be presented in the correct order and separated by appropriate punctuation, with the word "and" linking the last two authors.

  Examples:

  - Two authors: DAICH, Safa and PIRAS, Francisco
  - Three authors: DAICH, Safa, SAADI, Yacine and PIRAS, Francisco

Special attention should be paid to punctuation and formatting to ensure consistency and clarity in the bibliography.

- In the presence of more than three authors: In some scientific fields, publications may include more than three authors, sometimes even a very large number of contributors. In such cases, it is not always necessary to list all authors in the bibliographic reference. When a work has more than three authors, the abbreviation "et al." (from the Latin et alii, meaning "and others") may be used after the name of the first author, or after the first few authors, to simplify the citation and avoid excessively long references.

Examples:

- DAICH, Safa, SAADI, Yacine, PIRAS, Francisco, et al.
- DAICH, Safa et al.

1.3.3. c. The publication date

A document may include several dates, such as the publication date, printing date, copyright date, or legal deposit date. In a bibliographic reference, however, only one date should be retained in order to ensure clarity and consistency. The preferred date is generally the publication date, since it corresponds to the official release of the document. If multiple dates appear and no publication date is clearly specified, the most recent date should be used (Amadou, 2024; https://www.adobe.com/uk/acrobat/resources/academic-writing/what-is-a-bibliography.html).

Using a single and appropriate date helps maintain accuracy and uniformity throughout the bibliography. Table 6 provides examples illustrating how to choose the appropriate date.

Table 6. *Examples Illustrating the Selection of an Appropriate Date (Author)*

Situation	Dates Mentioned in the Document	Date to Use in the Reference	Explanation
Publication date and printing date	Publication: 2018 / Printing: 2020	**2018**	The publication date is preferred because it corresponds to the official release of the document.
Copyright date and legal deposit date	Copyright: 2019 / Legal deposit: 2021	**2021**	When the publication date is unclear, the most recent date may be used.
Different editions of the same book	First edition: 2005 / Revised edition: 2022	**2022**	The date of the consulted edition should be cited.
Online document with update date	Created: 2017 / Updated: 2024	**2024**	The latest update date is used for online resources.
No publication date available	Printing: 2016 / Legal deposit: 2018	**2018**	The most recent identifiable date is selected.

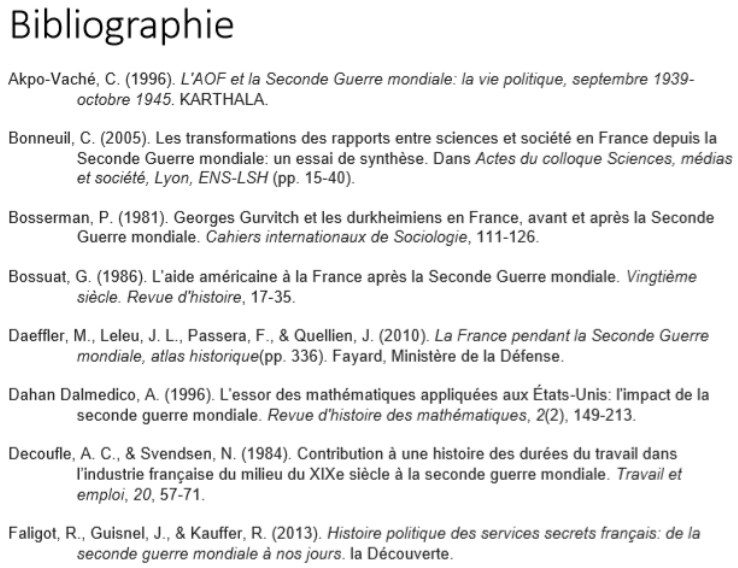
1.3.4. Types of bibliography presentations

When preparing a bibliography, it is essential to choose a citation style (such as APA, MLA, Chicago, or Harvard) and apply it consistently throughout the entire document. All references should follow the same formatting rules in terms of punctuation, capitalization, author names, titles, dates, and presentation style. A clear, harmonious, and consistent bibliography improves the readability and professionalism of academic work (Chassé, 1997).

A bibliography can be organized in several ways depending on the objectives of the research, the academic discipline, or institutional guidelines. The most common methods are the following:

a) In alphabetical order by author
b) By theme
c) By chapter
d) In order of appearance in the text

1.3.4.a. Bibliography in alphabetical order: Presenting a bibliography in alphabetical order is the most common and widely used format in academic writing. It is adopted in major citation styles such as APA, MLA, and Chicago. In this method, references are arranged alphabetically according to the surname of the first author. When several works by the same author are cited, they are generally organized chronologically according to their publication dates, from the oldest to the most recent. This organization makes it easier for readers to locate references quickly and ensures a clear and structured presentation of sources. Figure 14 illustrates an example of a bibliography organized in alphabetical order, while Table 7 provides examples of how to write bibliographic references in APA and MLA styles according to the type of document.



Bibliographie

Akpo-Vaché, C. (1996). *L'AOF et la Seconde Guerre mondiale: la vie politique, septembre 1939-octobre 1945*. KARTHALA.

Bonneuil, C. (2005). Les transformations des rapports entre sciences et société en France depuis la Seconde Guerre mondiale: un essai de synthèse. Dans *Actes du colloque Sciences, médias et société, Lyon, ENS-LSH* (pp. 15-40).

Bosserman, P. (1981). Georges Gurvitch et les durkheimiens en France, avant et après la Seconde Guerre mondiale. *Cahiers internationaux de Sociologie*, 111-126.

Bossuat, G. (1986). L'aide américaine à la France après la Seconde Guerre mondiale. *Vingtième siècle. Revue d'histoire*, 17-35.

Daeffler, M., Leleu, J. L., Passera, F., & Quellien, J. (2010). *La France pendant la Seconde Guerre mondiale, atlas historique*(pp. 336). Fayard, Ministère de la Défense.

Dahan Dalmedico, A. (1996). L'essor des mathématiques appliquées aux États-Unis: l'impact de la seconde guerre mondiale. *Revue d'histoire des mathématiques*, *2*(2), 149-213.

Decoufle, A. C., & Svendsen, N. (1984). Contribution à une histoire des durées du travail dans l'industrie française du milieu du XIXe siècle à la seconde guerre mondiale. *Travail et emploi*, *20*, 57-71.

Faligot, R., Guisnel, J., & Kauffer, R. (2013). *Histoire politique des services secrets français: de la seconde guerre mondiale à nos jours*. la Découverte.

Fig 14. *Example of a bibliography organized in alphabetical order (Author)*

Table 7. *Examples of how to write bibliographic references in APA and MLA styles (Author)*

Type of Document	APA Style (7th Edition)	MLA Style (9th Edition)
Book	Author, A. A. (Year). *Title of the book*. Publisher.	Author Last Name, First Name. *Title of the Book*. Publisher, Year.
Journal Article	Author, A. A. (Year). Title of article. *Title of Journal*, volume(issue), pages.	Author Last Name, First Name. "Title of Article." *Title of Journal*,

		vol. volume, no. issue, Year, pp. pages.
Conference Paper	Author, A. A. (Year). Title of paper. In *Title of Proceedings* (pp. xx–xx). Publisher.	Author Last Name, First Name. "Title of Paper." *Title of Proceedings*, Publisher, Year, pp. xx–xx.
Website	Author, A. A. (Year). *Title of webpage*. Website Name. URL	Author Last Name, First Name. *Title of Webpage*. Website Name, Year, URL.
Thesis / Dissertation	Author, A. A. (Year). *Title of thesis* (Doctoral dissertation/Master's thesis, Institution Name).	Author Last Name, First Name. *Title of Thesis*. Institution Name, Year.

1.3.4.b. ***Bibliography by theme or document type***: In some academic works, bibliographic references may be organized by theme or by document type instead of being presented in a single alphabetical list. In this approach, the bibliography is divided into sections with specific subheadings, and the references within each section are generally arranged alphabetically. This method helps readers identify sources related to particular research topics or categories of documents more easily. Table 7 and Figure 15 present examples of bibliography organization by theme and by document type.

Table 8. *Examples of Bibliography Organization by Theme and by Document Type (Author)*

Organization Type	Subheading	Example of References
By Theme	**Renewable Energy**	BROWN, James. *Solar Energy Systems*. Springer, 2021.
		SMITH, John. "Wind Energy Development." *Energy Journal*, vol. 15, no. 2, 2020, pp. 45–60.
	Urban Sustainability	DUPONT, Martin. *Sustainable Urban Planning*. Academic Press, 2022.
		PAUL, François. "Green Cities and Climate Change." *Journal of Urban Studies*, vol. 10, no. 1, 2021, pp. 20–35.
By Document Type	**Books**	DUPONT, Martin. *Research Methodology*. Academic Press, 2022.
		SMITH, John. *Scientific Writing Techniques*. Routledge, 2020.
	Journal Articles	BROWN, James. "Urban Sustainability Strategies." *Journal of Urban Studies*, vol. 12, no. 3, 2021, pp. 45–60.
		MARTIN, Francis. "Smart City Development." *Energy and Environment Review*, vol. 8, no. 2, 2022, pp. 70–85.
	Websites	Research Academy. *Scientific Research Methods*. 2023, https://www.example.com.
		World Health Organization. *Global Health Reports*. 2022, https://www.who.int.

Bibliographie

Livres

Akpo-Vaché, C. (1996). *L'AOF et la Seconde Guerre mondiale: la vie politique, septembre 1939-octobre 1945*. KARTHALA.

Daeffler, M., Leleu, J. L., Passera, F., & Quellien, J. (2010). *La France pendant la Seconde Guerre mondiale, atlas historique*(pp. 336). Fayard, Ministère de la Défense.

Faligot, R., Guisnel, J., & Kauffer, R. (2013). *Histoire politique des services secrets français: de la seconde guerre mondiale à nos jours*. la Découverte.

Hamel, Y. (2006). *La bataille des mémoires: la Seconde Guerre mondiale et le roman français*. PUM.

Kreissler, F. (1989). *L'Action culturelle allemande en Chine de la fin du 19e siècle à la Seconde Guerre mondiale*. Les Editions de la MSH.

Lacroix-Riz, A. (1996). *Le Vatican, l'Europe et le Reich: de la Première Guerre mondiale à la guerre froide*. Colin.

Segal, J. (1998). *Théorie de l'information: sciences, techniques et société de la seconde Guerre mondiale à l'aube du XXIe siècle* (Doctorat, Lyon 2).

Vayssière, Bertrand. *Vers une Europe fédérale ? Les espoirs et les actions fédéralistes au sortir de la Seconde Guerre mondiale*. Vol. 36. Peter Lang, 2007.

Articles de revues

Gouanvic, J. M. (1994). La traduction et le devenir social: le cas de l'irruption de la science-fiction américaine en France après la Seconde Guerre mondiale. *TTR: traduction, terminologie, rédaction*, *7*(1), 117-152.

Prost, A. (2001). La démocratisation de l'enseignement en France depuis la Seconde Guerre mondiale. *Schweizerische Zeitschrift für Bildungswissenschaften*, *23*(1), 73-94.

Willequet, J. (1967). Les fascismes belges et la seconde guerre mondiale. *Revue d'histoire de la Deuxième Guerre mondiale*, *17*(66), 85-109.

Thèses de doctorat

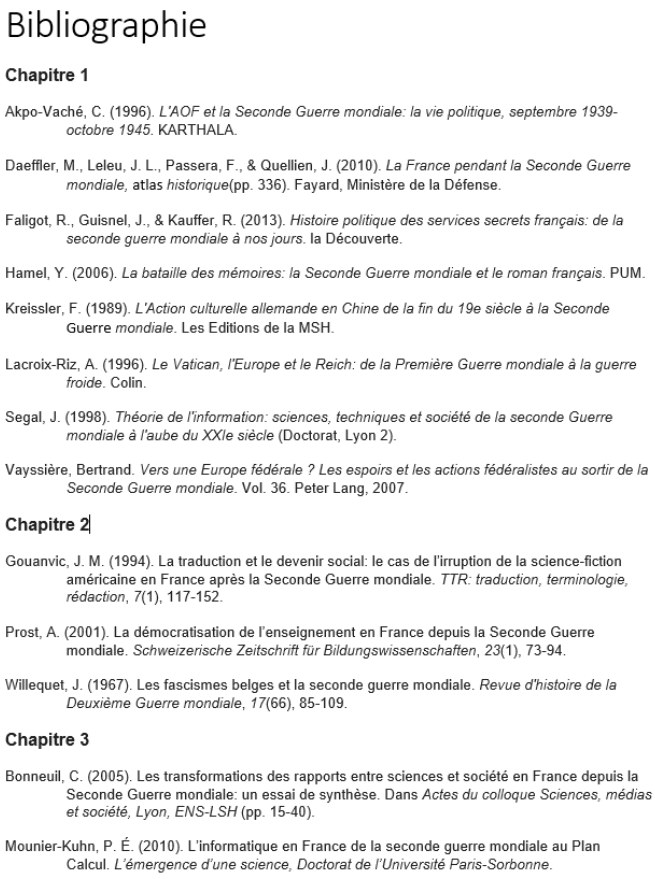
Bonneuil, C. (2005). Les transformations des rapports entre sciences et société en France depuis la Seconde Guerre mondiale: un essai de synthèse. Dans *Actes du colloque Sciences, médias et société, Lyon, ENS-LSH* (pp. 15-40).

Mounier-Kuhn, P. É. (2010). L'informatique en France de la seconde guerre mondiale au Plan Calcul. *L'émergence d'une science, Doctorat de l'Université Paris-Sorbonne*.

Fig 15. *Bibliography by theme or document type (Author)*

1.3.4.c. Bibliography by chapter: For large academic documents, such as doctoral theses or extensive research reports, it is often useful to organize the bibliography by chapter to improve clarity and readability. Since these documents may contain several chapters covering different topics, each chapter can include its own list of bibliographic references related specifically to the subjects discussed in that section.

This organization allows readers to easily identify and consult the sources associated with each chapter without searching through a single extensive bibliography at the end of the document. It also highlights the specific references and scientific literature used to support the arguments and analyses developed in each part of the research.



Bibliographie

Chapitre 1

Akpo-Vaché, C. (1996). *L'AOF et la Seconde Guerre mondiale: la vie politique, septembre 1939-octobre 1945*. KARTHALA.

Daeffler, M., Leleu, J. L., Passera, F., & Quellien, J. (2010). *La France pendant la Seconde Guerre mondiale,* atlas *historique*(pp. 336). Fayard, Ministère de la Défense.

Faligot, R., Guisnel, J., & Kauffer, R. (2013). *Histoire politique des services secrets français: de la seconde guerre mondiale à nos jours*. la Découverte.

Hamel, Y. (2006). *La bataille des mémoires: la Seconde Guerre mondiale et le roman français*. PUM.

Kreissler, F. (1989). *L'Action culturelle allemande en Chine de la fin du 19e siècle à la Seconde* Guerre *mondiale*. Les Editions de la MSH.

Lacroix-Riz, A. (1996). *Le Vatican, l'Europe et le Reich: de la Première Guerre mondiale à la guerre froide*. Colin.

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Vayssière, Bertrand. *Vers une Europe fédérale ? Les espoirs et les actions fédéralistes au sortir de la Seconde Guerre mondiale*. Vol. 36. Peter Lang, 2007.

Chapitre 2

Gouanvic, J. M. (1994). La traduction et le devenir social: le cas de l'irruption de la science-fiction américaine en France après la Seconde Guerre mondiale. *TTR: traduction, terminologie, rédaction*, *7*(1), 117-152.

Prost, A. (2001). La démocratisation de l'enseignement en France depuis la Seconde Guerre mondiale. *Schweizerische Zeitschrift für Bildungswissenschaften*, *23*(1), 73-94.

Willequet, J. (1967). Les fascismes belges et la seconde guerre mondiale. *Revue d'histoire de la Deuxième Guerre mondiale*, *17*(66), 85-109.

Chapitre 3

Bonneuil, C. (2005). Les transformations des rapports entre sciences et société en France depuis la Seconde Guerre mondiale: un essai de synthèse. Dans *Actes du colloque Sciences, médias et société, Lyon, ENS-LSH* (pp. 15-40).

Mounier-Kuhn, P. É. (2010). L'informatique en France de la seconde guerre mondiale au Plan Calcul. *L'émergence d'une science, Doctorat de l'Université Paris-Sorbonne*.

Fig 16. *Bibliography by chapter (Author)*

1.3.4.d. Bibliography in order of appearance in the text: Another method of organizing a bibliography is to list references according to the order in which they first appear in the text. Figure 17 presents an example of bibliography organization according to the order of appearance in the text using the Vancouver style.

Bibliographie

1. Akpo-Vaché, C. (1996). *L'AOF et la Seconde Guerre mondiale: la vie politique, septembre 1939-octobre 1945*. KARTHALA.
2. Daeffler, M., Leleu, J. L., Passera, F., & Quellien, J. (2010). *La France pendant la Seconde Guerre mondiale,* atlas *historique*(pp. 336). Fayard, Ministère de la Défense.
3. Faligot, R., Guisnel, J., & Kauffer, R. (2013). *Histoire politique des services secrets français: de la seconde guerre mondiale à nos jours*. la Découverte.
4. Hamel, Y. (2006). *La bataille des mémoires: la Seconde Guerre mondiale et le roman français*. PUM.
5. Kreissler, F. (1989). *L'Action culturelle allemande en Chine de la fin du 19e siècle à la Seconde* Guerre *mondiale*. Les Editions de la MSH.
6. Lacroix-Riz, A. (1996). *Le Vatican, l'Europe et le Reich: de la Première Guerre mondiale à la guerre froide*. Colin.

Fig 17. *Example of Bibliography Organization According to the Order of Appearance in the Text*

This approach is commonly used in scientific and medical writing, particularly with the Vancouver citation style. In the Vancouver system, each reference is assigned a number when it is first cited in the text. The same number is reused whenever the source is cited again. Consequently, the bibliography is presented as a numbered list that follows the sequence of citations in the document rather than alphabetical order. This method simplifies in-text citation and improves the readability of scientific documents by reducing lengthy author-date references within the text.

1.3.5. How presenting a bibliography

There are three main systems used to cite references in academic and scientific writing: (a) the Harvard system, (b)the Vancouver system, and (c) the mixed system (Chassé, 1997; Lipson, 2011).

1.3.5. a. The Harvard system: also known as the alphabetical system, presents references alphabetically in the bibliography without numbering them. In-text citations include the surname of the first author followed by the year of publication, for example: (DAICH, 2025). This method is widely used because it is simple, natural, and practical during the writing process.

1.3.5. b. The Vancouver system: also called the numerical system, organizes references according to the order in which they appear in the text, regardless of alphabetical order. Each reference is assigned a number when first cited, and the same number is reused for subsequent citations of the same source. This system is commonly used in scientific, medical, and English-language journals because it simplifies citations and improves the readability of the text.

1.3.5. c. The mixed system: combines the characteristics of both alphabetical and numerical systems. In this approach, references are arranged alphabetically in the bibliography while also being assigned numbers used for in-text citations. This system is frequently adopted in French-language journals because it provides both structured organization and concise referencing. However, the numbering is generally finalized at the end of the writing process. Table 8 presents a comparison of references using the three citation systems.

Table 9. *Comparison of Reference Citation Systems*

Citation System	Example of In-Text Citation	Example in the References Section
Harvard System (Alphabetical)	(Smith, 2021)	SMITH, John. *Research Methodology*. Springer, 2021.
Vancouver System (Numerical)	[1]	1. SMITH, John. *Research Methodology*. Springer, 2021.
Mixed System	[3]	[3] SMITH, John. *Research Methodology*. Springer, 2021.

1.3.6. Citation standards by document type

***1.3.6. a. Journal article*:** When citing a journal article with more than three authors, it is generally recommended to list only the first three authors followed by the abbreviation “et al.” (meaning “and others”). This approach simplifies the reference while still acknowledging the collaborative nature of the work. If the article is written by a corporate or collective author, such as an institution, organization, association, or standardization body (e.g., AFNOR or WHO), the name of the organization should be cited as the author.

1.3.6. b. **Monographs:** If there are more than three authors, list only the first three followed by "et al." If the author(s) are corporate or corporate authors (e.g., AFNOR), list them as authors, but with the acronym in lowercase. If the author is a scientific editor, list them as an author and add the abbreviation "Ed." after the editor's name(s).

Last Name First Name. Title of the work. NthEdition. Volume number. Place of publication: Publisher, year of publication, number of volumes, number of pages. (Series name; number in the series)

- Parts of Monographs:

Last Name, First Name. Chapter Title. In: Last Name, First Name (if different author). Title of the work. Place of publication: Publisher, year of publication, number of volumes, number of pages. (Series name; number in the series)

1.3.6. c. **Congress:**

Congress title (session number; session year; congress venue). Congress title. City of publication: Publisher, year of publication, number of pages

1.3.6. d. **Thesis:**

Surname, first name. Title of the thesis. Discipline. Place of defense: University of defense, year of defense, number of pages.

1.3.6. e. **CD-ROM, DVD-ROM AUTHOR:**

- Title [CD-ROM] 2 Place of publication: Publisher, year of publication.

1.3.6. f. **Cite an internet resource**

- Blog page:Author(s)'s Last Name, First Name. Blog Post Title. Blog Title [online]. Publication Date. [Accessed Date]. Available at: URL PECCATTE, Patrick. Robert Capa's D-Day Photographs – Another Story and New Interpretations. Déjà Vu [online].

June 24, 2015. [Accessed July 4, 2016]. Available at: http://dejavu.hypotheses.org/2298

- Web page:Author's Last Name, First Name. Title of Contribution. Title of Website [online]. Publication Date. [Accessed Date]. Available at: UR
- Website:Author(s)'s Last Name, First Name. Website Title [online]. (Website creation date, update date). [Accessed date]. Available at: URL Example: MINISTRY OF THE INTERIOR. Directorate of Road Safety and Traffic [online]. (Updated April 30, 2015). [Accessed June 9, 2015]. Available at: http://www.securite-routiere.gouv.fr

1.3.6. g. Cite a legal resource

- A law:Title of the law. Date of publication or last modification. Article of the law. Example: Law No. 2007-1199 of August 10, 2007 relating to the freedoms and responsibilities of universities. August 10, 2007.
- A Code article:Title of the code. Article number. Example: Intellectual Property Code - Article L1211.
- A decree, an order, a circular:Name of the authoring institution. Title of the text. Publication date.
- A legal precedent:NAME OF THE AUTHORIZING BODIES. Date, Request No.

1.3.6. h. Cite technical documentation

- Patent:Name of inventor or patent holder, First name. Patent title [online]. Patent number. Patent date. Date accessed. Available at: URL.
- Standard:PUBLISHER OF THE STANDARD. Title of the standard. Reference of the standard. Place of publication: commercial publisher, year of publication, number of pages.

1.3.6. i. Cite a map

- In printed format: Last Name, First Name. Map Title and Scale: Location. City of Publication: Publisher, Year of publication
- In digital format:Last Name, First Name. Map Title and Scale: location [online]. City of Publication: publisher, year of publication. [Date accessed]. Available at: URL.

1.3.6. j. Cite an illustration, a graph, a photograph, etc…

- In printed formats:

- In printed format:Name, Surname. Image title. (Year of image) [Image type].
- In printed format (in a magazine):Last Name, First Name. Image Title. (Image Date) [Image Type]. Journal Title. Publication Date. Volume, Issue Number, Page Numbers.

- In printed format (in a book):Last Name, First Name. Image Title. (Image Date) [Image Type]. In: Last Name, First Name. Book Title. Volume Number. Edition Information. Place of Publication: Publisher, Publication Date. Chapter Page Numbers. (Series Title, Number in Series)

- ***In digital formats:***

- In digital format in a journal:Last Name, First Name. Image Title. (Year of Image) [Image Type]. Journal Title [online]. Publication Date. [Accessed Date].
- In digital format in a book: Last Name, First Name. Image Title. (Image Date) [Image Type]. In: Last Name, First Name of Author(s). Title of Work. Volume Number [online]. Edition Information. Place of Publication: Publisher, Year of Publication. Chapter Page Numbers. [Date Accessed]. (Series Title, Number in Series). Available at: URL.
- In digital format from a website: Last Name, First Name. Image Title (Image Date). [Image Type]. In: Website Title [online]. Year of Publication or Update [Accessed Date]. Available at: URL

1.3.7. Annotation bibliographies

An annotation is a brief summary and/or critical evaluation of a source (see Figure 18). Therefore, an annotated bibliography not only lists references but also provides descriptive and analytical comments for each source. Depending on the objectives of the research or assignment, annotations may include one or more of the following elements:

- Summary: presenting the main ideas, arguments, objectives, and topics covered in the source. It explains what the book, article, or document is about and highlights its key contributions.
- Evaluation: assessing the quality, reliability, relevance, and objectivity of the source. This may involve comparing it with other references, identifying possible biases, and determining its usefulness for the research topic.
- Reflection: explaining how the source contributes to the research project. It may describe how the reference supports the researcher's argument, influences their understanding of the topic, or helps shape the direction of the study.

Annotated bibliographies are valuable tools in academic research because they encourage critical reading and deeper analysis of sources rather than simple information collection. They also help researchers identify existing debates, build a strong research argument, and develop a clear and

well-supported thesis. In addition, annotated bibliographies can serve as useful resources for other researchers by providing an organized overview of the literature related to a specific topic.

The format of an annotated bibliography may vary depending on academic requirements and citation styles such as APA or MLA. In general, each entry contains two main parts:

- The bibliographic reference, including details such as the author, title, publisher, and publication date, formatted according to the required citation style.
- The annotation, written in paragraph form, which may include a summary, evaluation, and reflection on the source. The length of annotations can vary from a few sentences to several paragraphs depending on the depth of analysis required and the purpose of the bibliography.

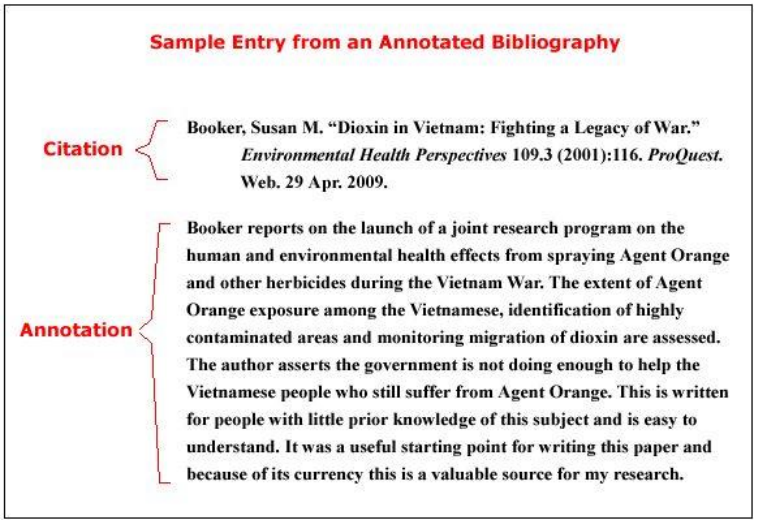


Fig 18. *Example of an Annotation bibliography*

1.3.8. Steps to Write a Bibliography

Writing a bibliography may seem difficult at first, but following a clear and organized method can make the process much easier. A bibliography should be accurate, consistent, and written according to the required citation style (Neville, 2016; Chassé, 1997). The following steps provide a practical guide for preparing a bibliography in academic work.

1.3.8.a. Choose the Appropriate Citation Style

Before writing the bibliography, it is essential to identify the referencing style required by the institution, publisher, or academic discipline, such as APA, MLA, Chicago, Harvard, or Vancouver. Each style follows specific rules concerning the order of information, punctuation, capitalization, use of italics, and in-text citation format. Selecting the appropriate style at the beginning of the research process helps maintain consistency throughout the document and avoids

time-consuming corrections later. Researchers should also consult official style guides or institutional recommendations to ensure compliance with academic standards.

1.3.8.b. Collect and Record Sources

During the research and writing process, researchers often consult various sources such as books, journal articles, conference proceedings, theses, reports, websites, and online databases. It is important to systematically record all bibliographic information for every source consulted. The collected information generally includes: Author(s) name(s), Title of the document, Publisher or journal name, Publication year, Volume and issue number, Page numbers, DOI or URL for online sources, Date of access for web documents if required Keeping accurate notes during the research stage prevents the loss of important information and facilitates the preparation of references later. Bibliographic management software such as Zotero, Mendeley, or EndNote can also help organize references efficiently.

1.3.8. c. Create References for Each Source

Once the necessary information has been collected, each source must be transformed into a properly formatted bibliographic reference according to the selected citation style. Researchers should ensure that all elements are presented in the correct order and with the appropriate punctuation and formatting conventions. Special attention should be given to details such as:

- The correct spelling of authors' names
- The use of italics for book and journal titles
- Capitalization rules
- Accurate publication dates
- Proper citation of electronic sources
- Carefully prepared references improve the credibility and professionalism of academic work.

1.3.8.d. Organize and Format the Bibliography

After preparing all references, the bibliography must be organized according to the chosen citation system. In most academic styles, references are arranged alphabetically by the surname of the first author. However, some systems, such as Vancouver, organize references according to the order of appearance in the text. The formatting of the bibliography should remain uniform throughout the document. Researchers should verify:

- Consistency in font style and size
- Proper indentation and spacing

- Uniform use of italics and quotation marks
- Consistent punctuation and abbreviations
- Correct numbering if a numerical citation style is used

1.3.8.e. Proofread and Verify Consistency

The final step is to carefully proofread the bibliography to ensure accuracy, completeness, and consistency. Researchers should review every reference to confirm that all required information is included and correctly formatted according to the chosen citation style. Particular attention should be paid to:

- Spelling errors in authors' names and titles
- Missing publication details
- Incorrect dates or page numbers
- Inconsistencies in formatting or punctuation
- Broken or incomplete URLs for online sources

Chapter 2:

Desertation Design and Redaction

INTRODUCTION

Dissertation design and writing constitute essential stages in academic and scientific research. A dissertation is not only a document presenting research results, but also a structured and rigorous process that demonstrates the student's ability to analyze a problem, organize ideas, apply an appropriate methodology, and communicate findings clearly and scientifically.

This chapter introduces the fundamental principles of dissertation design and redaction. It explains the definition, purpose, and objectives of a dissertation, as well as the main stages involved in its preparation. Particular attention is given to topic analysis, problem formulation, dissertation planning, and the different organizational models commonly used in academic writing.

The chapter also presents the major components of a dissertation, including the introduction, literature review, methodology, results, discussion, recommendations, and conclusion. In addition, it highlights essential writing techniques and academic standards related to formatting, typography, punctuation, and the presentation of the cover page. by mastering these elements, students and researchers can produce a coherent, rigorous, and well-structured dissertation that meets academic and scientific requirements.

2.1. DISSERTATION DESIGN

2.1.1. Definition

The term "dissertation" is a noun derived from the verb "to dissert," which means to think deeply about an idea and present one's point of view in a clear, logical, and organized way (Audet et al., 2023). To dissert is to develop a subject methodically through analysis, explanation, and argumentation in order to convince the reader and communicate a personal perspective effectively (Herrington et al., 2007). Therefore, a dissertation can be defined as a structured and reasoned piece of writing on a literary, social, philosophical, religious, historical, economic, political, or scientific subject. Its main objective is to examine a problem or answer a specific question by using critical thinking, coherent organization, systematic discussion, and well-supported arguments A successful dissertation demonstrates the writer's ability to analyze ideas, present evidence, compare viewpoints, and develop a thoughtful conclusion while maintaining clarity, coherence, and logical progression throughout the text.

2.1.1. a. Purpose of a Dissertation

The main purpose of a dissertation is to develop the ability to argue and express ideas in a clear, logical, and structured manner about a given subject, with the aim of convincing the reader through the validity and strength of the presented opinion. Therefore, the writer must defend their point of view using evidence, facts, examples, quotations, and logical arguments. A dissertation also helps improve critical thinking, analytical skills, and written communication.

2.1.1.b. Objectives of a Dissertation

A dissertation aims to develop the personality, expression, and sensitivity of the student or graduate. In practice, it helps learners acquire the ability to develop a subject in a logical and methodical way while presenting personal ideas and reflections on a given topic (Grant and Osanloo, 2014). It also teaches how to prove and defend an argument, convince others, and gain support for one's opinions by presenting strong positive arguments and refuting opposing ones. Furthermore, regular practice of dissertation writing improves the ability to understand a subject, react thoughtfully to different situations, and express ideas clearly and effectively. As the saying goes, *"Practice makes perfect."*

2.1.2. Dissertation Steps

A good dissertation plan begins with a deep and complete analysis of the topic in order to fully understand its meaning, its limits, and the issues it raises. This step is essential because it determines the direction of the whole work. Without a clear understanding of the subject, the dissertation risks going off-topic or becoming unstructured. The research question (problematic) and the outline are therefore developed together, since each one influences the other and ensures the coherence of the final argument. Depending on the nature of the subject, different types of plans can be used, such as the dialectical plan (thesis/antithesis/synthesis), the thematic plan, or the analytical plan. The ideas must always be organized in a logical sequence, moving gradually from simple observations to deeper analysis, so that the reader can easily follow the reasoning. In general, a dissertation can be realized by following three steps (Biggam, 2018, Herrington et al., 2007).

2.1.2. a. Analyzing the Dissertation Topic

The first stage consists of carefully analyzing the topic, which is the foundation of the entire dissertation. At this point, the student should take time to break down the subject into its key terms and understand their precise meanings. Each word in the topic is important because it may limit, orient, or specify the expected answer. After defining the terms separately, it is necessary to analyze how they interact together: do they complement each other, oppose each other, or create a tension that must be resolved? This step helps to reveal the true meaning of the topic beyond its surface. At this stage, brainstorming is highly recommended. The student should write down all ideas that come to mind, including theoretical knowledge from courses, real-life examples, historical facts, or relevant quotations. Even ideas that seem secondary at first can become useful later when building arguments. It is also important to identify the scope of the topic: what is included and what is excluded? This prevents misunderstandings and helps avoid irrelevant content. To guide the reflection, several key questions can be asked: What is the main issue behind this topic? Why has it been proposed? What are the possible difficulties or traps that could lead to a misunderstanding? What knowledge do I already have that can help me respond effectively? By answering these questions, the student gradually builds a strong foundation for the dissertation.

2.1.2. b. Formulating the Problematic in a Dissertation

Once all your ideas are organized in the draft, it is time to focus on the problematic. In reality, there are several ways to formulate a problematic depending on the subject area and the nature of the topic.

- What is the answer to the question posed by the topic?
- By asking this question, you are trying to identify the key elements that lead to the answer. It is through these elements that a clear and relevant problematic emerges.

2.1.2.c. Constructing the Dissertation Plan

Once you have a clear problematic and well-organized ideas, you can move on to the third step: constructing the dissertation plan. The plan is not a random list of ideas placed one after another; it is a carefully structured and precise work. As you may already know, there are several types of dissertation plans, depending on the subject and the academic field. Whether you are preparing for exams in high school, law, philosophy, or other disciplines, it is important to understand how to organize your argument logically.

1.1.2.d. The Anglo-Saxon Plan in a Dissertation

The Anglo-Saxon plan is commonly used when writing an essay in English or in a foreign language, especially on social issues where the writer is required to express a personal opinion. This type of plan is mainly based on argumentation and the clear presentation of a structured personal position. It generally follows three main stages developed in a logical progression (Jegede et al., 2020; Hitimana, 2015).

First, the writer presents viewpoints that are opposed to their own. In this stage, different opinions are introduced and explained in a fair and objective way, showing why these ideas are understandable, reasonable, or acceptable. This demonstrates that the writer is aware of multiple perspectives on the issue and can critically analyze them without bias. Then, the writer develops their own position in detail. This involves explaining why their point of view is more convincing, stronger, and better supported by arguments, facts, and evidence. At this stage, the reasoning is reinforced through clear explanations, comparisons, and examples in order to justify the chosen position. Finally, the essay concludes with a synthesis of the discussion. The writer summarizes the main arguments presented throughout the essay and clearly restates their final opinion. This conclusion provides a coherent and well-structured ending, reinforcing the overall reasoning and ensuring clarity for the reader.

2.1.3. Other Types of Dissertation Plans

There are several types of dissertation plans, and the choice depends on the subject, the discipline, and the nature of the question. Each plan provides a specific way of organizing ideas in order to ensure clarity, coherence, and logical progression in the argumentation.

2.1.3. a. The Thematic Plan

The thematic plan is used when the subject can be divided into several independent but complementary aspects or themes. It is particularly common in literature, history, and social sciences, where a phenomenon can be analyzed from different perspectives. In this type of plan, each part focuses on one main theme, allowing a detailed and structured development of ideas. The order of the themes is important because it often goes from the most general idea to the most specific or from the most important to the least important, depending on the logic of the argument.

For example, a topic about "the role of culture in society" could be organized into:

- Cultural identity and traditions
- The influence of globalization on culture
- The role of media and technology in cultural change

Each section develops a distinct dimension of the subject while contributing to a global understanding of the issue.

2.1.3.b. The Analytical Plan

The analytical plan is used when the goal is to study a problem in depth and explain its structure. It is often used in history, geography, sociology, and other human sciences. This plan helps to clearly understand a situation by breaking it into logical components. It generally follows a progression from observation to explanation and evaluation:

- The problem or situation: What is happening? What is the main issue?
- The causes: Why is this situation happening? What are its origins?
- The consequences: What are the effects or impacts of this situation?

This type of plan is very useful for case studies because it allows a complete and structured understanding of complex phenomena. It also helps the writer move from description to explanation in a clear and scientific way.

2.1.3. c. The Chronological Plan

The chronological plan is used when time plays an essential role in understanding the subject. It is particularly important in history, political studies, and literary evolution, where events must be analyzed in their historical sequence.This plan organizes ideas according to a timeline, showing how a situation develops step by step. It allows the reader to understand continuity, change, and evolution over time.

For example, if the subject is “The evolution of modern architecture”, the plan can be organized chronologically as follows:

- 19th century: The industrial revolution and new materials: This period marks a major turning point in architecture with the use of iron, steel, and glass. Engineers and architects begin to design large structures such as train stations, bridges, and exhibition halls. Architecture becomes more functional and influenced by industrial progress.
- Early 20th century: The birth of modern architecture: This stage is characterized by the rejection of traditional ornamentation and the rise of functionalism. Architects such as Le Corbusier develop new principles based on simplicity, geometry, and efficiency. Buildings are designed to respond to modern life and urban needs.
- Late 20th century to contemporary architecture (Innovation and experimentation) : This period is marked by technological innovation, digital design, and new forms of expression. Architects such as Zaha Hadid introduce fluid, dynamic, and non-linear forms. Sustainability and environmental concerns also become central in architectural design.

1.2.4. Dissertation Plan and Stages

A dissertation follows a clear and logical organization that allows the reader to understand the work from its objectives to its final results. Although some sections are written after completing the main research, they are arranged in a fixed academic order in the final document, as follows:

1) Define and delimit the subject (Summary)
2) Problem statement and objectives of the dissertation
3) Other useful sections (Acknowledgments, Table of Abbreviations…)
4) The introduction (Writing the introduction last)
5) State of the specialized literature
6) Formulation of hypotheses
7) Methodology
8) Results
9) Discussion
10) Recommendations
11) Conclusion and outlook
12) The table of contents
13) The bibliography
14) The appendices

Certain parts of the writing such as: The summary, the introduction, the acknowledgments, the dedications, the table of contents, the bibliography and the appendices are written after the completion of the main work of the thesis.

However, in the document presentation they are located at the beginning and the end in an established order on which many authors agree.

The summary (the abstract), the introduction and the conclusion are sufficient to give information about the work done and its outcome (about the results obtained).

Regardless of the type of study (simulation, implementation, comparison, etc.), the reader or examiner must have a clear understanding of the work accomplished, in relation to the topic.

1.2.5. Approach to the work of a dissertation

1.2.5.a. Theme

Within the given theme, the student must first identify the key specialized terms of the field that will guide the bibliographic research, whether through books, the Internet, or scientific articles. The association of this prior knowledge, keywords, expressions, data, and concepts, with the terms of the topic helps broaden the research scope and enrich the amount of relevant information collected.

- *Example: Topic: Sustainable architecture and urban development in 2050*:

Additional keywords for research may include: energy efficiency, green buildings, passive design, smart cities, carbon footprint, building materials, urban density, thermal comfort, renewable energy integration, and climate-responsive architecture.

It is essential to carefully analyze both the form and the content of the subject, and especially to avoid starting the writing process immediately in order to prevent misunderstandings and properly delimit the topic. Therefore, the following steps should be respected:

Take sufficient time to analyze the subject both in a general and detailed way. Every term in the statement is important, as well as the way the subject is formulated. Each word or expression must be questioned:

- What does it refer to?
- What does it imply?
- What does it suggest or assume?

- What does it explicitly say?
- What does it not say?
- To which linguistic or semantic field does it belong?
- What are its specific characteristics?

Write down all initial ideas on paper (brainstorming), including any questions, information, dates, events, references, or examples that come to mind. This is a research phase, so all relevant ideas can be noted freely, including literary or artistic examples if they are appropriate to the subject. Organize and structure the collected ideas after carefully selecting what is strictly relevant to the topic. This step leads to the creation of a detailed outline, often presented in the form of a table, which will serve as the foundation for the dissertation plan.

1.2.5.b. Introduction

It is recommended to adopt a neutral academic style when writing a dissertation. The use of the first-person singular ("I") must be avoided, and replaced by more appropriate academic forms such as the first-person plural ("we"), for example "we will examine…", or the impersonal pronoun ("one"), as in "one can observe…". It is also possible to use impersonal structures such as "it is possible to observe…" or the passive voice, for example "it is widely accepted that…", in order to maintain objectivity and clarity in academic writing (Dianala, 2025).

Certain expressions are strictly inappropriate in a dissertation because they introduce subjectivity or informality. Phrases such as "to conclude, I would like to say…", "I have chosen…", "I think this topic is interesting…", or "in my opinion…" must be avoided. Similarly, personal references, emotional judgments, or autobiographical statements such as "I studied that…" or "I intend to tell…" are not acceptable in academic work. A dissertation must remain objective, analytical, and based on facts rather than personal impressions or feelings.

It is also important not to comment on the writing process itself within the dissertation. Expressions such as "in a dissertation, one must…" or "I will conclude…" are not appropriate, as the examiner is already familiar with the methodology. The text should focus entirely on analysis and argumentation without explaining how the dissertation is being written.

Furthermore, the introduction of a dissertation has several important functions. First, it presents the subject by introducing the general context and defining the main topic that will be studied. Second, it identifies a line of reflection or an analytical approach to the subject, allowing the reader to understand the direction of the discussion. Finally, it briefly announces the different perspectives

and main parts that will be developed throughout the dissertation, helping the reader understand what will be examined in the following sections (Biggam, 2018).

A dissertation introduction should not tell a story in a narrative style like a novelist would do. Instead, its purpose is to explain, analyze, and clarify events, ideas, or phenomena in an academic and objective way. Explanation and analysis require asking important questions such as: Why? How? To what extent? or In what way?

The introduction must therefore highlight a clear problematic, which means identifying a central line of reflection and developing it throughout the dissertation. After carefully analyzing the subject, the writer should ask several important questions in order to define the direction of the work:

- What do I want to demonstrate in this dissertation?
- What is the main idea that will be discussed throughout the analysis?
- Which points or aspects will be developed?

The introduction of a dissertation must include three main parts: (1) context, (2) problematic, and (3) plan:

- The first phase consists of contextualizing the subject by placing it within its historical, social, scientific, or cultural context and giving a general overview of the situation. This part provides essential background information about the topic and helps the reader understand the framework of the discussion. To achieve this, the writer may ask several guiding questions such as: What is the topic about? What is the definition of the main concepts? During which period does the subject take place? What events or circumstances were occurring at that time? Who or what is concerned by the topic? Where does it take place? What was the situation during that period? These questions help establish a solid and informative introduction to the subject.
- The second phase of the introduction focuses on analyzing and questioning the subject. At this stage, the writer must identify the issues, assumptions, and questions raised by the wording of the topic. From this analysis emerges the problematic, which represents the central question or line of reflection that will guide the dissertation. This problematic may appear in either interrogative or affirmative form through expressions such as: How…?, To what extent…?, What were the causes, consequences, or influences of…?, This raises the problem of…, or This leads us to question…. The purpose of this phase is to define the main issue that the dissertation will address and analyze.

- The third phase of the introduction consists of announcing the structure or plan of the dissertation. The writer must clearly and briefly present the major parts that will be developed throughout the work while showing their logical organization and hierarchy. This announcement should remain concise and synthetic. Transitional expressions are commonly used, such as: First…, Then…, Finally…, or In a first stage… In a second stage… In a third stage…. At this point, the use of "we" with the future tense is appropriate to introduce the different sections of the dissertation. For example: We will first examine…, We will then analyze…, We will study…, We will demonstrate that…, or We will analyze…. This final part allows the reader to clearly understand the organization and progression of the dissertation.

We conclude that the introduction of a dissertation generally follows a clear and structured organization composed of three essential elements:

1. Context – presenting the subject and its general background.
2. Problematic – identifying the main question or issue to be analyzed.
3. Plan – announcing the main parts that will be developed in the dissertation.

- **Example of an Introduction Structure in a Dissertation about Construction Project Management:**

1. *Context:* The construction sector has become increasingly complex due to rapid urban development, technological innovation, sustainability requirements, and growing economic constraints. Modern construction projects involve multiple stakeholders such as architects, engineers, contractors, and clients, making coordination and communication essential. In addition, construction projects often face challenges related to deadlines, budget control, material management, safety regulations, and quality assurance. As a result, effective construction project management has become a key factor in ensuring the success and efficiency of projects.
2. *Problematic:* This situation raises several important questions concerning the organization and management of construction projects. Delays, cost overruns, lack of coordination, and technical problems frequently affect project performance and final quality. Therefore, the following problematic can be formulated:

   - How can effective project management improve the success of construction projects?

- To what extent can planning, coordination, and communication reduce construction risks?
- What strategies can be implemented to improve cost, time, and quality management in construction projects?
- These questions guide the reflection and analysis developed throughout the dissertation.

3. *Plan:* To answer these questions, the dissertation will be organized into three main parts:

- First, we will examine the fundamental principles and objectives of construction project management, including planning, scheduling, budgeting, and resource management.
- Then, we will analyze the main challenges encountered during project execution, such as delays, financial constraints, technical difficulties, safety issues, and communication problems between stakeholders.
- Finally, we will study different strategies and management tools that can improve project performance, coordination, efficiency, and overall construction quality.

2.1.5.c. State of the art

The state of the art, also called the review of specialized literature, is an essential part of any dissertation or thesis. It is generally recognized as a bibliographic and documentary research process carried out on the topic of study. Its main objective is to collect, analyze, and synthesize existing knowledge related to the research field in order to establish a solid theoretical and scientific foundation for the work (Ridley, 2012). All academic research must rely on information, theories, data, and previous studies related to the field of investigation. This information helps frame and guide the research by identifying the main concepts, methods, and issues associated with the topic. Through the literature review, the student demonstrates an understanding of the subject and situates their work within an existing body of knowledge.

In general, the student presents the results of documentary, scientific, and internet research within a dedicated chapter of the dissertation. This chapter gathers all the relevant information necessary for carrying out the study, including definitions, theories, case studies, statistics, technical data, previous experiments, and comparative analyses. These elements may also serve as references for developing hypotheses, supporting arguments, or comparing results obtained during the research process.

The state of the art is composed of information and data produced by researchers, authors, scientists, and specialists who have made their work available through books, scientific articles,

theses, dissertations, conference papers, and other academic publications. Therefore, every idea, quotation, theory, or piece of information borrowed from another author must be clearly identified and referenced. Academic integrity requires that the original author be cited directly in the text using an appropriate referencing system, for example: [1].

> *[1] Daich, S., Saadi, MY, Piga, B., & Daiche, AM (2021). A Combined Method for an Exhaustive Investigation of the Anidolic Ceiling Effect on Improving Indoor Office Daylight Quality: an Approach Based on HDR Photography and Subjective Evaluations. Journal of Daylighting, 8(2), 149-164.DOI: https://doi.org/10.1051/mattech/201400).*

At the end of the dissertation, each reference number corresponds to a complete bibliographic citation including:

- the author's name,
- the title of the document,
- the journal, book, thesis, or dissertation title,
- the publisher or institution,
- and the publication date.

The literature review is not simply a collection of information; it is also an analytical and critical task. The student must compare sources, identify similarities and differences between studies, highlight limitations in previous research, and determine the originality of their own work. In many cases, the richness, relevance, and novelty of the state of the art are important criteria for evaluating the quality and seriousness of the dissertation or thesis project.

- **Example: Example of a State of the Art on Construction Project Management**

The state of the art on construction project management consists of reviewing and analyzing previous studies, theories, and professional practices related to the planning, organization, and execution of construction projects. This literature review allows the student to understand the evolution of project management methods, identify the main challenges faced in the construction industry, and determine the strategies proposed by researchers and professionals to improve project performance.

Several authors have emphasized that effective project management is essential for controlling costs, respecting deadlines, ensuring quality, and coordinating stakeholders involved in construction projects. According to Henry Gantt, planning and scheduling tools play a fundamental role in project organization, particularly through the development of the Gantt chart, which

remains widely used in construction management today. Other researchers have highlighted the importance of communication, risk management, and teamwork in reducing delays and improving efficiency on construction sites.

The literature also shows that many construction projects encounter recurring problems such as budget overruns, delays in execution, lack of coordination between participants, safety risks, and technical difficulties. Recent studies focus on innovative solutions including Building Information Modeling (BIM), digital management systems, sustainable construction methods, and integrated project delivery approaches. These technologies aim to improve collaboration, optimize resource management, and increase project quality and sustainability.

2.1.5.d. Formulation of the Problem Statement and Hypotheses

Formulating the research problem and hypotheses is one of the most important stages in preparing a dissertation, thesis, or scientific research project. This stage guides the entire research process because it defines the direction, objectives, and limits of the study. It is not simply a matter of choosing a topic, but rather of identifying a real problem, asking the right questions, and formulating logical assumptions that can be analyzed and tested scientifically. A research problem generally begins with the observation of an existing situation that presents difficulties, limitations, contradictions, or unresolved issues. This situation is called the starting situation. The researcher then identifies a desired situation or expected improvement, referred to as the target or ending situation. The role of the research is to determine how the transition from the current situation to the desired one can be achieved and whether the proposed solutions are realistic and effective.

The problem statement must therefore be expressed clearly, precisely, and logically, often in the form of a question requiring analysis and demonstration. A good problem statement should not be too broad or too vague; it must focus on a specific issue related to the research field. It should also raise questions concerning causes, consequences, methods, efficiency, feasibility, or performance. Examples of problem statements include:

- How can sustainable materials improve energy efficiency in buildings?
- To what extent does project management affect construction quality and project deadlines?
- What are the main causes of urban heat islands in modern cities?

The desired outcome of the research is usually associated with questions of feasibility, applicability, or effectiveness. The researcher seeks to determine whether the expected results are

logical, achievable, measurable, and satisfactory. This requires collecting information, analyzing data, comparing theories, and evaluating practical results. In this context, hypotheses become essential tools for structuring the research. A hypothesis is a provisional assumption or tentative explanation proposed by the researcher to answer the research question. It represents a possible relationship between variables or a potential explanation of a phenomenon. Hypotheses must be logical, clear, testable, and directly related to the problem statement. They guide the methodology and help organize the research process. For example:

- The use of Building Information Modeling (BIM) improves coordination between construction stakeholders.
- Green roofs contribute to reducing urban temperatures and improving thermal comfort.
- Delays in construction projects are mainly caused by poor planning and communication failures.

The purpose of the research is to verify whether these assumptions are confirmed or rejected through observation, experimentation, simulation, surveys, or analytical methods. An important principle in scientific research is that all results, including negative results, are valuable. Many researchers mistakenly believe that only positive results are useful, whereas scientific progress also depends on identifying ineffective solutions, incorrect assumptions, or impossible approaches. In hypothesis-based research, the findings may demonstrate that a proposed solution does not work, that the assumptions are inconsistent, or that the expected results cannot be achieved under certain conditions.

However, such conclusions remain extremely important because they prevent future researchers from repeating the same unsuccessful attempts. Negative findings help save time, effort, and financial resources by indicating which research paths are ineffective. They also contribute to improving scientific understanding by refining theories, correcting assumptions, and identifying new directions for future studies. In many cases, research does not completely reject a hypothesis but instead modifies or refines it. Scientific knowledge evolves progressively through questioning, testing, verification, correction, and reinterpretation of ideas. Therefore, research should not be viewed only as a search for confirmation, but also as a process of exploration and critical analysis aimed at advancing knowledge and improving understanding within a specific field.

For example, in construction project management research, a hypothesis may initially state that digital management tools significantly reduce construction delays. After conducting the study, the results may reveal that digital tools improve communication but are ineffective without proper

training and organizational coordination. In this case, the original hypothesis is partially corrected rather than completely rejected, leading to a more precise understanding of the issue.

Ultimately, the formulation of the problem statement and hypotheses constitutes the intellectual foundation of the dissertation. It structures the research, defines its objectives, guides the methodology, and determines the interpretation of the results. A well-formulated problem and coherent hypotheses are therefore essential for producing rigorous, relevant, and scientifically valuable research.

2.1.5.e. Methodology

Methodology refers to the set of methods, techniques, tools, and procedures used to carry out the actual work of a dissertation or thesis. It explains how the research is conducted in order to achieve the objectives of the study and obtain reliable and scientifically valid results. In other words, the methodology describes the practical and analytical approach followed by the researcher throughout the research process (Kumar, 2019; Creswell & Creswell, 2023). The choice of methodology depends largely on the nature of the research work. A study may involve simulation, experimentation, implementation, comparison, field investigation, case studies, modeling, surveys, or analytical evaluation. Each type of research requires specific methods, tools, and procedures adapted to the objectives and characteristics of the study. The methodology section generally explains:

- the type of research carried out,
- the methods used for data collection,
- the instruments and tools employed,
- the techniques of analysis and characterization,
- the software or technologies used,
- and the process followed to obtain and interpret the results.

A well-developed methodology allows readers and examiners to understand how the research was performed and evaluate the reliability and validity of the findings. For example, in a dissertation related to construction project management, the methodology may include:

- collecting data from construction companies through interviews or questionnaires,
- analyzing project schedules and cost reports,
- comparing case studies of successful and delayed construction projects,

- and using project management software such as Microsoft Project or Primavera P6 to evaluate planning and resource management performance.

In architecture and urban planning studies, the methodology may involve:

- site analysis and field observations,
- environmental measurements,
- analysis of architectural drawings and urban maps,
- simulation of thermal or energy performance,
- and the use of specialized software such as AutoCAD, Revit, or SketchUp.

For instance, a study on thermal comfort in residential buildings in hot and arid climates may use:

- temperature and humidity measurements inside buildings,
- comparison between traditional and modern construction materials,
- simulation software to evaluate energy consumption and heat transfer,
- and questionnaires to assess occupants' comfort levels.

In engineering or scientific research, methodology may also include laboratory experiments and characterization techniques. For example, a study on sustainable construction materials may involve:

- mechanical testing of materials,
- thermal conductivity measurements,
- microscopic analysis,
- and statistical processing of experimental data.

Similarly, in social sciences or management research, methodology may rely on:

- surveys and interviews,
- statistical analysis of collected responses,
- comparative analysis between groups or situations, and interpretation of qualitative or quantitative data.

The methodology section must also justify why certain methods or tools were chosen instead of others. The researcher should explain how these methods are suitable for answering the research problem and verifying the hypotheses. This demonstrates the scientific rigor and coherence of the study. Furthermore, methodology is closely related to the reproducibility of research. A clear and

detailed methodological description enables other researchers to repeat the same procedures, verify the results, or apply the same methods to similar studies.

2.1.5.f. The results

The results section is one of the most important parts of a dissertation or thesis because it presents the findings obtained during the research process. These results are the direct outcome of experiments, simulations, observations, measurements, analyses, surveys, or practical implementations carried out throughout the study. The purpose of this section is to present the collected data clearly, objectively, and accurately without excessive interpretation, which is generally developed later in the discussion section. Research results can take different forms depending on the nature of the study and the field of research. They may be:

- Empirical results, obtained through observations, surveys, questionnaires, interviews, or field investigations;
- Physical or experimental results, obtained through laboratory experiments, testing procedures, or technical measurements;
- Quantitative results, expressed numerically through values, percentages, dimensions, temperatures, energy consumption, statistical data, or performance indicators;
- Qualitative results, based on descriptions, observations, perceptions, comparisons, behaviors, or visual analyses;
- Observational results, obtained through optical microscopy, scanning electron microscopy, photographic analysis, or site observation;
- Practical or physical realizations, such as prototypes, architectural models, simulations, construction elements, or full-scale implementations.

The results must be presented in a structured and understandable way so that readers can easily interpret the information. For this reason, researchers commonly use different presentation formats such as: tables, graphs and charts, diagrams, images and photographs, maps and plans, models and prototypes, statistical representations, and simulation outputs.

In construction project management studies, results may appear in the form of:

- project scheduling diagrams,
- cost analysis tables,
- statistical evaluations of delays and risks,

- or comparative charts showing project performance before and after applying management tools.

Each result should generally be accompanied by comments or explanations placed directly below the table, graph, figure, or image whenever necessary. These comments help clarify the meaning of the presented data and highlight the most important observations without entering into deep interpretation. For example, the researcher may indicate trends, variations, anomalies, similarities, or significant differences observed in the results.

The presentation of results must remain objective and scientifically rigorous. The researcher should avoid subjective opinions or unsupported conclusions at this stage. Instead, the results should be presented clearly, accurately, and logically in order to prepare for the analytical discussion developed in the following section. A well-organized results section improves the readability and scientific quality of the dissertation. Clear presentation through visual supports such as graphs, images, and tables allow the reader to better understand the findings and evaluate the validity of the research outcomes. Ultimately, the results section demonstrates the effectiveness of the methodology and provides the factual basis for the conclusions and recommendations of the study.

2.1.5.g. Discussion

The discussion section of a thesis or dissertation is devoted to the scientific analysis and interpretation of the results obtained during the research. It may focus on all the different results presented throughout the study or concentrate mainly on the final outcome achieved. The purpose of this section is not only to describe the results, but also to explain their meaning, significance, implications, and relationship to the research problem and hypotheses.

In the discussion, the researcher must analyze the results critically and scientifically. This involves explaining why certain results were obtained, how they relate to the objectives of the study, and whether they confirm or reject the initial hypotheses. The discussion should demonstrate logical reasoning and provide accurate interpretations supported by data, theories, or references from the literature review. The researcher may also compare the obtained results with findings from previous studies or existing theories presented in the state of the art. Similarities and differences between studies should be identified and explained in order to evaluate the originality, reliability, and contribution of the research. When discrepancies appear, the researcher should attempt to justify them by considering methodological differences, environmental conditions, sample variations, technical limitations, or other influencing factors.

The discussion section also allows the researcher to highlight the strengths and limitations of the study. Certain results may reveal difficulties, unexpected findings, or constraints encountered during the research process. These elements must be addressed objectively and transparently, as they contribute to the scientific rigor and credibility of the work.

2.1.5.h. Recommendations

Recommendations are generally deduced from the results obtained during the research and are based on the analysis and interpretation of the findings. They represent practical, scientific, or methodological suggestions proposed by the researcher in order to improve existing practices, solve identified problems, or develop more effective approaches related to the subject of the dissertation or thesis. Recommendations may concern the improvement of methods and techniques, the optimization of procedures and systems, the adoption of new technologies, or the correction of limitations observed during the study. In academic and scientific research, recommendations are particularly important because they guide future studies and help other researchers continue exploring the topic. They may propose new directions of investigation aimed at refining, completing, expanding, or redirecting the work already carried out.

Recommendations also help identify the limitations of the study and suggest possible ways to overcome them in future research. Certain results may remain incomplete or restricted because of technical, financial, environmental, or methodological constraints. Future researchers can therefore build upon these conclusions to deepen the analysis, test new hypotheses, or apply different methodologies. In some situations, unexpected or negative results may even redirect research toward new perspectives and unexplored areas, contributing to scientific innovation and the advancement of knowledge. Ultimately, recommendations demonstrate that research is a continuous and evolving process in which each dissertation or thesis serves as a foundation for future developments and investigations.

2.1.5.i. Conclusion

The conclusion appears at the very end of the dissertation and represents the final synthesis of the research work. Its main purpose is to summarize the essential points that have been developed throughout the study and to provide a clear overview of the results, analyses, and arguments presented. It should briefly restate the research question, the objectives of the study, and the methodology used in order to remind the reader of the general framework of the research.

The conclusion must also present the main findings obtained during the study and explain their significance and implications for the field of research. It should synthesize what has been discussed, including the consequences, results, interpretations, or overall situation revealed by the analysis. In this way, the conclusion demonstrates how the dissertation answered the problematic and whether the hypotheses were confirmed, modified, or rejected. A good conclusion should remain relatively brief, concise, clear, and dynamic. It is not intended to become an additional chapter or introduce entirely new arguments, examples, or ideas that were not previously discussed in the dissertation. The writer must avoid presenting neglected points, forgotten information, or answers to questions that were not addressed earlier in the study. The conclusion must remain coherent and logically connected to the content developed throughout the dissertation.

However, the conclusion should also give the impression that the subject remains open to further reflection and investigation. Even if the topic has been analyzed and discussed, the researcher should show that additional perspectives, questions, or approaches could deepen the understanding of the subject. For this reason, the conclusion often opens new perspectives for future research by suggesting possible extensions of the study, new hypotheses, or related research areas. To write an effective conclusion, the researcher should ask several important questions after completing the dissertation:

- What have I demonstrated and analyzed in this dissertation?
- What conclusions or overall assessment can I draw from my explanations and results?
- What are the main outcomes of the research?
- Which aspects could still be further developed?
- What new problems or research questions are raised by this study?

The conclusion of a dissertation must generally include three main parts.

(1) it should summarize the main ideas and synthesize what has been developed throughout the dissertation. At this stage, the writer must provide a clear answer to the problematic introduced at the beginning of the work and clearly indicate that the dissertation is coming to an end. Expressions such as the following may be used:
   - In conclusion, we have seen that…
   - Ultimately, it appears that…
   - To conclude, it can be said that…
   - Finally, we have demonstrated that…

(2) the conclusion must provide a direct and coherent answer to the research problem presented in the introduction. This is the stage where the writer may nuance the discussion, present final interpretations, and explain the conclusions reached after analyzing the subject. The objective is to clearly show the outcome of the research and the overall position resulting from the study.

(3) the conclusion may present the limits of the study and open new perspectives for further research. The writer can suggest additional approaches, new research questions, broader perspectives, or more specific investigations related to the topic. This final stage should "open" the discussion rather than close it completely, because no subject is ever entirely exhausted or fully analyzed. There are always possibilities for deeper investigation, renewed interpretations, and future developments that can enrich the understanding of the topic.

Therefore, the structure of the conclusion can be summarized as follows:

(1) Summary of what has been demonstrated: A synthesis of the main ideas developed in the dissertation, highlighting the key findings and showing how the research has progressed toward its final outcome.

(2) Answer to the research problem: A clear and direct response to the problematic raised in the introduction, possibly with some nuance based on the results obtained and the analysis carried out.

(3) New perspectives and approaches: An opening toward future research by suggesting limitations of the study, alternative interpretations, or new questions and directions that could be explored further.

2.1.6. Writing Techniques and Standards

There are several writing techniques and formatting standards that may vary depending on institutions, disciplines, and publication requirements. In general, each institution adopts a specific writing style and imposes it on its members in order to ensure consistency and uniformity in the presentation of academic and scientific documents. These standards are commonly applied in universities, scientific journals, academic magazines, and publishing houses (Wette, 2020).

2.1.6.a. Formatting

Formatting refers to the way a document is organized and structured visually and technically in order to ensure clarity, readability, and academic consistency. Among the most important formatting rules are chapter numbering and the numbering of figures and tables.

- ***Chapter numbering***

Chapter numbering is essential for organizing the dissertation in a logical and hierarchical structure. Each chapter is assigned a number (Chapter 1, Chapter 2, Chapter 3, etc.), and sub-sections are also numbered to show the internal structure of the content (for example: 1.1, 1.2, 1.3). This system helps the reader easily follow the progression of ideas and understand the relationship between different parts of the work.

- ***Numbering of figures and tables***

Figures and tables must also be clearly numbered in order of appearance throughout the document. Each figure (graphs, diagrams, images, drawings) and each table must have a title and a reference number (for example: Figure 1, Figure 2; Table 1, Table 2). This allows easy identification, referencing in the text, and improves the scientific presentation of the dissertation. Proper numbering ensures clarity, avoids confusion, and facilitates cross-referencing between the text and visual elements.

2.1.6.b. The cover page

The cover page contains all the essential information related to the presentation of a completed dissertation or thesis. It represents the official identity of the document and reflects the institution's academic standards. It can be considered as the formal imprint or seal of the university. Any work produced within an academic framework must be presented under the name of the institution, whether it is written by one or several authors, as it remains part of the institution's academic production. The university has full academic rights over the work produced within its framework, as it contributes to its scientific and educational output. The cover page is usually presented in a formal printed format and must include the following information:

- The higher education sector (MESRS)
- The rectorate and the institution (University name, acronym, faculty, and department)
- The training program followed (for example: Master's degree in Mechanics, etc.)
- The title of the dissertation or thesis
- The student's full name (first and last name)
- The name of the academic supervisor and the academic year

2.1.6.c. Typography and punctuation

Typography refers to the set of techniques used in writing, composing, and printing text using characters, symbols, and visual structures. It concerns both the aesthetic presentation and the practical organization of written documents, ensuring clarity, readability, and academic quality.

2.1.6.*a. Use of capital letters*

Capital letters are used at the beginning of sentences, proper nouns, titles, and specific academic terms according to writing conventions. Their correct use ensures grammatical accuracy and improves the clarity of the text.

2.1.6.*b. Punctuation*

Punctuation marks play an essential role in structuring sentences and expressing meaning clearly. The main punctuation marks include periods (.), semicolons (;), colons (:), dashes (-), apostrophes ('), and quotation marks (" "). Proper use of punctuation helps organize ideas, separate concepts, and avoid ambiguity in academic writing.

2.1.6.*c.* Paragraph formatting

Writing paragraphs requires attention to structure and visual organization. This includes indentation at the beginning of paragraphs, appropriate spacing between sections, correct line spacing, and consistent font usage (size, bold, italics, etc.). These elements improve readability and give the document a professional appearance.

2.1.6.*d.* Specialized writing elements

Academic and scientific writing often includes special characters and symbols such as (§, @, ¶, $, *), as well as mathematical and technical symbols (≤, Ø, →, { }, £, ±, etc.). These symbols are used to express precise meanings, technical relationships, or structured information in a compact form.

2.1.6.*e.* Equations and formulas

In scientific and technical fields, equations and formulas are commonly used to represent mathematical relationships. They must be clearly written and correctly formatted to ensure accurate interpretation. For example, exponential series expansions such as: ex=1+x+x22!+x33!+⋯e^x = 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \cdotsex=1+x+2!x2+3!x3+⋯, for −∞<x<∞-\infty < x < \infty−∞<x<∞, are used in mathematics, engineering, and physics to describe continuous functions and natural growth processes.

2.2. DISSERTATION WRITING

2.2.1. Writing Scientific language: style, grammar, syntax.

The writing of dissertations and theses should be carried out in a clear and scientific language capable of expressing ideas in a precise, structured, and understandable manner. Scientific writing must avoid ambiguity and subjectivity while ensuring that all concepts are presented in a logical and readable form. The main objective is to communicate information effectively while respecting academic standards of style, grammar, and syntax (Wette, 2020; Jegede et al., 2020). At the university level, the choice of language may depend on the academic context and the scope of the research. English is often considered the most suitable language when the research is intended for an international audience, as it allows wider dissemination and accessibility of scientific work.

2.2.2. Spelling and Language Accuracy

Spelling and linguistic accuracy are essential components of academic writing. Improving general language skills in both comprehension and expression is necessary to ensure clarity and professionalism in the dissertation. Writing at a university level requires a solid mastery of grammar rules, sentence structure, and correct spelling in order to communicate ideas effectively and avoid misunderstandings. A minimum level of linguistic competence is therefore required to properly transmit scientific information. Poor grammar or spelling mistakes can weaken the quality of the research and reduce its academic credibility (Bailey, 2014; Herrington et al., 2007). In addition, modern writing tools play an important role in improving the quality of dissertations and theses. Software such as word processors (e.g., Microsoft Word) and automatic correction tools help identify spelling errors, improve sentence structure, and enhance overall readability. However, these tools should support, not replace, the student's own linguistic competence and critical revision of the text.

2.2.3. Back up, secure, archive your data.

Writing a dissertation is not a simple task that can be completed without difficulties. It requires organization, discipline, and continuous attention to detail throughout the research and writing process. The work of writing, calculation, design, or data processing is generally carried out on a

computer, which, despite being an essential tool, can sometimes fail. Due to technical errors, incorrect handling, software issues, or system breakdowns, important data may be lost, deleted, or become inaccessible without any possibility of recovery.

For this reason, several precautions must be taken to secure academic work and protect research data. The most important measure is the regular creation of multiple backups. It is strongly recommended that the author of the dissertation organizes and classifies all files in a clear and logical structure, using a familiar and consistent system of archiving (Corti et al., 2019). This helps avoid wasting time when searching for specific documents or information. In addition, file names should be clear and descriptive, allowing the user to immediately identify the content of each document.

To further ensure data security, it is advisable to store information in different computer partitions or on multiple storage media (at least two). This reduces the risk of total data loss in case of technical failure. It is also essential to avoid using unprotected external devices that may contain viruses, and to install reliable antivirus software that is regularly updated. Users should avoid suspicious downloads from unknown sources and strictly avoid piracy, as these practices may compromise both data integrity and system security. Finally, the dissertation itself must follow a well-structured and standardized organization to ensure clarity and academic coherence. A typical structure generally includes the following sections:

1) Cover page
2) Acknowledgments
3) Dedications (autographs)
4) Summary (Abstract)
5) Introduction
6) Chapter I
7) Chapter II
8) Chapter III
9) Results
10) General Discussion
11) Conclusion
12) Recommendations
13) Bibliography

2.2.3.a. Final Summary and File Organization

When numbered in this way within a folder, the different files will automatically appear in the correct numerical order based on the numbers placed at the beginning of each file name. This method of classification ensures a clear and systematic organization of all dissertation components. As a result, the documents are displayed in the same logical sequence as the structure of the dissertation or thesis itself, following the order in which it was written (see Figure 19). This approach improves accessibility, saves time when searching for specific sections, and helps maintain consistency between the digital files and the final academic document.

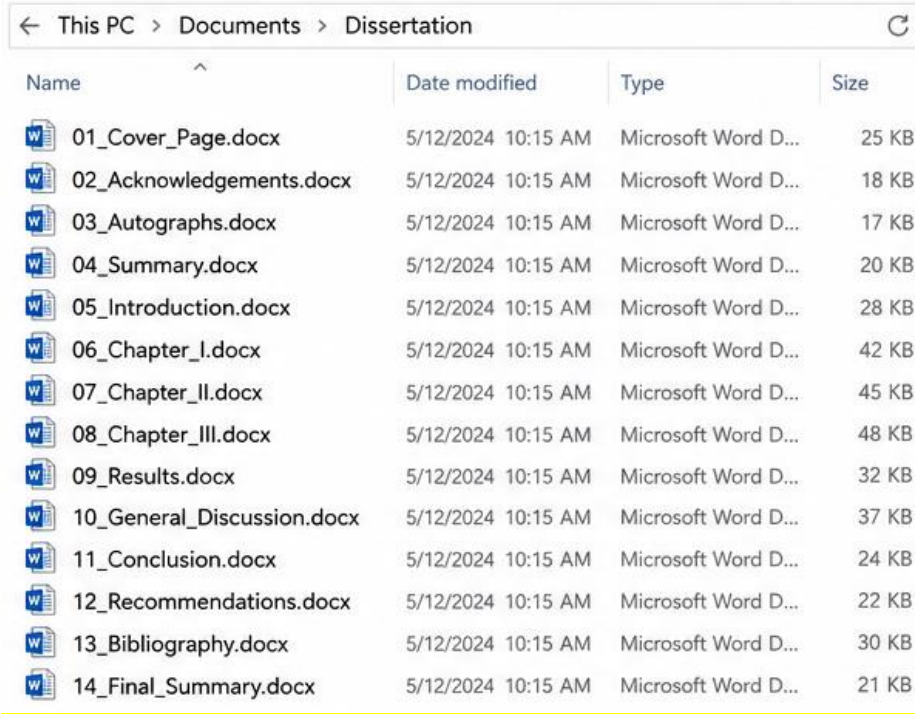
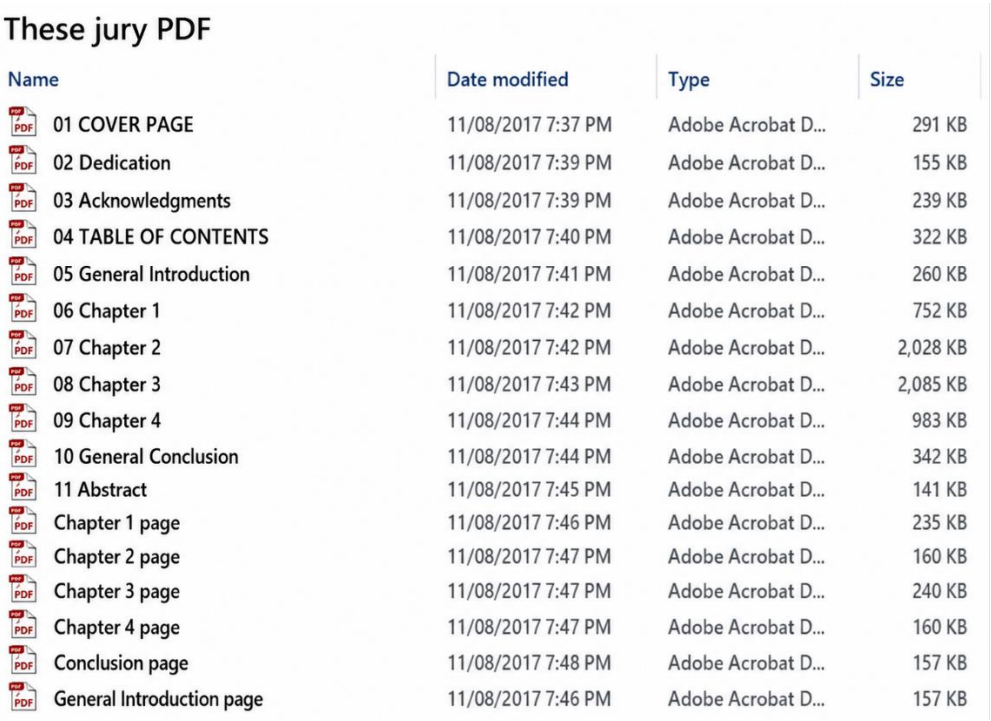


Fig 19. *Final Summary and File Organization (Author)*

Then, using Acrobat Reader or PDFill PDF Tools Free, all the PDF files are carefully merged into a single document to produce the final version of the report in its definitive form. This step ensures the coherence and continuity of the entire dissertation or thesis. This method also allows a clear distinction between the preliminary pages and the main body of the work. The title page, acknowledgements, dedications, table of contents, abstract, lists (figures, tables, abbreviations), and other introductory sections are kept without page numbering or are numbered using lowercase Roman numerals, depending on institutional guidelines. In contrast, the main sections of the dissertation—starting from the introduction through the chapters, analysis, discussion, conclusion, recommendations, and bibliography—are numbered consecutively using standard Arabic numerals.

The final dissertation or thesis, in PDF format (see example in Figure 20), represents the official submission copy. It must be submitted to the department library in duplicate, along with a CD-ROM containing the digital version of the complete document.



These jury PDF

Name	Date modified	Type	Size
01 COVER PAGE	11/08/2017 7:37 PM	Adobe Acrobat D...	291 KB
02 Dedication	11/08/2017 7:39 PM	Adobe Acrobat D...	155 KB
03 Acknowledgments	11/08/2017 7:39 PM	Adobe Acrobat D...	239 KB
04 TABLE OF CONTENTS	11/08/2017 7:40 PM	Adobe Acrobat D...	322 KB
05 General Introduction	11/08/2017 7:41 PM	Adobe Acrobat D...	260 KB
06 Chapter 1	11/08/2017 7:42 PM	Adobe Acrobat D...	752 KB
07 Chapter 2	11/08/2017 7:42 PM	Adobe Acrobat D...	2,028 KB
08 Chapter 3	11/08/2017 7:43 PM	Adobe Acrobat D...	2,085 KB
09 Chapter 4	11/08/2017 7:44 PM	Adobe Acrobat D...	983 KB
10 General Conclusion	11/08/2017 7:44 PM	Adobe Acrobat D...	342 KB
11 Abstract	11/08/2017 7:45 PM	Adobe Acrobat D...	141 KB
Chapter 1 page	11/08/2017 7:46 PM	Adobe Acrobat D...	235 KB
Chapter 2 page	11/08/2017 7:47 PM	Adobe Acrobat D...	160 KB
Chapter 3 page	11/08/2017 7:47 PM	Adobe Acrobat D...	240 KB
Chapter 4 page	11/08/2017 7:47 PM	Adobe Acrobat D...	160 KB
Conclusion page	11/08/2017 7:48 PM	Adobe Acrobat D...	157 KB
General Introduction page	11/08/2017 7:46 PM	Adobe Acrobat D...	157 KB

Fig 20. *The final dissertation or thesis, in PDF format (Author)*

2.2.4. Supplementary parts of a dissertation or thesis

The supplementary parts of a dissertation or thesis include all elements that support, clarify, or complete the main body of the work without being part of its core argumentation. These sections are essential for improving readability, transparency, and academic rigor.

2.2.4.a. Appendices

Appendices contain all additional material that is necessary for a better understanding of the research but is too detailed or too extensive to be included in the main text. This may include raw data, questionnaires, interview transcripts, technical drawings, maps, statistical outputs, detailed calculations, or supplementary figures. Each appendix is placed at the end of the dissertation or thesis and is identified by a clear numbering system (Appendix I, Appendix II, Appendix III, etc.). They must be paginated continuously, either following the main document or using a separate pagination system, depending on institutional guidelines.

All appendices should have a clear and descriptive title in order to facilitate identification. In addition, they must be listed in the table of contents, including their titles and corresponding page numbers, ensuring easy navigation for the reader.

In the main body of the text, any reference to supplementary material should be explicit and precise. This is usually done using standardized references such as (see Appendix I), (cf. Appendix II), or (refer to Appendix No. 3 for detailed data). This ensures coherence between the main analysis and supporting documentation.

2.2.4. b. Glossary

A glossary is a structured list of specialized terms, symbols, acronyms, or technical expressions used throughout the dissertation or thesis. It is particularly useful in scientific, technical, or interdisciplinary research where certain terms may not be immediately accessible to all readers. The glossary may be positioned either at the beginning of the document, after the abstract and acknowledgements, or at the end of the manuscript as an appendix, depending on academic conventions.

Each entry in the glossary should include a clear and concise definition. Terms are usually arranged in alphabetical order to facilitate quick consultation. In addition, consistency is essential: every abbreviation or symbol used in the text should be defined at least once in the glossary or upon first use in the main body of the dissertation. A well-prepared glossary improves the readability of the research work and ensures that the reader can easily understand specialized vocabulary without ambiguity.

2.2.4. c. List of figures and list of tables

The list of figures and the list of tables are important tools that help the reader navigate visual and quantitative elements within the dissertation or thesis. These lists generally appear after the table of contents and before the introduction. However, some academic institutions may allow them to be placed at the end of the document as supplementary appendices. Each list should include the full title of the figure or table, its corresponding number, and the page on which it appears. For example: *Figure 3.2: Land use distribution in the study area – page 45*. This allows the reader to quickly locate visual elements without searching through the entire document.

The list of figures includes all graphs, diagrams, maps, photographs, and illustrations, while the list of tables includes all tabulated data presented in the thesis. These lists are essential for ensuring

clarity, organization, and ease of reference, particularly in dissertations that contain a large number of visual or statistical elements.

2.2.5. Critical study of a manuscript

A dissertation or thesis is a written document submitted to a jury for academic evaluation. Its assessment is based on several essential criteria that reflect both its scientific quality and its overall presentation (Demırel et al., 2016; Vos, 2013). The judgment of the manuscript generally relies on three main components:

2.2.5. a. The presentation of the manuscript: This includes the overall structure, clarity, formatting, coherence of sections, quality of writing, and respect of academic standards (pagination, referencing style, figures, tables, etc.). A well-presented manuscript facilitates reading and reflects the author's rigor and attention to detail.

2.2.5. b. The content: This refers to the scientific or academic value of the work. It includes the relevance of the research topic, the clarity of the problem statement, the methodology adopted, the quality of analysis, the coherence of arguments, and the validity of conclusions. Originality and critical thinking are also key elements in evaluating the content.

2.2.5. c. The works presented: This concerns the quality and relevance of the sources used, including books, articles, case studies, and other references. It also includes the correct citation of these works, the diversity of the bibliography, and the ability of the author to engage critically with existing literature.

2.3. ORAL PRESENTATION AND DEFENSE

2.3.1. How to present a Poster

The presentation of the work carried out in a dissertation or thesis is often completed through an oral defense before a jury. In this context, the poster plays an important complementary role, as it provides a visual synthesis of the research and supports the oral explanation. A poster is a printed communication medium, generally produced in A0 or A1 format, designed to summarize the key aspects of the research project. It typically includes the title of the study, the research problem, objectives, methodology, main results, and selected illustrations such as diagrams, maps, photographs, or graphs. Its purpose is not to present the entire dissertation, but rather to highlight the essential findings in a clear and attractive way (Calbraith, 2020; Gemayel, 2018).

The author must be able to explain the poster in a structured, coherent, and pedagogical manner during the presentation. The poster therefore acts as a guide for the oral defense, helping the audience follow the logical progression of the research. From a design and communication perspective, several principles should be respected:

- The poster must immediately attract attention. It is a visual communication tool that should be readable from a certain distance and visually engaging. The use of a clear title, balanced layout, and appropriate visual hierarchy is essential.
- It must communicate a strong and clear message. The viewer should be able to quickly understand the subject, the research question, and the main results without needing extensive reading.
- It should encourage interest and curiosity, motivating the audience to ask questions or explore the research in greater depth.
- The organization of the poster should follow a logical and linear structure, guiding the reader naturally from the introduction of the topic (starting point A), through the methodological approach and results, to the conclusion (ending point Z). A column-based layout is highly recommended to structure information efficiently and ensure smooth visual navigation.

- The design must avoid overcrowding. Excessive text reduces readability and weakens the visual impact. Instead, information should be condensed into keywords, short phrases, bullet points, and well-chosen visuals such as diagrams, charts, and images.
- A consistent graphic style should be maintained throughout the poster, including uniform fonts, harmonious colors, and clear alignment, to ensure professional presentation quality.

In addition, good poster design requires a balance between text and visuals. Visual elements should not only decorate the poster but also actively support the explanation of the research. Each figure or illustration must have a clear purpose and contribute to the understanding of the study (Kocaoglu et al., 2019). Overall, an effective poster is one that combines clarity, simplicity, and visual impact while faithfully representing the scientific content of the dissertation or thesis. Figure 21 presents the main steps for poster design:

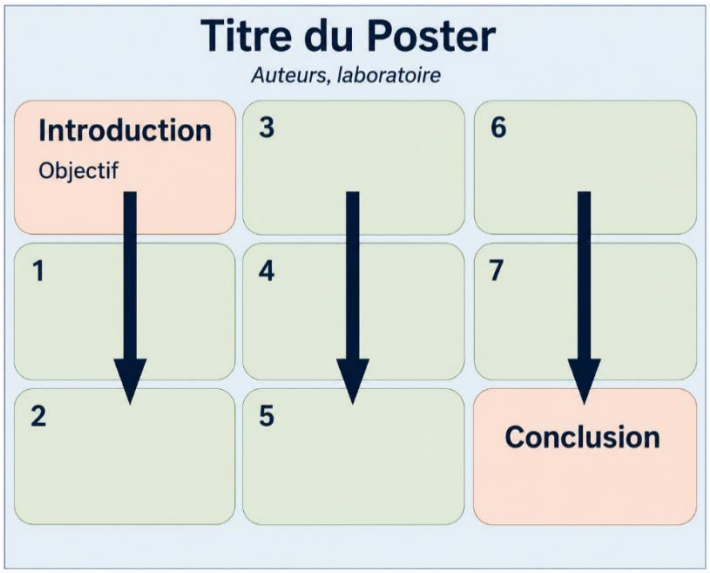


Fig 21. *Poster design (Author)*

2.3.2. How to present an oral communication (In person or remotely)

An oral communication, whether delivered face-to-face or online, is a structured presentation of ideas intended to inform, explain, or defend a piece of work. Its success depends not only on the content but also on clarity, organization, delivery, and visual support (Perez-Navarro et al., 2012).

2.3.2. a. Preparation of the presentation

Before presenting, it is essential to prepare a clear and well-structured PowerPoint or similar visual support. The content should be simplified into key ideas rather than long texts. Each slide must focus on one main point and follow a logical progression aligned with the research or topic

development. It is also important to rehearse the presentation to manage timing, improve fluency, and anticipate possible questions from the audience or jury.

2.3.2. b. Structure of the oral presentation

A good oral communication generally follows a clear structure:

- Introduction: Present the topic, context, problem statement, and objectives.
- Methodology or approach: Explain how the work was carried out.
- Main results or arguments: Present the key findings or ideas in a clear and concise way.
- Discussion: Interpret and analyze the results, highlighting their significance.
- Conclusion and perspectives: Summarize the main points and suggest future directions or improvements.

2.3.2. c. Design of visual support (PowerPoint)

The slides should be designed to facilitate understanding:

- Use readable fonts and appropriate font sizes.
- Maintain good contrast between background and text.
- Avoid overloaded slides with too much information.
- Use images, diagrams, and tables to support explanations.
- Ensure consistency in colors, style, and layout.
- Avoid overlapping elements or excessive animation effects.

2.3.2. d. Oral delivery (presentation skills)

The speaker should:

- Speak clearly and at a moderate pace.
- Maintain eye contact with the audience or camera.
- Use simple and precise language.
- Avoid reading directly from slides.
- Emphasize key ideas using voice variation and pauses.
- Manage time effectively.

2.3.2. e. Presentation in person vs remotely

In person: Focus on body language, positioning, and interaction with the audience.

Remotely: Ensure a stable internet connection, good lighting, clear audio, and a distraction-free environment. It is also important to look at the camera to simulate eye contact.

2.3.2. f. Handling questions

At the end of the presentation, questions from the audience or jury should be answered calmly and clearly. If a question is not fully understood, it is acceptable to ask for clarification before responding.

2.3.3. Dissertation defense

The rules for oral presentation are generally established by the academic administration. The presentation is most often delivered using a PowerPoint slideshow, whether in person or in a remote/online format. In both cases, the objective is to communicate the research work clearly, logically, and effectively to the jury and audience. A successful PowerPoint presentation should respect several essential principles:

1. It must be fully readable and visually comfortable for the audience. This includes using an appropriate font size, clear typography, and sufficient spacing between elements. The audience should be able to read and understand each slide without effort, even from a distance or through a screen in virtual presentations.
2. The presentation must follow a logical structure that reflects the progression of the research work. Typically, the slides should move from the introduction of the topic, research problem, objectives, methodology, results, discussion, and finally conclusions and perspectives. This logical order helps the audience follow the development of the study step by step.
3. The presentation should emphasize key information and essential findings rather than overwhelming details. Each slide should highlight the most important ideas, results, diagrams, or keywords. Long paragraphs should be avoided, and information should be summarized in a concise and structured form.
4. The presentation must cover all stages of the work carried out, ensuring that the jury can clearly understand the entire research process. This includes explaining the research context, methods used, data collection and analysis, and interpretation of results.
5. The visual design of the slides is very important. Colors should be carefully selected to ensure good contrast between background and text. For example, very dark backgrounds combined with low-contrast text should be avoided because they reduce readability. A clean and simple design is always preferable to a decorative but confusing layout.

6. The presentation should avoid visual clutter, such as overlapping images, crossed diagrams, or too many elements on a single slide. Each slide should focus on one main idea or concept to maintain clarity and audience attention.
7. The number of slides is not a critical factor. What matters most is the quality, clarity, and coherence of the content. A well-structured presentation with fewer slides is more effective than a long and overloaded one.

2.3.4. Dedications and Acknowledgments

The people you choose to acknowledge depend on the type of thesis or report you are writing. For an internship report or a research thesis, the list of individuals to thank may vary according to their level of involvement in your work and the nature of their contribution. In general, the acknowledgements page may include, for example:

- Your thesis supervisor, for their guidance, support, availability, and the time they dedicated to supervising your work throughout the research process.
- The academic or institutional staff, such as teachers, laboratory members, or administrative personnel, who provided useful information, documentation, or logistical support for the completion of your work.
- Individuals who contributed data or expertise, such as professors, researchers, professionals, or interviewees who agreed to answer your questions or share their experience, thereby making an essential contribution to your study.
- Peers or colleagues (if applicable), who may have provided technical help, feedback, or moral support during the development of the thesis.

The acknowledgements section should remain simple, authentic, and direct. Gratitude should be expressed based on factual contributions, clear reasons, and the specific role each person played in the completion of the thesis. It is important to avoid overly formal, inflated, or repetitive expressions such as: “I would like to thank the people who helped me in the completion of this thesis.” Writing acknowledgements is often a delicate task. It can be difficult not only because of the temptation to use a highly formal or exaggerated style, but also because it is not always obvious whom to include and how to appropriately express gratitude. The key is to remain sincere, concise, and focused on real contributions rather than generic statements.

2.4. THE PLAGIARISM

2.4.1. What is plagiarism?

Plagiarism refers to the unauthorized appropriation of another person's work, ideas, expressions, or intellectual output and presenting them as one's own. It is a serious academic and ethical violation that can occur intentionally or unintentionally (Pears & Shields, 2025). In many cases, plagiarism results from poor academic practices, lack of knowledge about citation rules, or careless writing habits. However, regardless of intent, it is considered a major offense in academic and scientific communities and can be avoided through proper research methods and correct referencing techniques (Audet et al., 2023).

Plagiarism is widely recognized as a moral, civil, and sometimes commercial offense, and in certain cases it may be subject to legal sanctions under intellectual property or copyright law. It involves copying or reproducing an author's work without proper acknowledgment, or using creative, scientific, or artistic production without citing the original source (JUTRAS, 2019). It may also include the excessive reliance on a model or source while failing to clearly identify its origin, whether through negligence or deliberate omission. Because of this, plagiarism is often described as a form of intellectual theft. In simple terms, plagiarism is the act of taking someone else's ideas, words, research, or creative work and using them as if they were one's own without giving proper credit. This includes written texts, theories, images, data, or any other form of intellectual contribution. Individuals who engage in plagiarism risk serious consequences, including academic penalties, loss of credibility, rejection of research work, or even legal action in severe cases.

Plagiarism can have significant negative consequences not only for individuals but also for institutions and the integrity of scientific research. It undermines trust, reduces the value of original work, and affects the quality of academic production. For this reason, universities and research institutions place strong emphasis on academic integrity and ethical writing practices. It is also important to note that plagiarism exists in multiple forms. It is not limited to direct copying of text. It may also include paraphrasing without citation, uncredited translation of foreign works, reuse of previously published work (self-plagiarism), or the use of another person's ideas without acknowledgment. Because plagiarism can take many different forms, it is sometimes difficult to

detect without careful analysis (Neville, 2016). For this reason, understanding the different types of plagiarism is essential in order to avoid it effectively and to ensure the production of original, ethical, and high-quality academic work.

2.4.2. Plagiarism detection

Since 2019, numerous automatic plagiarism and text-reuse detection software programs have been developed and are widely used in academic and professional environments. These tools compare submitted documents with large databases of published articles, books, websites, and student papers in order to identify similarities in wording and structure. However, none of these systems are completely reliable or perfect. Most plagiarism detection software generates an originality score or a similarity index, and highlights sections of text considered "non-unique" or potentially matching existing sources. Some tools also provide a "plagiarism level" indicator, which helps users quickly identify areas that may require revision or verification (Audet et al., 2023; Pears& Shields, 2025). These features are particularly useful as a first step in detecting possible plagiarism and encouraging proper citation practices.

However, it is important to emphasize that these tools do not make a definitive judgment on whether plagiarism has occurred. They can only detect textual similarities and cannot fully distinguish between acceptable academic practices (such as correctly cited quotations or common knowledge) and actual plagiarism. For example, a correctly referenced quotation may still be flagged as similar, even though it is not considered plagiarism. In addition, paraphrased ideas, translated content, or conceptual plagiarism may not always be detected accurately by software, which limits its effectiveness in identifying all forms of intellectual misconduct. For this reason, the final evaluation of whether plagiarism has occurred always requires human judgment. Academic supervisors, reviewers, or committees must analyze the context of the detected similarities, verify citations, and determine whether the work respects ethical and academic standards. Thus, plagiarism detection tools should be seen as supportive instruments rather than final decision-makers in academic integrity assessment.

2.4.3. What constitutes plagiarism in a document?

Plagiarism in a document includes any use of intellectual content taken from other sources without proper acknowledgment or citation. It is not limited to written text, but extends to all forms of academic and scientific material (Pears & Shields, 2025). In particular, plagiarism may concern:

- Formulas and mathematical expressions that are copied from books, articles, or other academic works without referencing the original source.

- Phrases, sentences, and paragraphs reproduced or closely paraphrased without proper citation.
- Illustrations, figures, diagrams, and images taken from external sources without permission or attribution.
- Graphs and charts, including those representing experimental results or statistical data, when reused without acknowledgment.
- Data and datasets, whether experimental, survey-based, or statistical, when presented without indicating their origin.
- Statistical results and numerical analyses derived from other studies without citing the original authors or sources.
- Ideas, concepts, and models, even when rewritten in different words, if the original source is not clearly referenced.

2.4.4. Types of plagiarism

Plagiarism can take several forms depending on how the content is used, transformed, or presented. In academic and professional work (including fields such as construction project management, engineering, and research), it is important to recognize these different types in order to avoid them (Neville, 2016; v, 2013).

2.4.4.a. Deliberate plagiarism

This occurs when a person intentionally copies and presents another author's work, project, or technical content as their own while trying to hide the original source. In academic or professional construction project management, this may involve copying a full project report, method statement, or research paper and submitting it under one's own name.

- ***Example:*** A student copies a complete construction scheduling report (Gantt chart, resource planning, and cost analysis) from an engineering journal or another student's thesis and submits it as their own final project without citation. This is a clear case of academic fraud and is subject to disciplinary action.

2.4.4.b. Unintentional plagiarism

This happens when an author uses information from books, reports, standards, or online sources without proper citation, often due to lack of knowledge about referencing rules or misunderstanding of what needs to be referenced. In construction project management, this is very common when students use technical content such as methods, definitions, or standard procedures.

- *Example:* A student describes the Critical Path Method (CPM) or Earned Value Management (EVM) using explanations taken from a textbook or website but forgets to cite the source, assuming it is general knowledge. Even if unintentional, this is still considered plagiarism and must be corrected by adding proper references.

2.4.4.c. Plagiarism detected by software tools

Modern plagiarism detection software compares submitted documents with published research papers, theses, technical reports, and online content. It generates a similarity percentage, which is then reviewed by supervisors or committees. However, similarity does not automatically mean plagiarism, especially in technical fields like construction project management where standard terminology and methods are widely reused.

- *Example:* A construction management report shows a 22% similarity index because it uses standard expressions such as "project planning phases," "risk assessment matrix," or "cost estimation techniques." Although the software flags it, the content may still be acceptable if properly cited and if the similarities concern standard industry terminology rather than copied analysis or results.

2.4.5. Why should you avoid plagiarism?

Avoiding plagiarism is essential for every writer and researcher because it directly affects academic and professional integrity. Plagiarism can damage a person's reputation, result in the loss of trust and respect from teachers, colleagues, and peers, and negatively affect future academic or professional opportunities. In academic settings, it may also lead to serious consequences such as reduced grades, disciplinary actions, or the loss of scholarships and leadership positions (Neville, 2012). Furthermore, plagiarism unfairly deprives the original author of recognition and credit for their work. In some cases, unauthorized use of intellectual property may even lead to legal consequences.

There are many reasons why plagiarism must be avoided in higher education. University studies are designed to help students develop critical thinking skills, independent judgment, and their own academic voice, rather than simply reproducing the ideas of others without proper acknowledgment. Although students often rely on existing literature to understand concepts and explore new ideas, they must learn how to use sources ethically and responsibly.

Developing independent thinking can initially be challenging. Students frequently summarize or paraphrase the work of scholars in order to better understand different theories and arguments.

However, academic writing requires more than repeating information; it involves analyzing ideas critically, comparing perspectives, and forming personal conclusions based on evidence and reasoning. Plagiarism undermines these objectives and weakens the learning process. Avoiding plagiarism also improves the quality and credibility of academic writing. Learning how to cite sources correctly, integrate quotations appropriately, and paraphrase effectively enhances both the clarity and professionalism of scholarly work.

2.4.6. Methods for Avoiding Plagiarism

Plagiarism can be avoided by following proper academic writing practices and respecting intellectual property. Students and researchers should learn how to use sources correctly, present original ideas, and acknowledge the contributions of other authors (Sharma, 2010; Pecorari, 2013; Neville, 2016; Alam et al., 2019). The following methods are among the most effective ways to avoid plagiarism.

2.4.6. a. Cite Your Sources Properly

Whenever you use an idea, opinion, theory, statistic, figure, or wording that is not originally yours, you must acknowledge the source through proper citation. Academic citations allow readers to identify the origin of the information and verify its reliability. They also demonstrate respect for intellectual property and academic honesty. A complete citation generally includes the author's name, year of publication, title of the work, and publication details, depending on the citation style being used, such as APA, MLA, Chicago, or Harvard style. Proper referencing enables readers to consult the original work for further information and strengthens the credibility of your research.

2.4.6. b. Use Quotations Correctly

A quotation is used when the exact words of an author are reproduced in a text. In academic writing, direct quotations must always be enclosed within quotation marks to clearly indicate that the wording belongs to another writer. In addition, the quotation must be accompanied by an in-text citation specifying the author and source. Quotations should be used selectively and only when the original wording is particularly important, precise, or impactful. Excessive use of quotations may weaken the originality of the work and suggest limited personal analysis. Therefore, quotations should support your argument rather than replace your own thinking. Long quotations may require a special formatting style depending on the citation guidelines being followed. Students should also ensure that quotations are reproduced accurately without altering the author's intended meaning.

2.4.6. c. Paraphrase Properly

Paraphrasing consists of expressing another author's ideas using your own words and sentence structure while preserving the original meaning. It is one of the most common techniques used in academic writing because it allows students to integrate information smoothly into their discussion. Effective paraphrasing requires more than replacing a few words with synonyms. The writer must fully understand the original idea and rewrite it in a new and original form. Simply rearranging words or slightly modifying sentences may still be considered plagiarism. Even when information is paraphrased correctly, the original source must still be cited because the ideas themselves belong to another author. Proper paraphrasing demonstrates comprehension of the material and helps students develop their academic writing skills.

2.4.6. d. Present Your Own Ideas and Analysis

Academic work should not consist solely of summarizing or repeating the ideas of others. Students are expected to develop their own interpretations, arguments, and critical reflections based on the information they have researched. Presenting your own ideas means engaging actively with the subject by analyzing evidence, comparing viewpoints, discussing limitations, and drawing personal conclusions. Original thinking is an essential component of higher education and scientific research. However, even when presenting personal opinions, students must acknowledge the sources that influenced or supported their reasoning. Combining personal analysis with properly referenced evidence creates strong and credible academic writing. Students should also avoid self-plagiarism, which occurs when they reuse parts of their own previously submitted work without authorization or proper acknowledgment. Although the work belongs to the student, submitting the same material multiple times may still violate academic integrity policies.

2.4.6. e. Use Plagiarism Detection Tools

Plagiarism detection software can help students identify similarities between their work and existing published materials. During the writing process, students may unintentionally reproduce phrases, expressions, or sentence structures they encountered while reading sources. Using plagiarism-checking tools before submission can help detect these issues and allow corrections to be made. Several online platforms, such as Grammarly, offer plagiarism detection services by comparing texts with academic databases, websites, journals, and other published documents. These tools highlight potentially problematic sections and identify the original sources of the matching content. Although plagiarism checkers are useful, they should not replace careful academic writing practices. Students must still learn how to cite, paraphrase, summarize, and

reference sources correctly. Plagiarism detection tools should be considered supportive instruments that help reinforce academic integrity and improve the overall quality of writing. Figure 22 summarizes the main methods that can be used to avoid plagiarism.

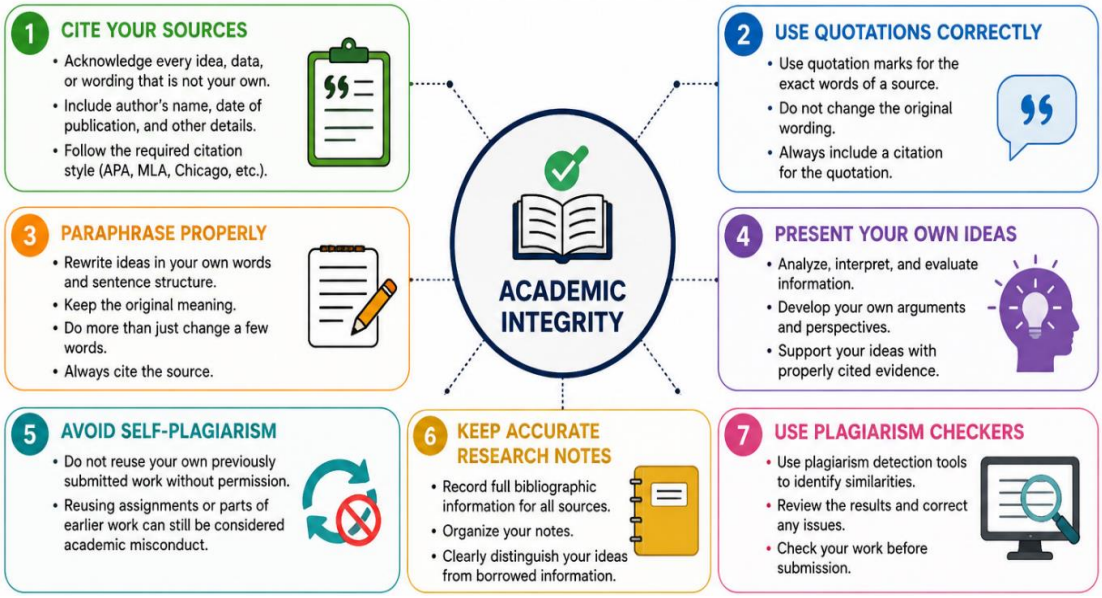


Fig 22. *Methods for avoiding plagiarism (Author)*

2.4.7. Strategies for Avoiding Plagiarism in Academic Writing

There are several effective strategies for avoiding plagiarism in academic writing. These strategies include paraphrasing, summarizing, using direct quotations, acknowledging sources, preparing reference lists, and properly crediting authors through citations, footnotes, endnotes, or other recognized referencing methods (Roig, 2015; Harris, 2017; Fazilatfar et al., 2018; Stander, 2020). Correct application of these practices helps ensure academic integrity, respects intellectual property rights, and promotes honesty and credibility in research and scholarly writing.

2.4.7. a. Paraphrasing

One of the most effective and widely used methods for avoiding plagiarism is paraphrasing. Paraphrasing involves restating another author's ideas in your own words and sentence structure while preserving the original meaning. This practice enables writers to integrate information from different sources smoothly and coherently into their academic work. However, successful paraphrasing requires a clear understanding of the original text and should go beyond simply replacing a few words with synonyms.

In his book English for Academic Research: Grammar, Usage and Style, Adrian Wallwork explains that paraphrasing can help writers when they are unsure about the accuracy or

appropriateness of their original wording. He suggests rewriting sentences using simpler vocabulary, grammar, and structures that the writer can use more confidently. He further points out that paraphrasing is an essential strategy for avoiding both plagiarism and self-plagiarism, especially because plagiarism detection software can identify repeated expressions and phrases from previously published work. This perspective demonstrates the important role of paraphrasing in academic writing. Nevertheless, effective paraphrasing should not consist merely of changing a few words or rearranging sentence order. Genuine paraphrasing requires careful analysis of the original idea, a thorough understanding of its meaning, and the ability to express it in a clear and original manner. Writers should aim to communicate ideas thoughtfully while maintaining the accuracy of the information. Furthermore, even when ideas are paraphrased successfully, the original source must always be cited properly, since the concepts and information remain the intellectual property of the original author.

2.4.7. b. Summarizing

Another important method for avoiding plagiarism is summarizing. Summarizing consists of reducing a text to its key ideas and presenting them in a brief and concise manner. Unlike paraphrasing, which usually reproduces detailed information using different wording, summarizing focuses only on the most essential points of the original text. This technique is especially useful in literature reviews and academic research, where writers often need to synthesize large amounts of information clearly and efficiently while still providing proper acknowledgment of the original source.

2.4.7. c. Using Quotations

Using direct quotations is another effective strategy for avoiding plagiarism, particularly when the author's exact wording is significant or cannot be accurately reformulated without altering its meaning. Direct quotations must always be placed within quotation marks and accompanied by a proper citation identifying the original source. Quotations are especially useful when the original text is precise, authoritative, or highly impactful. However, relying too heavily on quotations may weaken the originality and critical contribution of academic writing; therefore, they should be used carefully and in moderation.

2.4.7. d. Acknowledging Sources

Acknowledging sources is a fundamental aspect of academic writing and research. It consists of properly recognizing the original authors whenever their ideas, opinions, data, arguments, or exact

words are used in a written work. This recognition is generally provided through citations, references, footnotes, or endnotes according to the required citation style. Proper source acknowledgment reflects academic integrity and respect for intellectual property rights. It also enables readers to trace the original sources, verify information, and explore the topic further. Failure to acknowledge sources appropriately may result in plagiarism, whether intentional or accidental. Writers should acknowledge all borrowed material, including paraphrased ideas, summaries, statistics, and direct quotations. Correct citation practices enhance the credibility and transparency of academic work while clearly distinguishing the writer's original contributions from the ideas of other researchers.

2.4.7. e. Creating Reference Lists

A reference list is a comprehensive list of all the sources cited or used during the preparation of an academic document. It is generally placed at the end of a research paper, article, dissertation, thesis, or report. Reference lists contain complete bibliographic details for each source, including the author's name, title of the publication, date of publication, publisher, and other necessary information required by the chosen citation style. The most commonly used citation styles include APA, MLA, Chicago, and Harvard. Accurate reference lists enable readers to identify, verify, and locate the original sources consulted in the research. They also reflect academic integrity, acknowledge the contributions of other authors, and enhance the credibility and reliability of the written work. On the other hand, incomplete or inaccurate references may create confusion and, in some cases, may be regarded as plagiarism.

2.4.7. f. Using Footnotes and Endnotes

Footnotes are placed at the bottom of a page, whereas endnotes appear at the end of a chapter or the entire document. Both are used to provide supplementary information, explanations, comments, or references to sources without disrupting the continuity of the main text. These referencing methods are widely used in citation systems such as the Chicago style, particularly in the fields of humanities and social sciences. They enable writers to acknowledge original authors, explain specific points, or add additional details that may not be appropriate to include directly in the main discussion.

The appropriate use of footnotes and endnotes contributes to academic integrity, enhances the clarity and organization of the document, and helps readers locate and verify sources easily. Nevertheless, they should be applied accurately and consistently in accordance with the required citation style guidelines.

2.4.7. g. Developing Original Ideas

This strategy consists of presenting personal analysis, interpretation, and critical thinking instead of merely repeating the opinions or arguments of other authors. Academic writing should demonstrate the writer's own understanding of the topic while incorporating external sources to support and enrich the discussion. Originality in academic writing does not necessarily require producing completely new knowledge. Rather, it involves offering independent thinking, critically examining existing information, and expressing ideas in a clear, coherent, and original way. Writers are expected to compare different viewpoints, evaluate evidence carefully, and formulate their own conclusions based on research findings. Developing original ideas also contributes to avoiding plagiarism, as it encourages students and researchers to engage critically with the subject instead of copying information directly from sources.

2.4.7. h. Avoiding Self-Plagiarism

Avoiding self-plagiarism is an essential part of maintaining academic integrity. Self-plagiarism occurs when individuals reuse their own previously submitted, published, or presented work without proper acknowledgment or authorization. Even though the material was originally created by the same author, presenting previously used content as new work may still be regarded as unethical in academic and research environments. Self-plagiarism may involve reusing complete assignments, copying sections from earlier papers, submitting the same work for multiple courses, or reproducing previously published content without indicating its prior use. Most academic institutions and publishers expect submitted work to be original unless permission for reuse has been granted. To prevent self-plagiarism, writers should acknowledge any reused material appropriately, cite their previous work when necessary, and follow institutional or publication guidelines regarding content reuse.

2.4.7. i Using Plagiarism Detection Tools

These tools analyze written texts by comparing them with online sources, academic databases, journals, books, and previously published documents in order to identify similarities and possible cases of copied material. Plagiarism detection software assists students and researchers in recognizing unintentional plagiarism, missing references, or poorly paraphrased sections before submitting their work. These tools are especially valuable during the editing and revision stages, as they help improve the originality and accuracy of academic writing.

Various online platforms, such as Grammarly, offer plagiarism detection services that identify matching content and indicate the original sources. Nevertheless, plagiarism checkers should be viewed as complementary aids rather than replacements for proper academic writing skills. Writers must still understand how to cite, paraphrase, summarize, and reference sources correctly in order to uphold academic integrity.

2.4.7. j. Following Citation Styles Correctly

Citation styles establish standardized guidelines for citing sources, organizing bibliographic information, and presenting references consistently throughout academic documents. Among the most widely used citation styles are APA, MLA, Chicago, and Harvard. Each style has specific rules for formatting in-text citations, reference lists, footnotes, and bibliographies. The selection of a citation style generally depends on the academic field, institutional requirements, or publication guidelines.

Applying citation styles correctly allows writers to acknowledge the contributions of other authors appropriately, prevent plagiarism, and ensure coherence and uniformity in their work. Proper citation practices also help readers identify, locate, and verify the sources used in the research. To use citation styles effectively, students and researchers must pay close attention to details such as authors' names, publication dates, titles, page numbers, punctuation, and formatting conventions. Accurate and consistent referencing improves the credibility, professionalism, and academic quality of written work.

2.5. Examples and application

Exercise: ***In a Construction Project Management course, a student may be required to prepare a research report on strategies for improving time management, cost control, quality assurance, and risk management in construction projects. To complete the assignment, the student consults various sources such as textbooks, scientific journal articles, conference papers, technical reports, construction standards, and online academic resources.***

During the research process, the student finds useful information related to project scheduling techniques, including the Critical Path Method (CPM), risk assessment methods, cost estimation procedures, and project monitoring systems. However, instead of copying information directly from these sources, the student must apply proper academic writing practices to avoid plagiarism.

1) One important method is paraphrasing. For example, a textbook may state:"Effective scheduling improves coordination between construction activities and helps minimize project delays." Rather than copying this sentence exactly, the student rewrites the idea using different wording and structure: Effective project planning and scheduling enhance coordination among construction tasks and contribute to reducing delays on site (Reference, 2026). In this case, the student preserves the original meaning while expressing the idea in a new form and providing proper citation to acknowledge the source.
2) The student may also use summarizing when discussing large amounts of information. For instance, after reading several articles about project risk management, the student writes a short summary explaining that successful construction projects depend on identifying risks early, evaluating their impact, and implementing preventive measures to reduce delays and additional costs. Instead of presenting every detail from the sources, the student focuses only on the key ideas while still citing the original references.
3) In some situations, direct quotations may be necessary, especially when the original wording is particularly important or authoritative. For example, the student may quote a recognized project

management expert: "Poor communication is one of the leading causes of construction project failure" (Reference, 2026, p. 26).The quotation is placed within quotation marks and followed by an appropriate citation to indicate clearly that the words belong to another author.

4) Another essential practice is acknowledging all sources properly. Throughout the report, the student cites books, journal articles, technical documents, and websites whenever information, statistics, diagrams, or ideas are borrowed. At the end of the assignment, a complete reference list is included containing all bibliographic details such as author names, titles, publication dates, publishers, and page numbers according to the required citation style, such as APA or Harvard style.
5) The student must also contribute personal analysis and original ideas. Instead of only describing existing theories, the student discusses how scheduling techniques and risk management methods can be applied to improve construction projects in Algeria. For example, the student may analyze common problems in local construction projects, such as delays in material delivery, labor shortages, or budget overruns, and suggest practical management solutions based on the reviewed literature.
6) Furthermore, the student avoids self-plagiarism by not reusing parts of previously submitted assignments without permission or proper acknowledgment. Before submitting the report, plagiarism detection software such as Grammarly may be used to check for unintentional similarities and missing citations.

Figure 23 presents the main strategies for avoiding plagiarism through an academic research example in Construction Project Management.

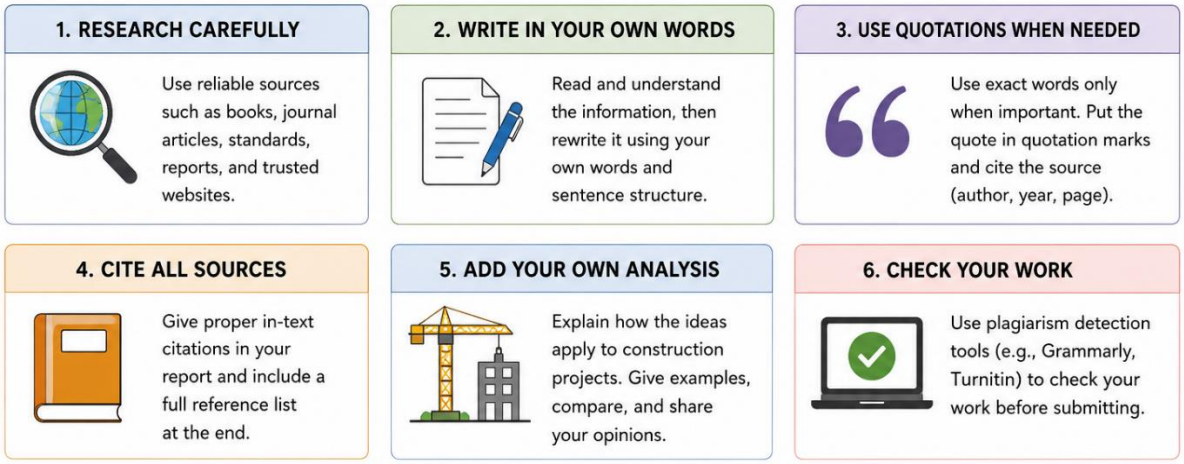


Fig 23. *Flowchart for Avoiding Plagiarism through Good Academic Practices*

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