Problem statement
Literature review
Data collection

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Problem statement: definition

- A concise and concrete summary of the research problem
- It should:
  - Contextualize the problem. What do we already know?
  - Describe the exact issue your research will address. What do we still need to know?
  - Show the relevance of the problem. Why do we need to know more about this?
  - Set the objectives of the research. What will you do to find out more?

- Writing a problem statement:
- Helps you contextualize and understand the significance of your research problem
- It is often several paragraphs long
- Serves as the basis for your research proposal
- It can be condensed into just a few sentences in your introduction

Step 1: Contextualize the problem

- The problem statement should frame your research problem, giving some background on what is already known
- What is already known about the problem?
- Is the problem limited to a certain time period or geographical area?
- How has the problem been defined and debated in the scholarly literature?
- Where and when does the problem arise?
- Who does the problem affect?
- What attempts have been made to solve the problem?

Step 2: Show why it matters

- How will resolving the problem advance understanding of the topic?
- What benefits will it have for future research?
- Does the problem have direct or indirect consequences for society?
- What will happen if the problem is not solved?
- Who will feel the consequences?
- Does the problem have wider relevance? Are similar issues found in other contexts?

Step 3: Set your aims and objectives

- The aim of this study is to **determine**…
- This project aims to **explore**…
- This research aims to **investigate**…
- The research objectives are the concrete steps you will take to achieve the aim

Research questions

- A **research question** pinpoints exactly what you want to find out in your work
- All research questions should be:
  - **Focused** on a single problem or issue
  - **Researchable**
  - **Feasible** to answer within the timeframe and practical constraints
  - **Specific** enough to answer thoroughly
  - **Complex** enough to develop the answer over the space of a paper or thesis
  - **Relevant** to your field of study and/or society more broadly

How to write a research question

- You can follow these steps to develop a strong research question:
- Choose your topic
- Do some preliminary search about the current state of the field
- Narrow your focus to a specific field
- Identify the research problem that you will address

Research objectives	Research question formulations
Describing and exploring	What are the characteristics of X? How has X changed over time? What are the causes of X? How has X dealt with Y?
Explaining and testing	What is the relationship between X and Y? What is the role of X in Y? What is the impact of X on Y? How does X influence Y?
Evaluating and acting	What are the advantages and disadvantages of X? How effective is X? How can X be improved?

How to find a research problem

- Step 1 – Identify your area of interest
- Step 2 – Review the literature and develop a shortlist of research gaps
- Step 3 – Evaluate your potential options
- Step 4 – Craft your problem statement

Literature review

- A survey of scholarly sources on a specific topic
- It provides an overview of current knowledge, allowing you to identify relevant theories, methods, and gaps in the existing research

Literature review steps

- There are five key steps to writing a literature review:
  - Search for relevant literature
  - Evaluate sources
  - Identify theories, methods, gaps
  - Outline the structure
  - Write

A good literature review doesn't just summarize sources

It analyzes, synthesizes, and critically evaluates to give a clear picture of the state of knowledge on the subject.

Step 1 – Search for relevant literature

- A clearly defined topic
- Research problem
- Research question
- Relevant keywords
- Relevant databases (Google scholar, Scopus, Medline, EMBase, OVID, …)
- Read title / abstract

Step 2 – Evaluate and select sources

- For each publication, ask yourself:
  - What question or problem is the author addressing?
  - What are the key concepts and how are they defined?
  - What are the key theories, models, and methods?
  - Does the research use established frameworks or take an innovative approach?
  - What are the results and conclusions of the study?
  - How does the publication relate to other literature in the field? Does it confirm, add to, or challenge established knowledge?
  - What are the strengths and weaknesses of the research?

As you read, you should also begin the writing process. Take notes that you can later incorporate into the text of your literature review

Avoid plagiarism

Step 3 – Identify themes, debates, and gaps

- Based on your reading and notes, you can look for:
  - **Trends and patterns (in theory, method or results):** do certain approaches become more or less popular over time?
  - **Themes:** what questions or concepts recur across the literature?
  - **Debates, conflicts and contradictions:** where do sources disagree?
  - **Pivotal publications:** are there any influential theories or studies that changed the direction of the field?
  - **Gaps:** what is missing from the literature? Are there weaknesses that need to be addressed?

Step 4 – Outline your literature review's structure

- Various approaches to organizing the body of a literature review:
  - **Chronological**
    - Avoid simply listing and summarizing sources in order.
  - **Thematic**
  - Organize literature review into subsections that address different aspects of the topic.
  - **Methodological**
    - Compare the results and conclusions that emerge from different approaches
  - **Theoretical**
    - Discuss various theories, models, and definitions of key concepts.

Step 5 – Write your literature review

- Introduction
  - The introduction should clearly establish the focus and purpose of the literature review
- Body
  - It can have subheadings
  - Summarize and synthesize
- Analyze and interpret
- Critically evaluate
- Write in well-structured paragraphs
- Conclusion

Data collection

- Process of collecting and evaluating information or data from multiple sources
- To find answers to research problems, answer questions, evaluate outcomes, and forecast trends and probabilities
- An essential phase in all types of research
- Data types, the sources of data, and what methods are being used

- Before data collection, they must answer three questions first:
  - What's the goal or purpose of this research?
  - What kinds of data are they planning on gathering?
  - What methods and procedures will be used to collect, store, and process the information?

Primary Data Collection

- Surveys and Questionnaires:
  - Face-to-face interviews, telephone calls, mail, or online platforms.
- Interviews:
  - Direct interaction between the researcher and the respondent
  - Structured (with predefined questions), semi-structured (allowing flexibility), or unstructured (more conversational)
- Observations:
  - Researchers observe and record behaviors, actions, or events in their natural setting

- Experiments:
  - manipulation of variables to observe their impact on the outcome
- Focus Groups:
  - a small group of individuals who discuss specific topics in a moderated setting

Secondary Data Collection

- Using existing data collected by someone else for a purpose different from the original intent
- Published Sources:
  - Researchers refer to books, journals, etc.
- Online Databases:
  - Articles, statistical information, economic data, and social surveys
- Government and Institutional Records:
- Publicly Available Data
- Past Research Studies