

ECDE7018: Introduction to Research Methods in Education

Session 2: Research Questions

DISCUSSION:

INVESTIGATING HANDEDNESS

Research suggests that around 10% of the population are left-handed.

Design a study to compare two types of student.

You are aiming to see whether left handedness is more common in students who study some subjects, such as art students or geographers.

How might you go about doing this?

What are the elements that you will need to consider?



Literature Task

Last week's follow-up tasks

What did you
find out?

Has this led you
to changing your
intended study?

Weak problem statements

Weak statement	Why it is weak	Advice for improvement
Social media is a major problem for students.		
No one has studied AI use at our university.		
This study will prove that flexible work is better.		
The problem is a lack of research.		
Schools should purchase AI tutoring software.		

Weak problem statements

Weak statement	Why it is weak	Advice for improvement
Social media is a major problem for students.	Broad, subjective, and unsupported.	
No one has studied AI use at our university.	An unverified absence is not automatically significant.	
This study will prove that flexible work is better.	Predetermines the result and uses an undefined comparison.	
The problem is a lack of research.	Does not identify what is unknown or why it matters.	
Schools should purchase AI tutoring software.	Presents a solution rather than a research problem.	

Weak problem statements

Weak statement	Why it is weak	Advice for improvement
Social media is a major problem for students.	Broad, subjective, and unsupported.	Identify the platform behaviour, population, outcome, setting, evidence, and gap.
No one has studied AI use at our university.	An unverified absence is not automatically significant.	Explain which unresolved question matters and why the university context is theoretically or practically relevant.
This study will prove that flexible work is better.	Predetermines the result and uses an undefined comparison.	Explain the unresolved evidence and specify the outcomes and populations to be compared.
The problem is a lack of research.	Does not identify what is unknown or why it matters.	Name the exact missing explanation, population, measurement, or relationship.
Schools should purchase AI tutoring software.	Presents a solution rather than a research problem.	Define the learning difficulty and the uncertainty about which support approaches are effective.

Last week:
Research problem

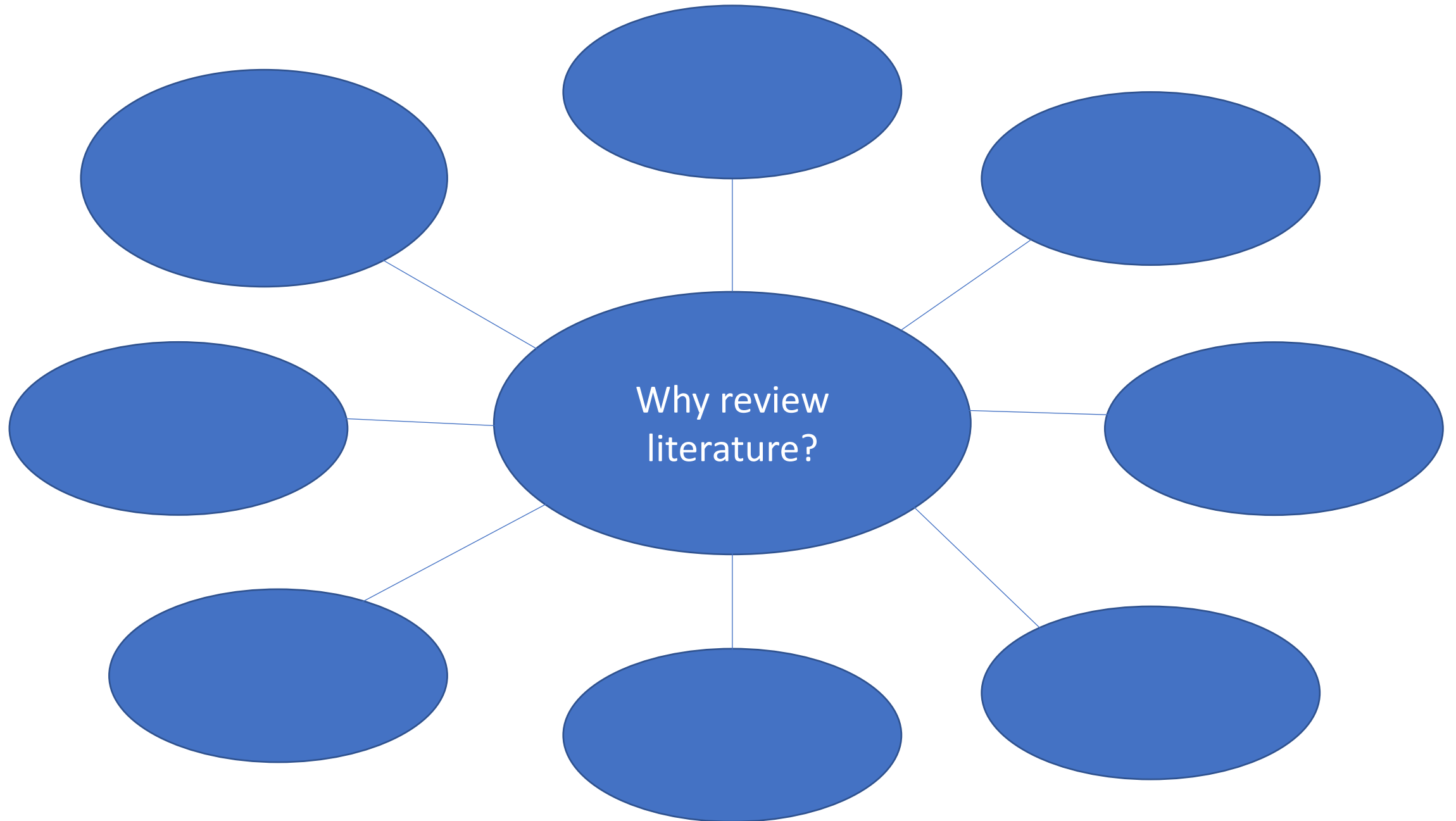
The purpose of this research is to [assess, understand, evaluate, improve, etc.] **the** [topic, effect, result] **for** [students, teachers, other] **at/in** [place].

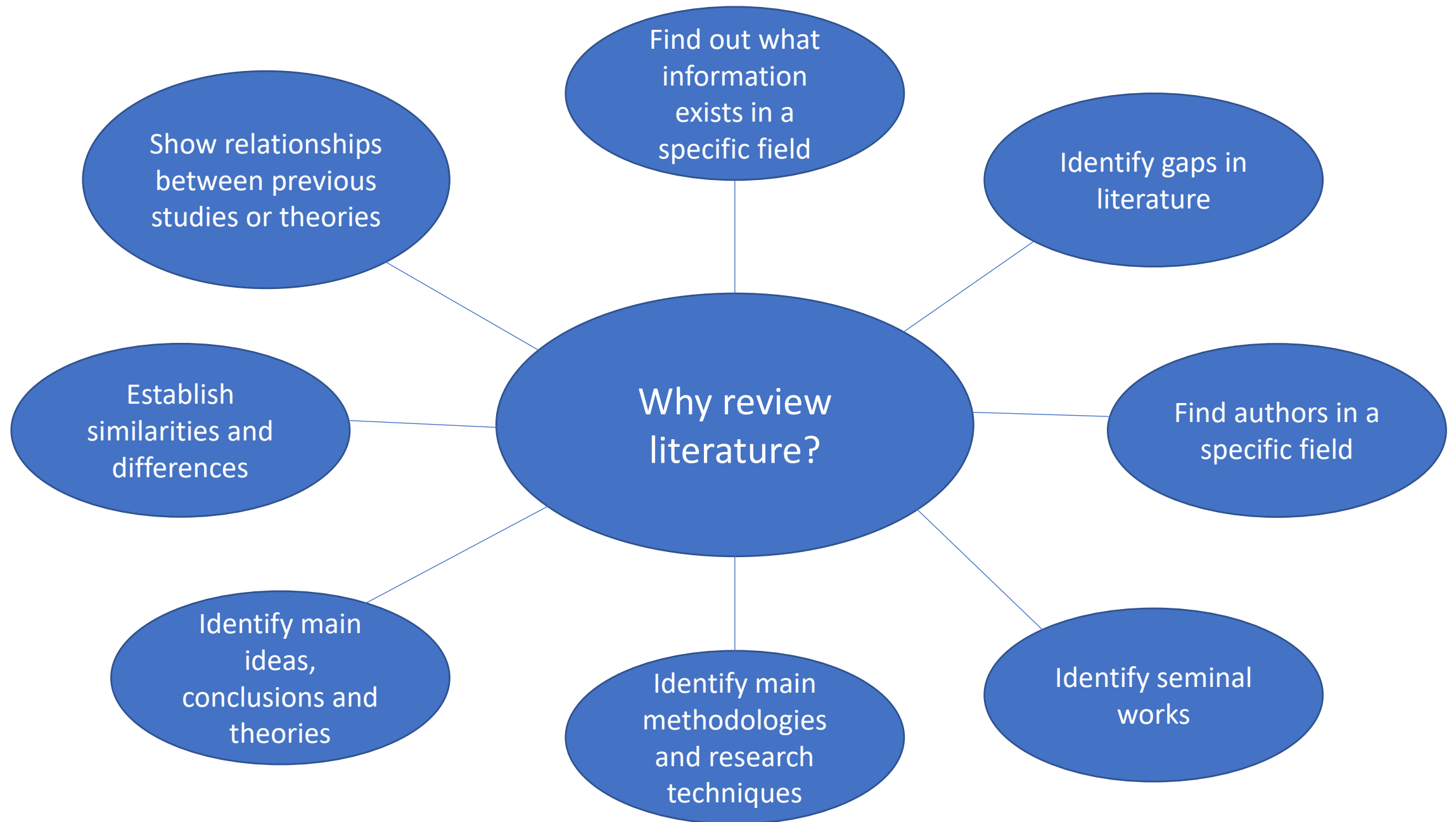


Discussion

- Why is academic literature important in research?
- Why do we need to review literature that is related to our chosen study?







Writing a Literature Review

The literature review gives you a chance to:

- Provide a comprehensive survey of the works published in a particular discipline or area of research over a specified period of time;
- Demonstrate your knowledge of scholarly debates around a topic;
- Evaluate the current state of research.

The content will look slightly different in each case, but the process of conducting a literature review follows the same steps.

Discussion

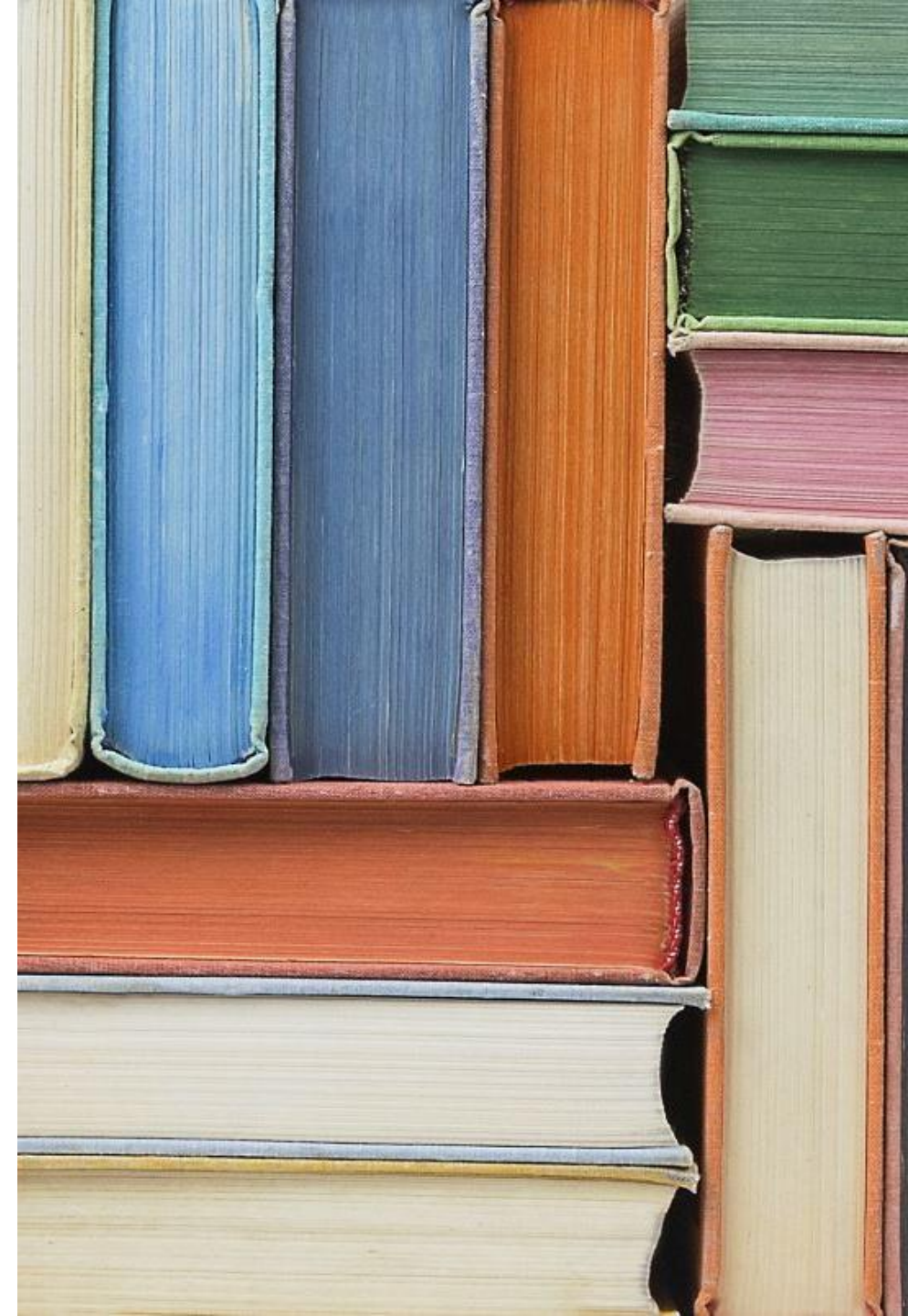
- How do we know what sort of information we are looking for?
- How can we judge whether information is relevant?
- Are some sources of literature 'better' than other sources?



Sources of literature

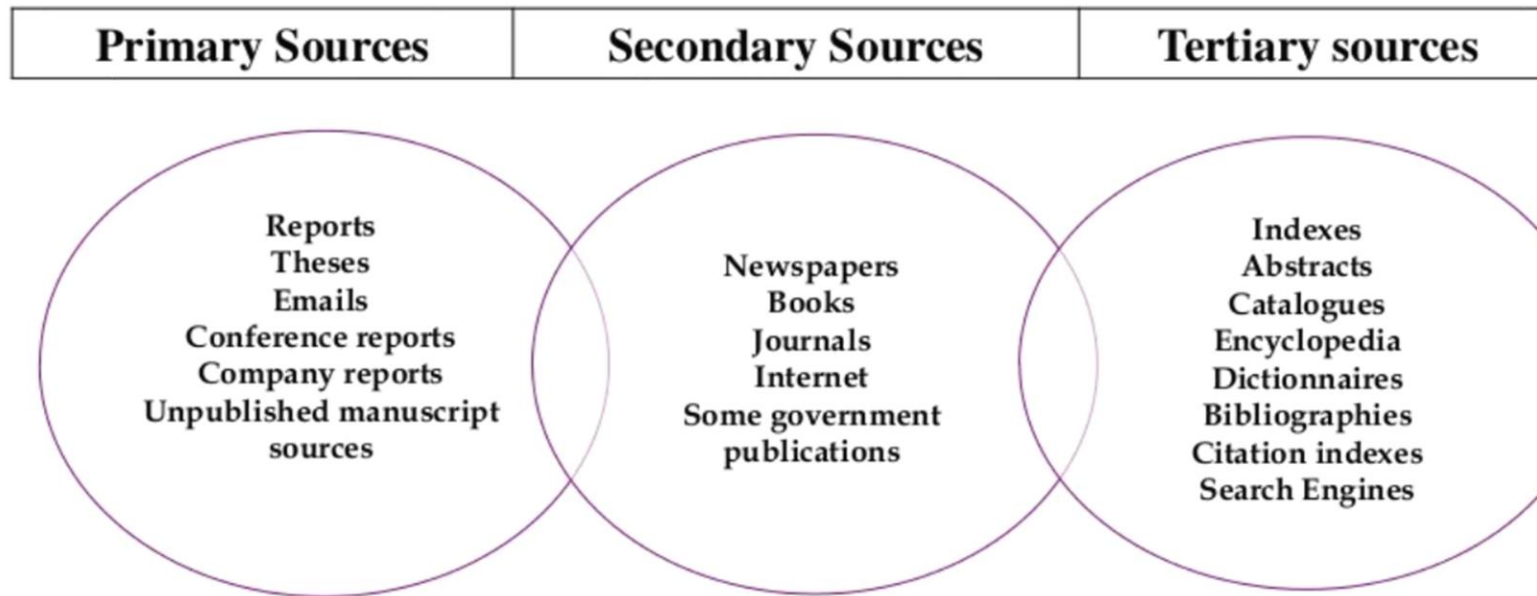
Sources of literature can be divided into three categories:

- Primary literature sources
- Secondary literature sources
- Tertiary literature sources

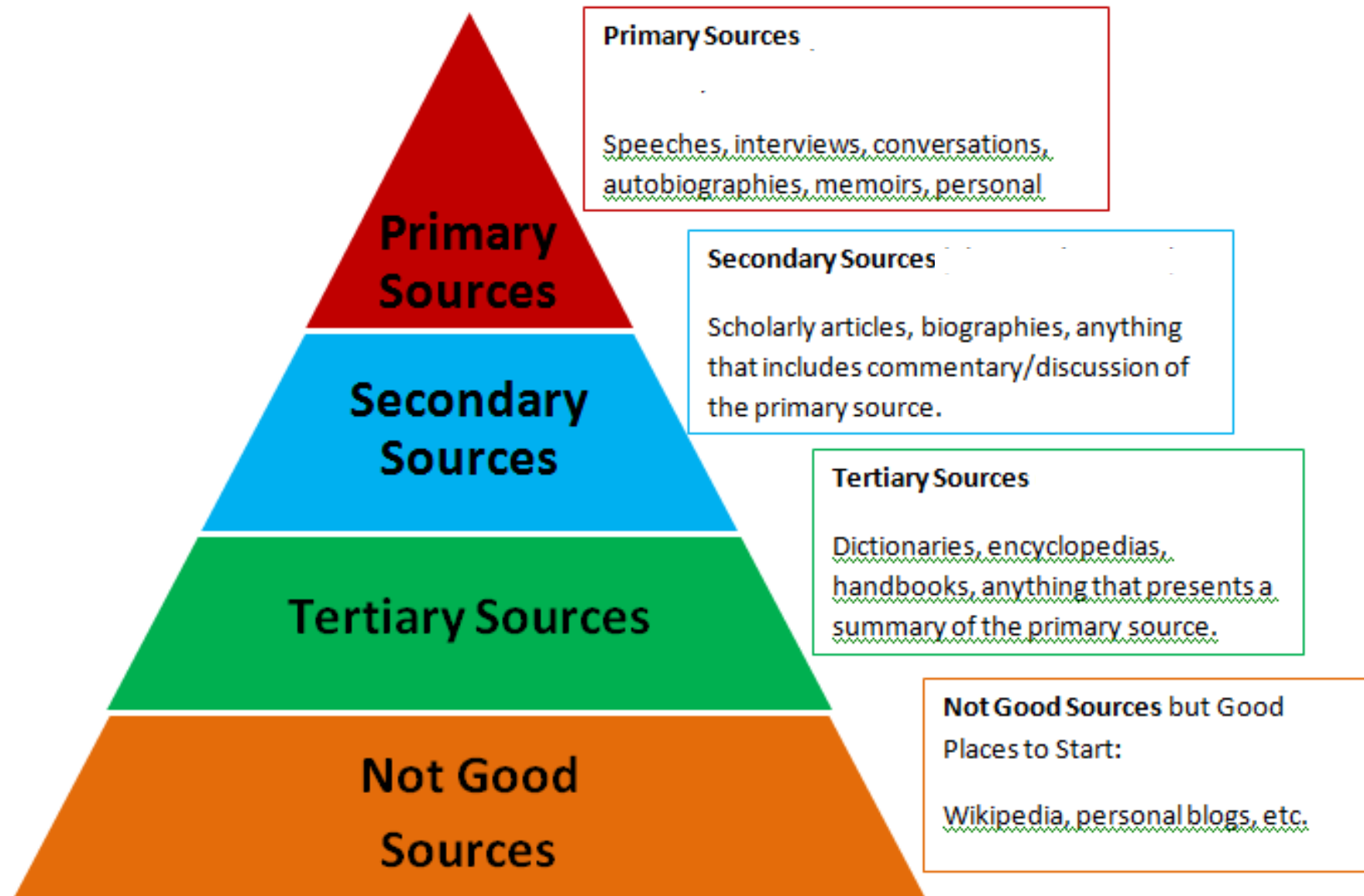


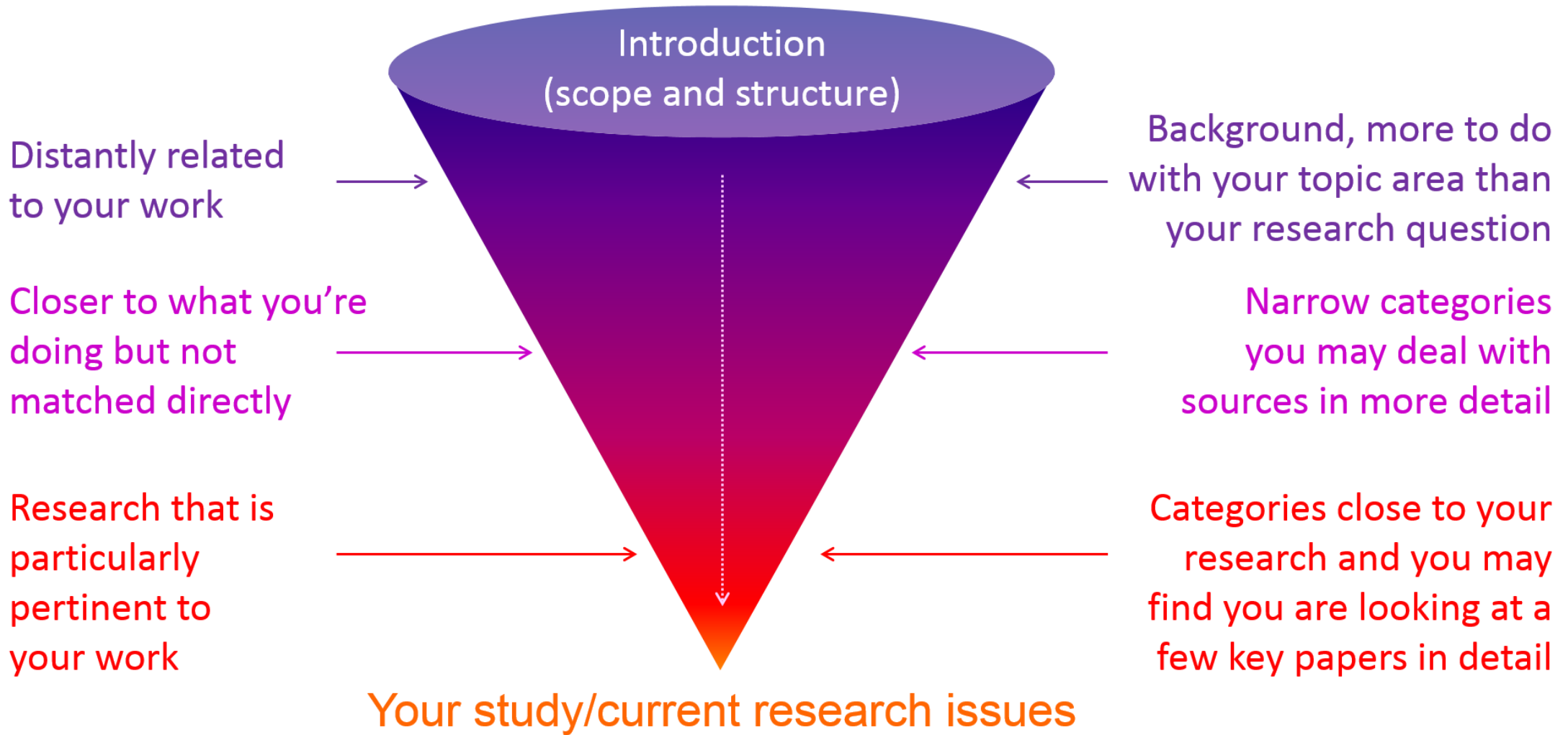
Sources of literature

The literature sources available to help you to develop a good understanding of and insight into previous research can be divided into three following categories:



A **tertiary source** is an index or textual consolidation of primary and secondary **sources**.





A black and white photograph of a person walking up a long, dark staircase. The person is silhouetted against a bright light source at the top of the stairs, creating a strong backlight effect. The staircase is flanked by dark walls and metal railings. In the background, a tall building with many windows is visible, also silhouetted against the bright light. The overall mood is dramatic and hopeful.

Today's session

Today's session

to discuss it.	
2 07/10/26 9-12	Focus: Research Questions and Methodology • Research study planning task. • What are the aims and objectives of your research? • What will you attempt to explain / explore / describe / evaluate in your research? • Which type of research question will you need? • Writing a good research question. • Selecting a research methodology.
Follow up tasks	Suggested reading/watching

Can you answer the following questions?:



What is the aim of your research project?



Why is it important for you to explore?



What will be the benefits – to you, students/ others, a school/ university/ other?



Who does your research involve? participants (number, who are they?)



What is your research question?



What type of research study will it be?

Assessment Component 1

Section	Suggested content	Approximate word count
Proposed Title		20-30
Background & Context	In this section you will need to: - Place the research topic in its historical, cultural and social context. - Explain why the research is significant and important. e.g. What is your research about? Why have you chosen this topic? Why is it important (to you/to others)? What does the published literature say about your topic? Do authors agree or disagree? Are there studies available that are <u>similar</u> to the study that you are proposing?	500
Aims and Objectives	In this section, you will need to: - Explain what you want to achieve through the <u>research</u>; - Outline the aims and objectives of the research. Is there a gap in the literature that you intend to fill?	250 – 500
Proposed methodology	In this section, you will need to explain how you will achieve your aims and objectives: - Describe the method(s) you will use to carry out your <u>research</u>; - Discuss your proposed sampling strategy/~~ies~~.	500
Introductory bibliography	You should list a minimum of 10 titles that are relevant to your research. You should include all works cited in this form. The list should be alphabetical using the Harvard referencing system.	

Why are the aims and objectives important?

- **Focus:** Help narrow the research scope to specific, achievable goals.
- **Guidance:** Provide a roadmap for selecting research methods and designing the study.
- **Clarity:** Ensure that the researcher and audience understand the purpose of the study.
- **Evaluation:** Serve as benchmarks for assessing whether the study has achieved its goals.

Aims and Objectives

Aims: the overall driving force of the research – what is it that you want to find out?

(Kumar, 2019)

Objectives: the means by which you intend to achieve the aim - how will you find this out?

Objectives break the primary aim into manageable, focused pieces, and are usually characterized as being more specific, measurable, achievable, relevant, and time-bound (SMART) (Locke & Latham, 2013).

The SMART steps

Adeoye, M.A. & Adong, C. (2023) The Power of Precision: Why Your Research Focus Should be SMART? *Journal of Education Action Research*. Volume 7, Number 4, pp. 569-577.

The results of this study show that a SMART research focus can increase research productivity, improve decision-making processes, and increase the chances of obtaining meaningful results.

www.researchgate.net/publication/377237542_The_Power_of_Precision_Why_Your_Research_Focus_Should_be_SMART

The SMART steps

Specific

Avoid ambiguity in your objectives.

They need to be clear and precise (Doran, 1981).

e.g.

General

‘to study the effects of social media’

Specific:

‘to examine the effects of social media use (Facebook, Instagram, and Twitter) on the academic performance of college students’

The SMART steps

Measurable

Provides a clear criterion to determine if the objective has been met.
Enhances the credibility of the research but also facilitates effective communication of the findings to stakeholders.

(Locke & Latham, 2013)

The SMART steps

Achievable

Encourages researchers to craft realistic objectives, resembling a self-check mechanism to ensure the objectives align with the scope and resources at their disposal.

For example:

‘to explore...through interviews with 25 randomly selected participants’
is an attainable objective as long as the researcher has access to these participants.

The SMART steps

Relevance

Compels the researcher to tailor the objectives in alignment with overarching goals of the study (Locke & Latham, 2013).

This is extremely important – each objective must help you meet your overall one-sentence ‘aim’ in your study.

The SMART steps

Time-Bound

Fosters a sense of urgency and prioritization, preventing procrastination and enhancing productivity (Doran, 1981).

e.g. 'To analyse the effect of laptop use in lectures on student engagement during two semesters'

expresses a clear deadline, thus serving as a motivator for timely completion.

Specific
Measurable
Achievable
Relevant
Time-bound

Example – good or bad???

Aim: To examine the effectiveness of online versus traditional face-to-face learning on student engagement and achievement.

Objective 1: To compare student grades between the groups exposed to online and traditional face-to-face learning.

Objective 2: To assess student engagement levels in both learning environments.

Objective 3: To collate student perceptions and preferences regarding both learning methods.

Common mistakes

Being Too Broad: Objectives that are overly general lack focus and clarity.

- Weak Objective: To improve education.

Using Vague Terms: Avoid words that are open to interpretation.

- Weak Objective: To understand student motivation.

Ignoring Feasibility: Unrealistic objectives can undermine the study's credibility.

- Example: To undertake a small-scale study to analyse global trends...

Overloading with Objectives: Too many objectives can dilute the focus and complicate the study.



Task 1:
What are your aims and objectives?

Start with:

The purpose of this research is to [assess, understand, evaluate, improve, etc.] **the** [topic, effect, result] **for** [students, teachers, other] **at/in** [place].



Aims and Objectives

Aim(s): what is it that you want to find out?

Objectives: how will you find this out?

Can you answer the following questions?:



What is the aim of your research project?



Why is it important for you to explore?



What will be the benefits – to you, students/ others, a school/ university/ other?



Who does your research involve? participants (number, who are they?)



What is your research question?



What type of research study will it be?

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RESEARCH QUESTION



What will you attempt to explain / explore /
describe / evaluate in your research?

Types of Research Question

Descriptive

seek to describe the nature of what already exists.

Explanatory

seek to expound on a phenomenon or examine reasons for and associations between what exists.

Exploratory

investigate little-known areas of a particular topic.

Contextual

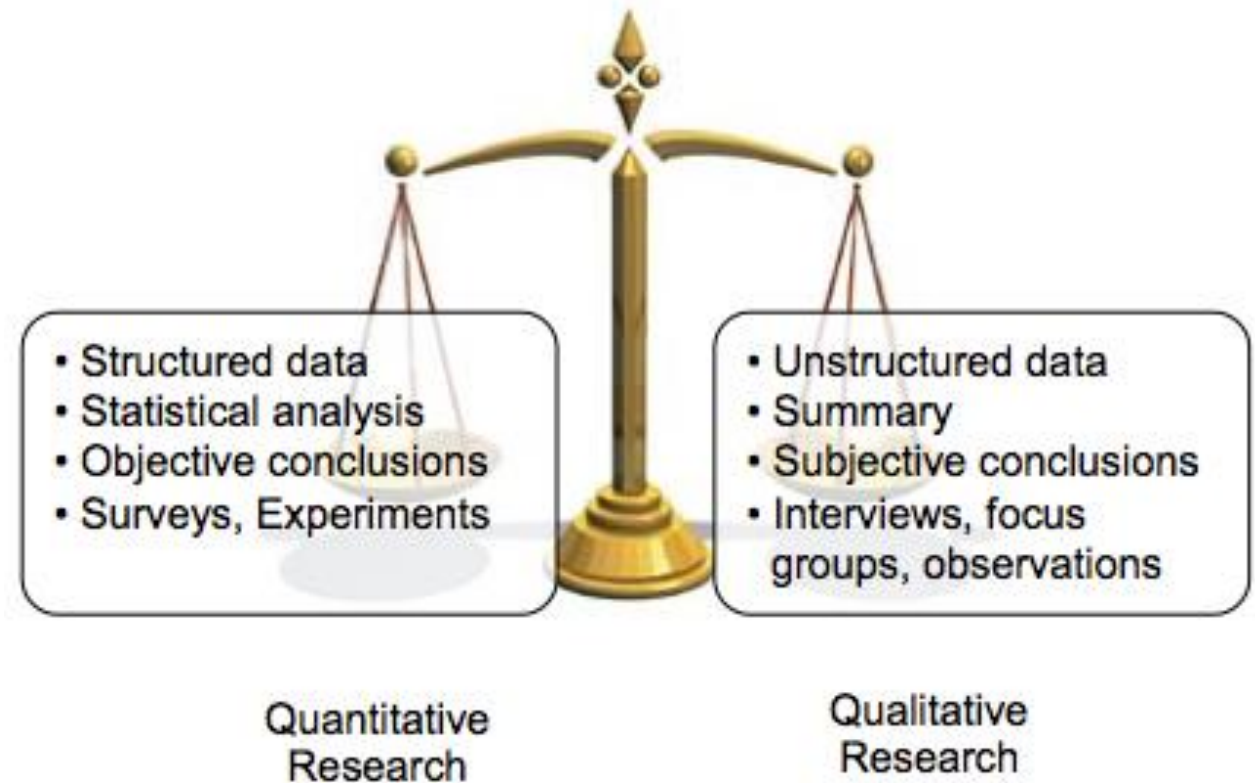
seek to describe the nature of what already exists.

Evaluatory

assess the effectiveness of existing methods or paradigms.

Qualitative and Quantitative Data

- Quantitative data refers to numerical information generated through the research process that can be understood, represented and analysed statistically.
- Qualitative data is non-numerical (e.g. text, image, audio) and offers the researcher a descriptive account of the phenomenon being studied.



Types of Research Question:

Quantitative

Quantitative research questions:

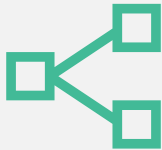
- seek to understand particular social, familial, or educational experiences or processes that occur in a particular context and/or location (Marshall & Rossman, 2011);
- typically include the population to be studied, dependent and independent variables and the research design to be used;
- usually written and finalised at the start of the project (Berger, 2015);
- don't use words such as: is/ are, does/do;
- can be further categorized into three types: descriptive, comparative and relationship.



Descriptive research questions aim to measure the responses of a study's population to one or more variables or describe variables that the research will measure. These questions typically begin with "what."



Comparative research questions aim to discover the differences between two or more groups for an outcome variable. These questions can be causal as well. For instance, the researcher may compare a group where a certain variable is involved and another group where that variable is not present.



Relationship research questions seek to explore and define trends and interactions between two or more variables. These questions often include both dependent and independent variables and use words such as "association" or "trends."

Quantitative Research Questions

Quantitative Research Questions

- What is the relationship between...and...?
- Is there an association between...and...?
- To what extent does...influence...?
- What effect does...have on...?
- How does...impact... ?
- Does...predict...?
- What factors are associated with...?
- Are there differences between...and...?
- What is the prevalence/frequency of...?
- How has...changed over time?

Types of research question – Qualitative

Qualitative research questions:

- may concern broad areas of research or more specific areas of study.
- usually adaptable, non-directional, and flexible (Creswell, 2013);
- generally aim to discover, explain or explore;
- can be further categorised into several types (Marshall and Rossman, 2011; Ritchie *et al.*, 2014).

Qualitative Research Questions

- How do...
- What are...
- What is the experience of...
- How is...perceived by...
- How do individuals understand...
- What factors influence...
- How do participants describe...
- What are the barriers and facilitators to...
- How is...experienced within ...



A good research question generally has the following features:

- It is written in the form of a question
- It is clearly written
- It cannot be answered with “yes” or “no”
- It has more than one plausible answer
- It considers relationships among multiple variables
- It is specific and clear about the concepts it addresses
- It includes a target population

Class discussion:



What is the best way
to teach counting to
young children?



What are the strengths and limitations of the following RQs?



1. Why do some learners find aspects of school difficult and what could the school do about it?
2. How often does the average parent listen to their child read and what is the impact on progress?
3. How many school days are lost through pupils' unauthorised absence?
4. What are the advantages and disadvantages of mobile phone use in schools?

Research Questions should be:



- **Clear** – it should be easy to understand
- **Specific** – convey exactly what you want to know
- **Original** – remember that you're researching something new that has not been done before
- **Achievable** – is it possible for you to answer this question?
- **Relevant** – to the literature you've read, your own setting, the purpose of your enquiry
- **Interesting** – Why do people need to know about this?

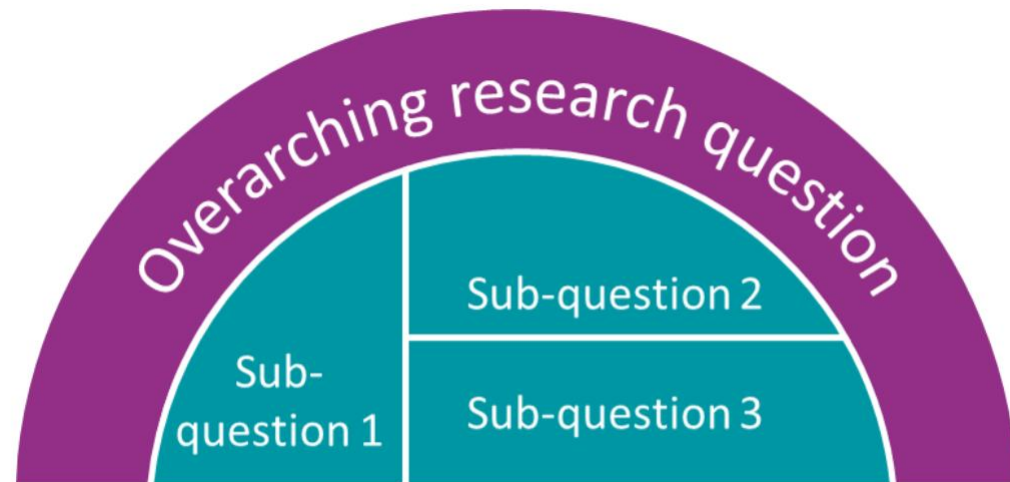
(Adapted from Lewin, 1948)

The role of sub-questions (subsidiary)

Your main research question will probably still be too big to answer easily.

This is where sub-questions come in.

They are specific, narrower questions that you can answer directly from your data.



How do you answer your sub-questions?

Depending on the type of project you are undertaking, some (or all) of the sub-questions may be answered with information collected from literature and some (or all) may be answered by analysing data directly collected as part of your **primary research**.

e.g.

Documentary analysis (i.e. of reports/policy)

Responses from participants (interview, questionnaire etc.)

Task

Write your research question(s)!



Ask yourself:

1. Does the question deal with a topic or issue that interests me enough to spark my own thoughts and opinions?
2. Is the question easily and fully researchable?
3. What type of information do I need to answer the research question?
Is the scope of this information reasonable? (e.g., can I really research 30 writing programs that have been developed over 10 years?)
4. Given the type and scope of the information that I need, is my question too broad, too narrow, or ok?
5. What sources will be able to provide the information I need to answer my research question (journals, books, internet, government documents, people)?
6. Can I access these sources?
7. Given my answers to the above questions, do I have a good-quality research question that I actually will be able to answer by doing research?



A photograph of a dining table with several white plates and bowls containing various dishes, including salads, seafood, and vegetables. Hands are visible using silver forks to eat. The scene is dimly lit, creating a warm, intimate atmosphere. The text "See you next week!" is overlaid in white, centered on the image, with a thin white horizontal line underneath it.

See you next week!