

Developing Your Research





Research Topic



Research Question

What do I want to find out?



Research Aim

What is the overall purpose of my study?



Research Objectives

What specific steps will I take to achieve this aim?



Importance of a Well-Defined Focus

- A clear focus will help guide you at every stage of the research process.
- It will help you maintain alignment with your objectives, ensuring your study remains coherent and organised.
- By clearly defining the research goals, it reduces ambiguity and can enhance your study's impact.



Importance of a Well-Defined Focus

- A well-defined focus helps you identify practical constraints like time, resources, and data availability, ensuring your study is achievable.
- You can prioritise the most significant aspects, avoiding unnecessary work.



Importance of a Well-Defined Focus

- With a clear focus, you can pinpoint the most relevant data sources, saving time and avoiding irrelevant information..

The Scope Squeeze

“How can construction become more sustainable?”



Choosing a Research Topic

- Aligning research with your academic and professional interests ensures personal motivation and sustained engagement throughout the study.
- A topic closely related to your expertise, career or passion is more likely to result in deeper insights and high-quality outputs.
- It allows you to build on your existing knowledge base.



Choosing a Research Topic

- Understanding the research context involves identifying emerging trends, challenges, and innovations in the chosen field.
- Addressing current issues makes your research timely and increases its practical relevance.
- Identifying gaps in the literature is equally critical. You should review existing studies to find areas with limited or inconclusive findings, ensuring your work contributes new insights to the field.

Choosing a Research Topic

FINER

Feasibility

The question should be practical to answer within the constraints of time, budget, expertise, and available resources.

Interest

The topic should be engaging to the researcher and stakeholders, ensuring sustained motivation and relevance.

Novel

The question should contribute new knowledge to the field, address a gap, or provide a fresh perspective.



Ethical

The study must meet ethical standards, ensuring the research does not harm participants or violate ethical principles.

Relevant

The question should align with current needs in the field or society, ensuring the research has practical and academic significance.

FINER Feasibility Test

You are considering a dissertation investigating an issue in the construction industry. Your job is to decide whether the proposed research question is suitable, what problems you might encounter and how you could improve it

FINER Feasibility Test

Scenario A: Construction Waste

What barriers prevent small construction contractors in South Wales from reusing surplus building materials?

Scenario B: Site Safety

Does the introduction of digital safety inspections reduce the number of accidents on construction sites?

Scenario C: Sustainable Materials

Are recycled concrete aggregates a cost-effective alternative to conventional aggregates in small building projects

Scenario D: Building Energy

How effective are energy-efficiency improvements in reducing energy consumption in older public buildings?"

FINER Feasibility Test

Criterion	Questions to Consider
Feasible	Can you access the people, buildings, records or equipment needed? Can the work be completed in time?
Interesting	Would you want to investigate this topic for several months? Would it interest relevant industry stakeholders?
Novel	Could the research add a useful insight, investigate a different context or apply existing knowledge in a new way?
Ethical	Could the work involve confidential information, sensitive personal data, safety risks or the need for informed consent?
Relevant	Would the findings be useful to industry, clients, professionals or society?

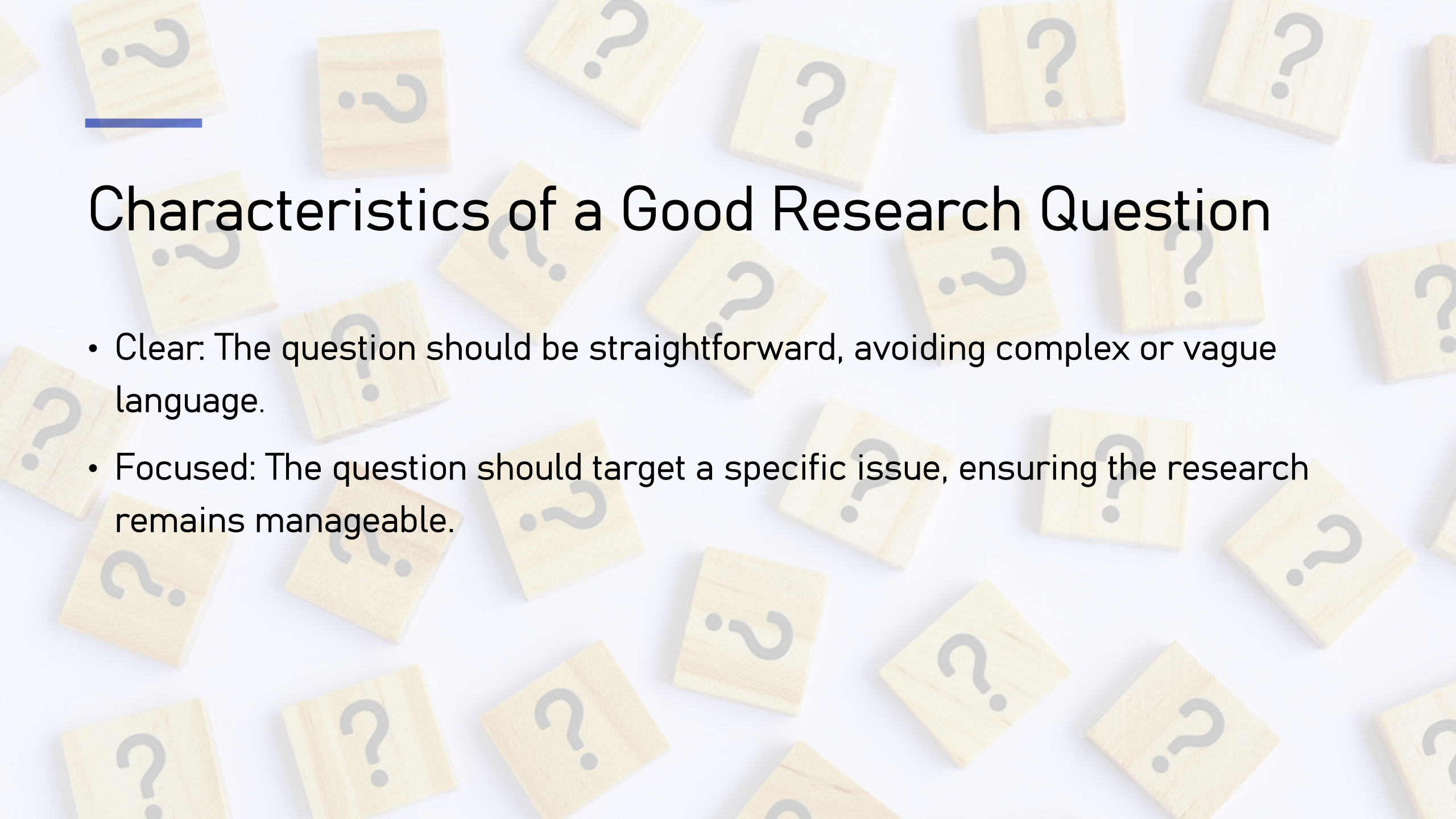


Scenario	Main Strength	Potential Difficulty
Construction Waste	Relevant practical problem; potentially accessible participants	Recruiting contractors and obtaining honest responses
Site safety	Clear outcome and practical relevance	Accident data access, confidentiality and confounding factors
Recycled aggregates	Relevant to cost and sustainability	Defining the application and obtaining comparable cost and performance data
Building energy	Potential for measurable before- and-after comparisons	Access to reliable records and accounting for weather, occupancy and other changes

The background of the slide is a light gray surface covered with numerous small, light-colored wooden blocks. Each block has a dark gray question mark printed on its top face. The blocks are scattered across the entire frame, creating a textured, thematic background for the text.

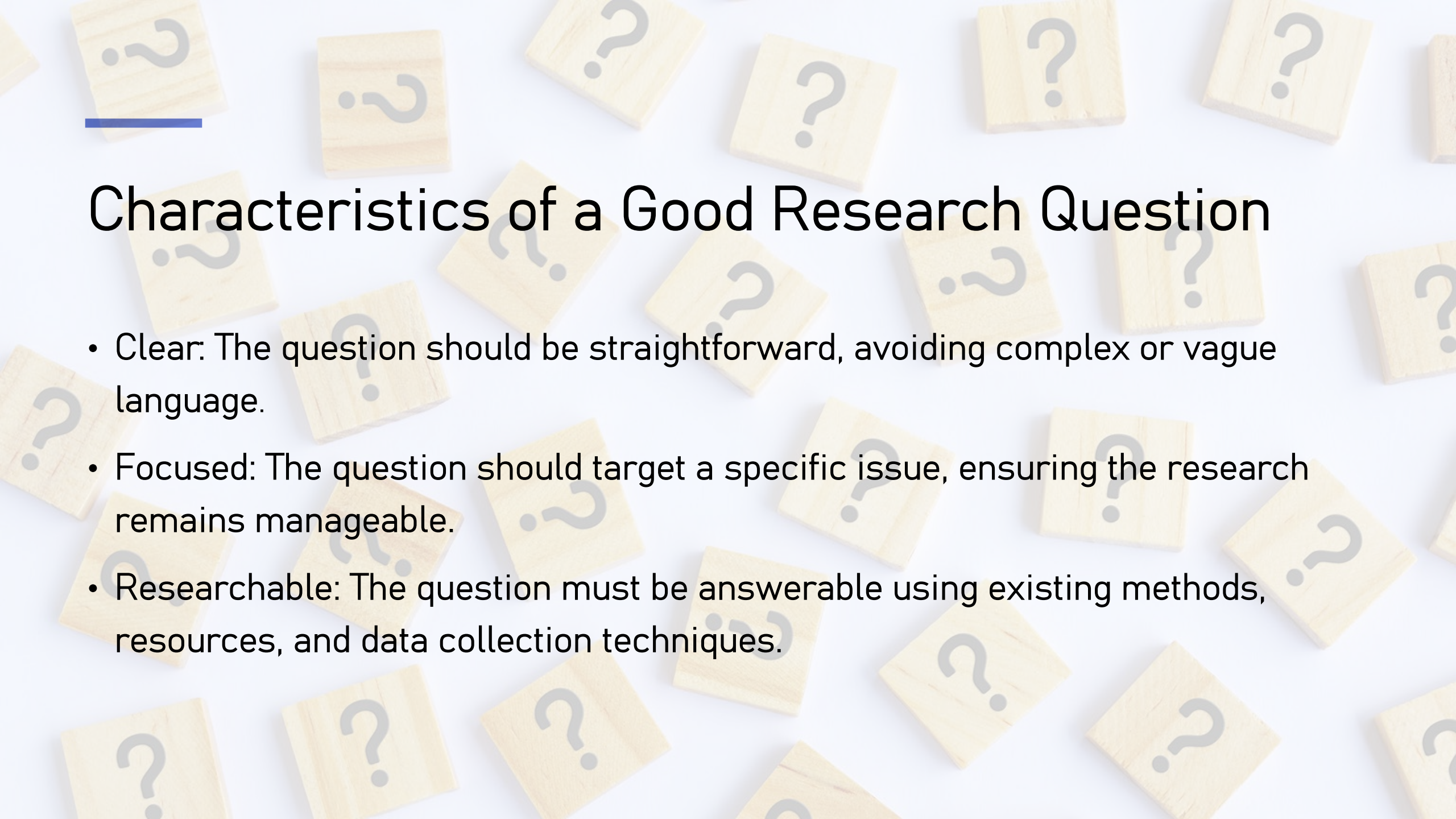
Characteristics of a Good Research Question

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- Focused: The question should target a specific issue, ensuring the research remains manageable.
- Researchable: The question must be answerable using existing methods, resources, and data collection techniques.

Types of Research Question

Descriptive

- Seeks to observe and detail a phenomenon.

Types of Research Question

Comparative

- Compares two or more groups, interventions, or situations.

Types of Research Question

Exploratory

- Examines underlying causes, relationships, or mechanisms.

One Topic, Three Questions

Write three different question types about
construction-material reuse



Defining Research Aims

- Provide a high-level summary of what you seek to achieve.
- They outline the overall goals of your study, giving direction to your research process and guiding the specific objectives.
- They set the stage for more detailed research questions and objectives.



Defining Research Aims

- “To evaluate the effectiveness of sustainable construction materials in reducing environmental impact in urban development.”



Defining Research Aims

- “To investigate the role of digital technologies in improving safety standards on construction sites.”



Tips for Writing Aims

- Use Broad, Overarching Statements
- Research aims should be general enough to allow flexibility but focused on the core purpose of the study.
- Keep the language clear and straightforward, summarising the direction of your research without diving into specific details.



Tips for Writing Aims

- Align with the Research Question
- Ensure that the research aims directly address and align with the specific research question.
- The aim should provide a framework for answering the research question or contributing to solving the problem posed.

Defining Research Objectives

- The primary aim of research objectives is to break down complex, construction-related problems into manageable, actionable steps.
- This allows you to focus on specific aspects of a larger issue and systematically gather relevant data, analyse it, and draw conclusions.
- Clear and concise objectives provide direction to the research process, ensuring that the study remains focused and purposeful.



Characteristics of Good Objectives

- Effective research objectives should adhere to

SMART



Characteristics of Good Objectives

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- **Relevant:** Ensure the objective directly addresses an important issue or problem in construction
- **Time-bound:** Clearly define a timeframe for completing the objective to ensure the research is conducted efficiently.



Structuring Objectives

When formulating research objectives, they should begin with an actionable verb to define the task clearly.

Common verbs include "To analyse," "To assess," "To compare," "To evaluate," and others.





“To evaluate the effectiveness of sustainable construction materials in reducing environmental impact in urban development.”

- To identify the most commonly used sustainable construction materials in urban development projects.



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- To identify the most commonly used sustainable construction materials in urban development projects.
- To assess the environmental impact of conventional versus sustainable materials in terms of carbon emissions and resource consumption.



“To evaluate the effectiveness of sustainable construction materials in reducing environmental impact in urban development.”

- To identify the most commonly used sustainable construction materials in urban development projects.
- To assess the environmental impact of conventional versus sustainable materials in terms of carbon emissions and resource consumption.
- To analyse the cost-effectiveness of sustainable materials in urban construction projects.

Put the objectives in order

LEARNING OUTCOME

Sequence objectives logically, from establishing a knowledge base to collecting and interpreting evidence.

10–15 minutes

Small groups

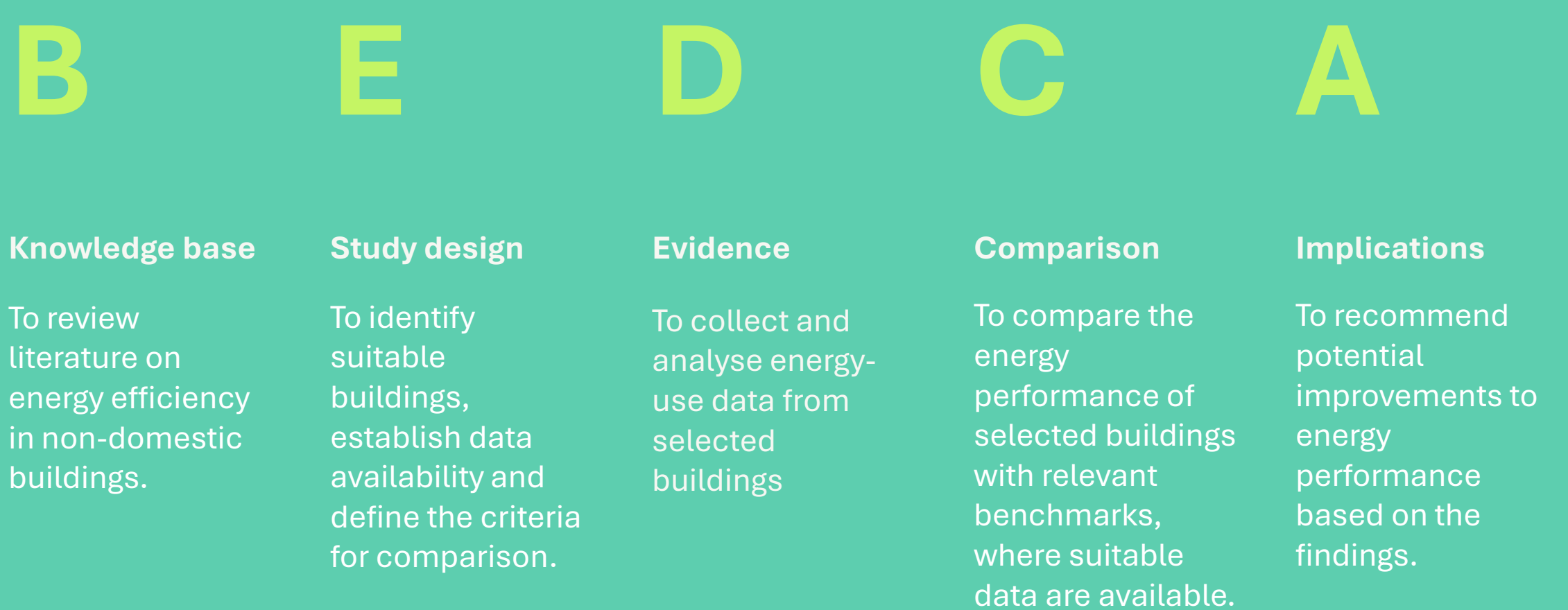
Research sequencing

Scenario: Investigate energy performance in university buildings. Establish what is known, gather evidence, analyse findings and identify potential improvements.

The sequencing challenge

- A** To recommend potential improvements to energy performance based on the findings.
- B** To review literature on energy efficiency in non-domestic buildings.
- C** To compare the energy performance of selected buildings with relevant benchmarks, where suitable data are available.
- D** To collect and analyse energy-use data from selected buildings.
- E** To identify suitable buildings, establish data availability and define the criteria for comparison.

Suggested order: B, E, D, C, A



The aim explains the overall purpose; objectives break that purpose into specific, manageable research tasks or outcomes.

Research alignment checklist

- [] The research aim directly addresses the research question.
- [] Every objective contributes to answering the question.
- [] The objectives collectively cover the main elements of the aim.
- [] The objectives are specific enough to guide the work.
- [] The proposed evidence and methods can address the question.
- [] The scope is realistic for an undergraduate dissertation.

Your own research plan

1

Define the question

What exactly do I want to find out?

2

Write the aim

What is the overall purpose of my investigation?

3

Develop objectives

What specific things must I establish or achieve?

4

Check the sequence

Do the objectives form a logical and coherent plan?

5

Test feasibility

Can I finish with the time, skills, access and resources available?