

Research methodology

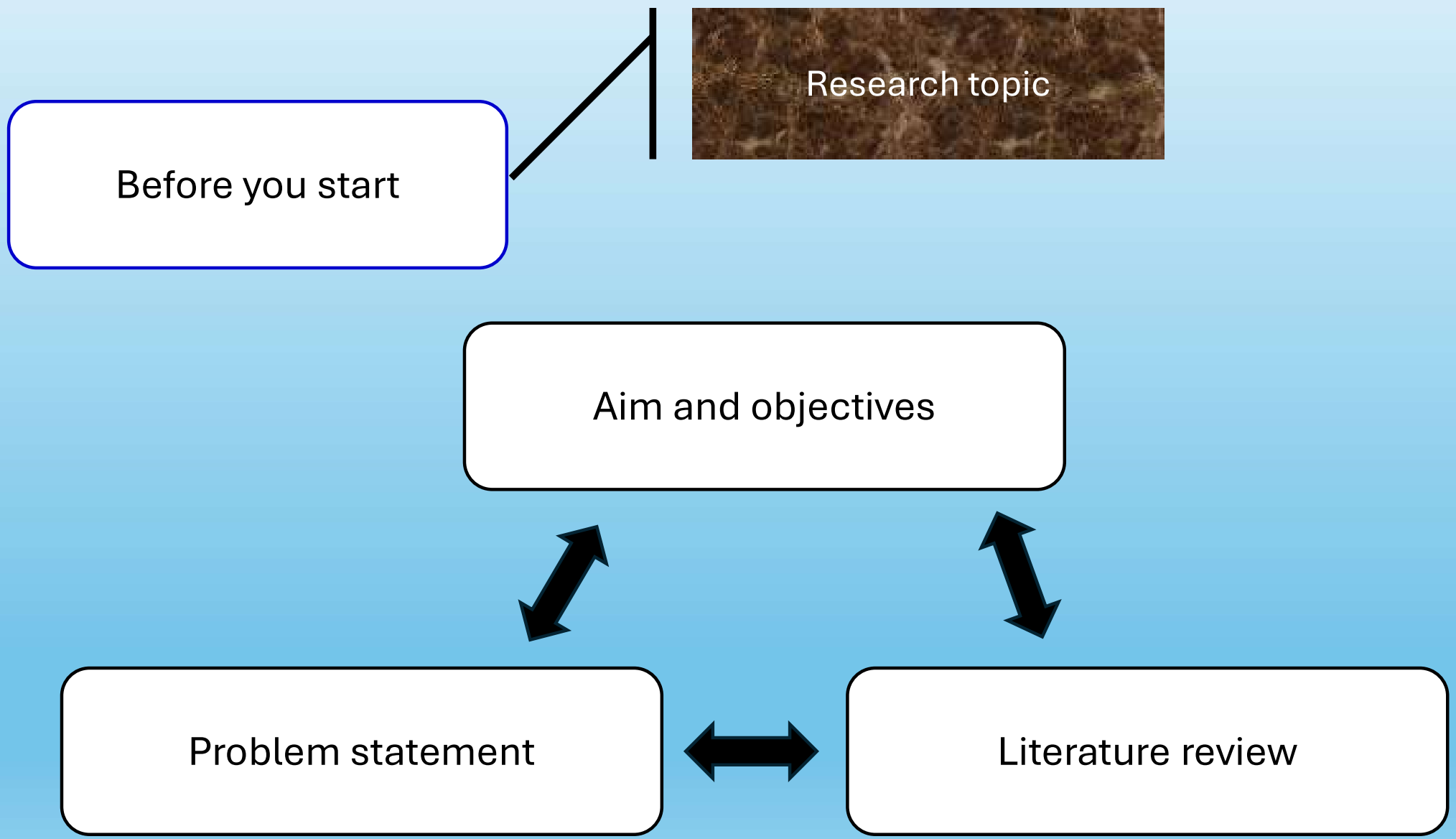


Background and literature review

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Before you start



- Choose your research topic
- Aim and objectives



What to write about? – important stage!!!

Stage 1: Choose Topic



☐ Generating research ideas – topic(s)

- - Personal interests
- Professional/career interests

☐ Take your time

- Don't decide in haste
- You can seek advice for suggestions – but **you make the final decision!!!**

Stage 1: Choose Topic – Potential sources



- Research experience
- Literature search (review)
- Internet search
- Daily observations
- Conferences/seminars/lectures/discussions
- Colleagues, lecturers, etc.
- Government policy documents
- In-house discussion – observed issues within an organization
- Request for proposals, call for proposals from donors

Stage 1: Choose Topic – Be careful



- Avoid a too broad topic
 - Attempt only feasible ideas
 - Must be practical
- Novelty of ideas
 - Originality is important!
- Consider the timeframe
 - Do you have the time to complete research on time?
- Your competence
 - Do you have the skill to carry out the research?
- Available facilities and software



Stage 2: Problem statement



- ❑ A concise, concrete summary of the specific issue, gap in knowledge, or contradiction your research aims to address.
 - contextualizes the problem – what is known already
 - defines the "what" - current problem,
 - addresses the "so what" -significance/impact, and the "why" - need for study

- ❑ Research questions/objectives
 - The research question helps in the streamlining of ideas after the problem has already been identified and defined.

Stage 3: Research aim and objectives



Research aim

- What needs to be achieved within the scope of the research - by the end of the research process.

Research objectives

- Divide the research aim into several parts and address each part separately.

The research aim specifies WHAT needs to be studied and research objectives comprise many steps that address HOW the research aim will be achieved.



Research Aim

Main objective



Objective 1

Objective 2

Objective 3

Objective n

Specific objectives



Sub-objectives

NB: Research aim and objectives can be modified after a thorough review of relevant studies

Be careful



- ❑ Unrealistic aim and objectives
- ❑ Be aware of the SMART principle in setting objectives
 - **S**pecific, **M**easurable, **A**chievable, **R**ealistic, and **T**ime-bound (SMART)



Why literature review?

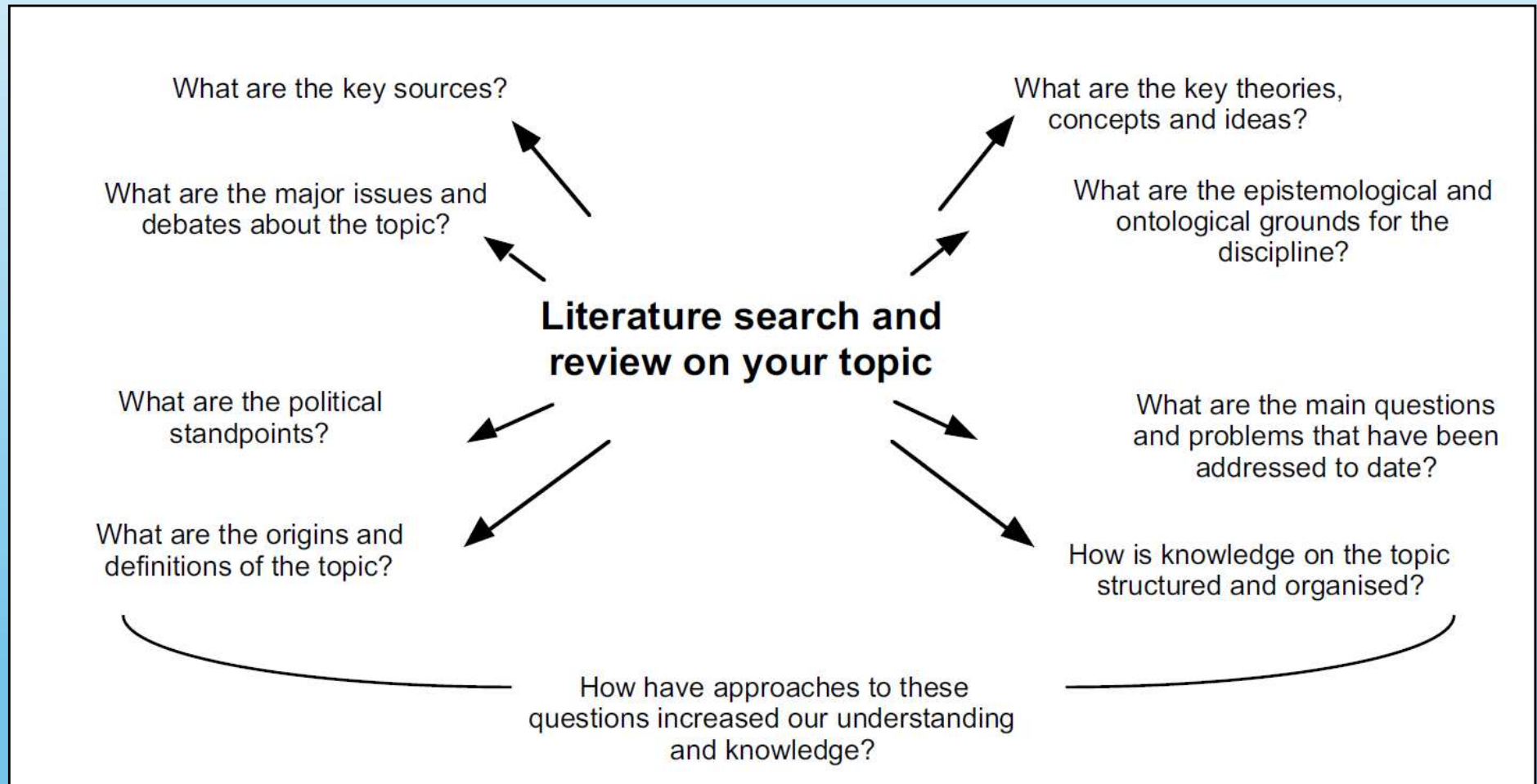
- ❑ Deliver a clear and comprehensive overview of available evidence on a given topic.
- ❑ Help identify research gaps.
- ❑ Highlight methodological concerns in research studies that can be used to improve future work in the topic area.
- ❑ Identify research questions with known answers and thus for which further research is not necessary.
- ❑ Refine knowledge on the subject area of interest, develop new research ideas, and gain critical skills in synthesizing existing literature.

Source: <https://www.elsevier.com/connect/authors-update/why-systematic-reviews-matter>

Why literature review?

1. to understand the current level of knowledge on the chosen subject
2. to identify seminal works in the proposed subject area
3. to identify shortcomings in the existing knowledge base on a subject
4. to see whether the work has already been investigated
5. to identify opposing views
6. to carry on from where others have already reached
7. to identify other scientists working in the same field
8. to find out how a research project is related to the works already done by others
9. to identify the methodologies and research techniques that have been used
10. to relate new findings to previous findings in the discussion section of a thesis or research paper.

Why literature review?



Why literature review - steps?

❑ Search the literature - sources

- Databases, such as web of sciences, Scopus and other major publishers' websites
- Search engines, such as google scholar
- International organizations, such as IEA, World Bank, WHO, academic institutions – for Grey (gray) literature

❑ Keywords - Selection of keywords

- Should be derived from the research questions
 - *concept domains*
- Synonyms of keywords
- Cross-country – 'terminology'
- Evolving vocabulary – 'change of terms'

❑ Searching

- Boolean operators

Boolean operators

AND

- ❑ Retrieves articles that contain **ALL** the terms
- ❑ **NARROWS** down the search

'energy' AND "poverty"
'energy' AND 'development'

OR

- ❑ Retrieves articles that contain **ANY** of the terms
- ❑ **BROADENS** down the search

'energy' OR 'poverty'
'energy' OR 'development'

NOT

- ❑ Eliminates articles that containing the **SECOND** terms
- ❑ **NARROWS** down the search

'energy' NOT 'poverty'
'energy' NOT 'development'

❑ Three basic Boolean operators: AND, OR, NOT

Literature conduct – ‘Words’ and ‘Symbols’

Google scholar - Words as search operators.

- ❑ **intitle:** Results include a specific search term in the title of the article.

Syntax: **intitle:search term**

Tip! Do not add a space after the colon.

- ❑ **intext:** Results include a specific search term in the body of the article.

Syntax: **intext:search term**

Tip! Do not add a space after the colon.

Literature conduct – ‘Words’ and ‘Symbols’

Google scholar - Words as search operators.

- ❑ **Quotation marks (" "):**

Results include the search terms when they appear as a phrase.

Syntax: **"search term A search term B"**

- ❑ **Hyphen (-):**

You can use the hyphen to indicate that words are strongly connected.

Syntax: **search term A-search term B**

Tip! Do not add spaces before and after the hyphen.

- ❑ **Hyphen (-):**

You can use the hyphen to exclude words from a search query.

Syntax: **search term A -search term B**

Tip! Add a space after the first search terms, but do not add a space between the hyphen and the search term you want to exclude.

Literature conduct – Summary

Review articles/document	Focus-purpose and objectives	Methodology	Key findings	Shortcomings (knowledge gap)

Proposal components



- ❑ Introduction – **so what?**
- ❑ Literature review – **why?**
- ❑ Approach – materials and methods – **how?**



QUESTIONS?