From ideas to studies: how to get ideas and sharpen them into research questions

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Research is the Art of the Soluble.

The transition from a raw idea to a testable question is a process of subtraction.

Ideas Emerge from Immersion, Not a Vacuum

The Twin Engines of Discovery are Surprise and Indignation.

Surprise

The intellectual reaction to an anomaly or unexpected result. It drives curiosity.

Indignation

The moral reaction to gaps in care or knowledge. It drives the desire for justice.

A Field Guide to the Taxonomies of Discovery.

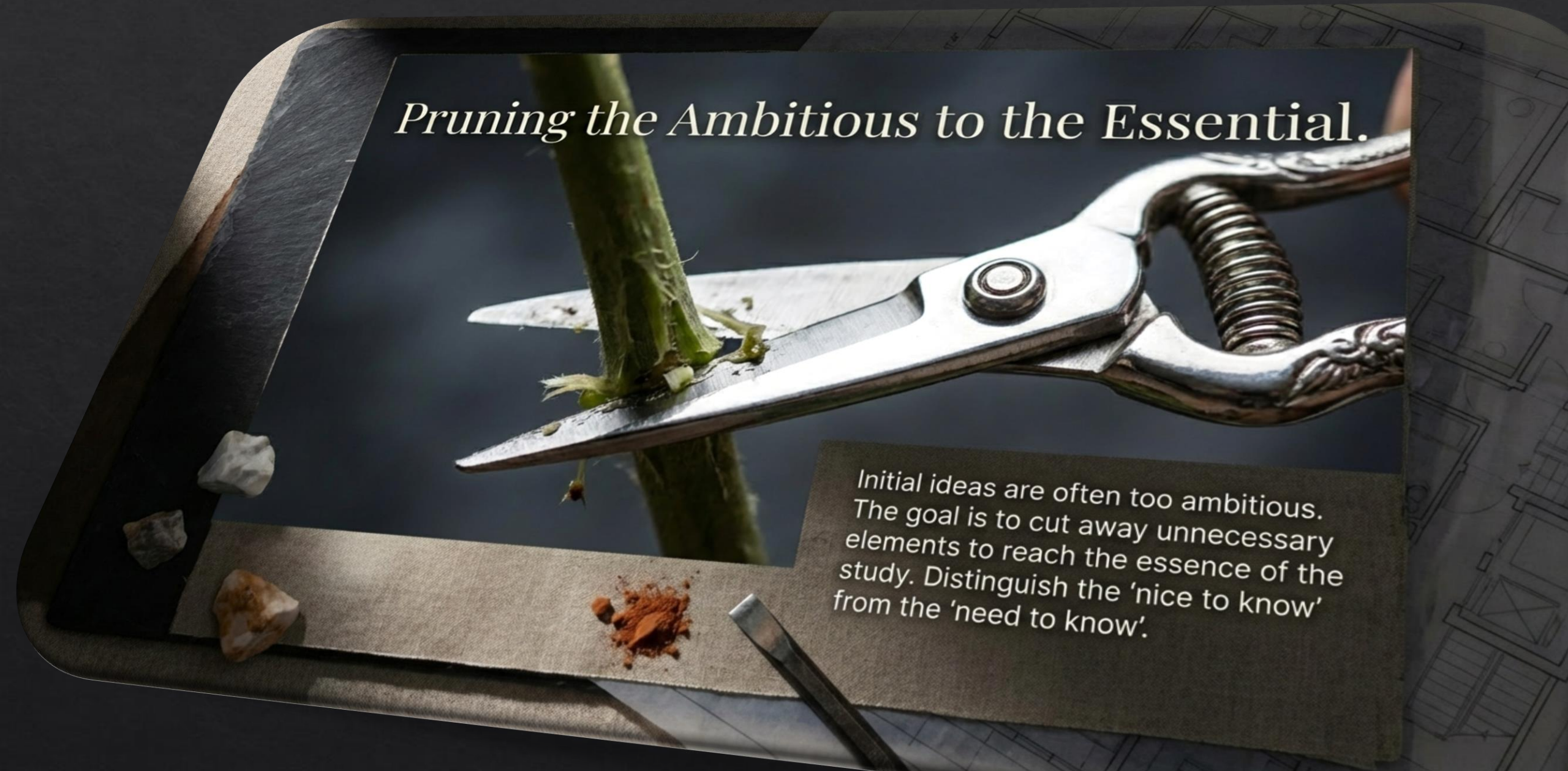
1.	**Review Practice**	*Challenging accepted ideas and identifying Cinderella topics (overlooked areas).*
2.	**Variation Analysis**	*Investigating geographical or organizational differences in care delivery.*
3.	**Professional Experience**	*Leveraging personal teaching, mentorship, and daily work.*
4.	**Literature & Engagement**	*Maintaining a skeptical attitude toward prevailing beliefs in journals.*
5.	**Imagination**	*Finding unique situations where potential confounders do not exist.*

“Capture the Spark Before It Fades.” in Playfair Display.

The Discipline of the Log: Maintain logs for “fringe thoughts” from everyday life. Continuously refine and regroup notes.

The Blank Slate: Write literature reviews and conceptual models before data collection to free the imagination.

Pruning the Ambitious to the Essential.



Initial ideas are often too ambitious. The goal is to cut away unnecessary elements to reach the essence of the study. Distinguish the 'nice to know' from the 'need to know'.

Seek the Lost Wristwatch, Do Not Just Beachcomb.

Translating Intent into Operation.

The Chief Complaint

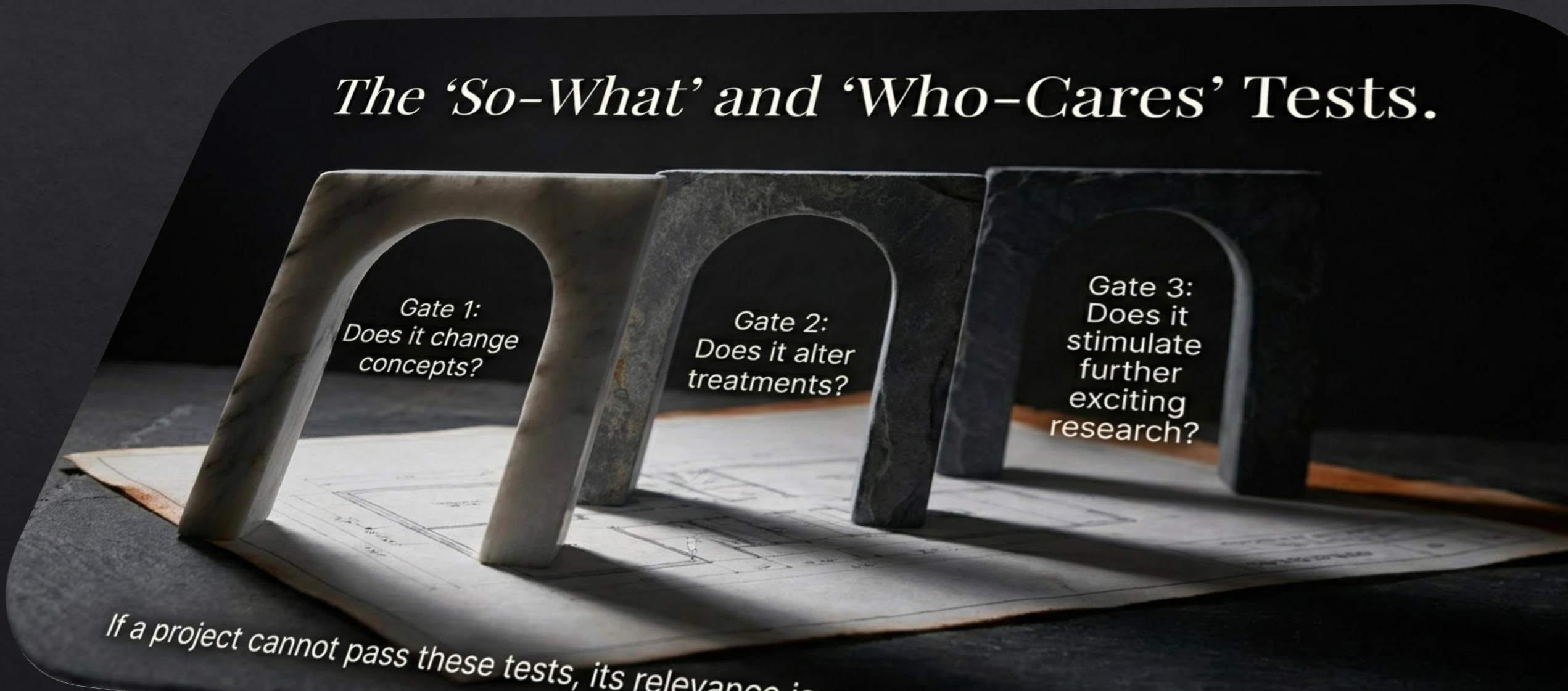
The underlying problem and the intended impact.

The Maneuver

The specific groups to be compared and outcomes to be measured.

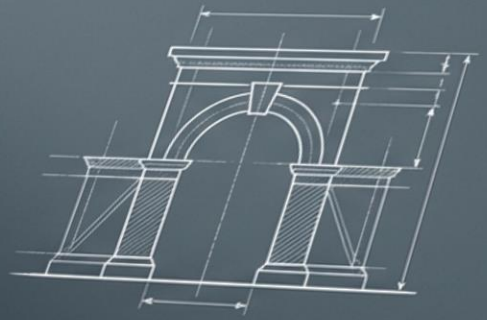
A study must bridge the gap between what you want to change and what you can actually measure.

The ‘So-What’ and ‘Who-Cares’ Tests.



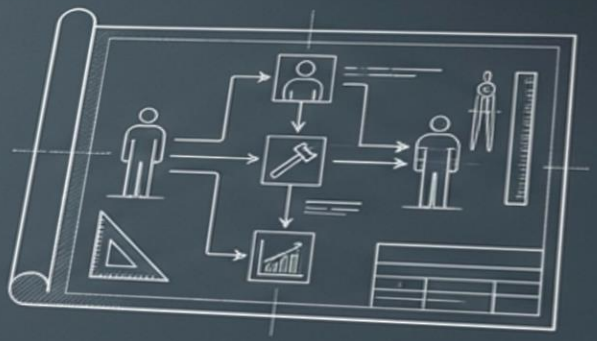
If a project cannot pass these tests, its relevance is questionable, regardless of design.

Frameworks for Structured Reasoning



FINER (General Evaluation)

- Feasible
- Interesting
- Novel
- Ethical
- Relevant



PICO (Clinical/Pragmatic)

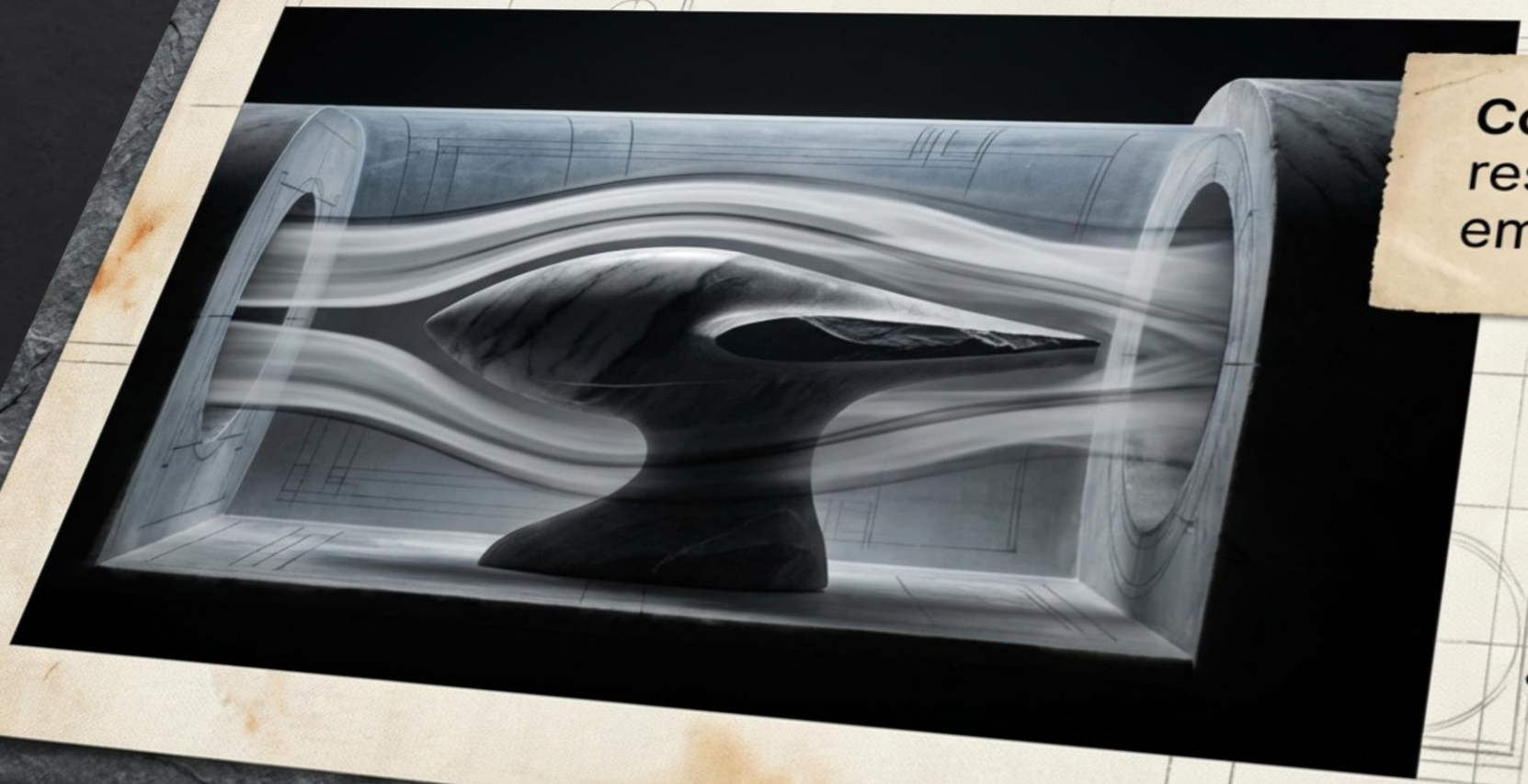
- Patient
- Intervention
- Comparison
- Outcome

Mapping Causal Logic and Counterfactuals

Counterfactual Reasoning: *Can this observational study mimic an ideal randomized trial?*

DAGs (Directed Acyclic Graphs): Visualize causal structures to identify confounders, mediators, or colliders.

Pilot Studies Test Procedures, Not Results.



Core Goal: To save the researcher from embarrassment.

- Identify misunderstood questionnaires
- Expose unproductive laboratories
- Reveal logistical hurdles (recruitment, access)

Write the Paper Before Collecting the Data.

Visualize Results: *Design empty 'draft tables' to confirm if the data will answer the question.*

Anticipate Objections: Draft the discussion early to imagine reactions to positive, negative, or indeterminate outcomes.

Determining the Philosophy of Practice.

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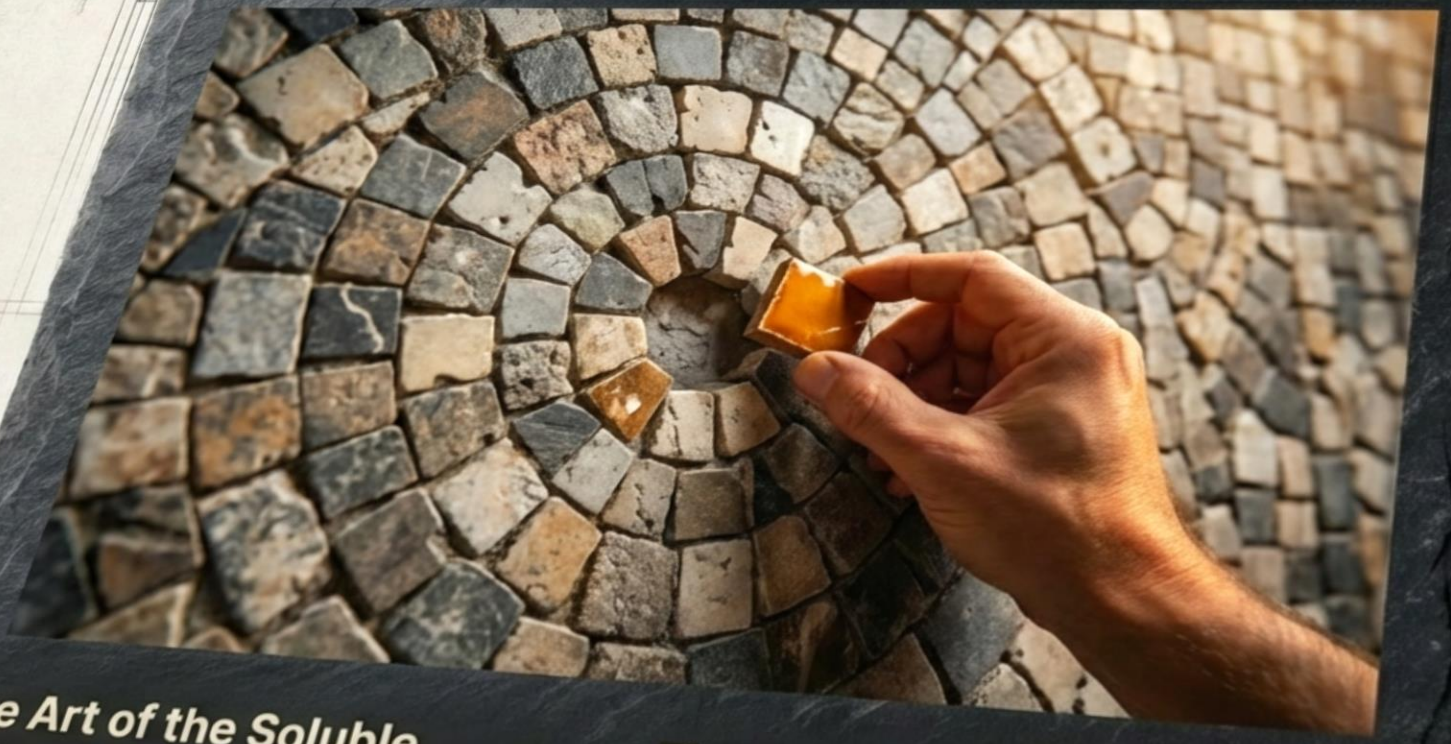
Pragmatic Research

Decision making. Requires strict adherence to a predefined protocol.

Explanatory Research

Understanding nature. Allows for iterative changes and insights from data.

Adding a Shining Stone to the Mosaic.



The Art of the Soluble
Limit questions to what can be solved with available resources.

Final Goal
To successfully add one small shining stone to the larger mosaic of science.

Thank you for kind listening