

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



Regularities (Induction)

Observing constant conjunctions—things happening in succession that suggest potential causality.



Anomalies (Refutation)

Observations that defy expectations. These force the mind to seek new explanations.

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.



Review Practice

Challenging accepted ideas and identifying Cinderella topics (overlooked areas).



Variation Analysis

Investigating geographical or organizational differences in care delivery.



Professional Experience

Leveraging personal teaching, mentorship, and daily work.



Literature & Engagement

Maintaining a skeptical attitude toward prevailing beliefs in journals.



Imagination

Finding unique situations where potential confounders do not exist.

"Capture the Spark Before It Fades." in Playfair Display.

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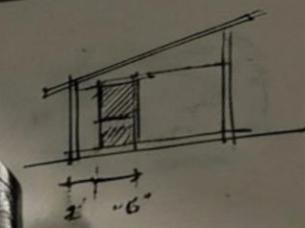
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A pair of silver scissors is shown in the process of cutting a green stem. The scissors are positioned diagonally across the frame, with the blades open and the stem held between them. The stem is being cut on a dark, reflective surface. To the left of the scissors, there are several small, light-colored rocks or pieces of paper. Below the scissors, there is a piece of light-colored paper with a small pile of orange powder on it. The background is dark and features faint architectural drawings or blueprints.

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'.



The Beachcomber
Wanders looking for
anything of value.
(Weak Research)

***Seek the Lost Wristwatch,
Do Not Just Beachcomb.***

The Watch Seeker
Knows exactly what they are looking for,
knows where to look, and will immediately
recognize the result.
(Strong Research)

Translating Intent into Operation.



Latent Objective



Stated Objective

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.

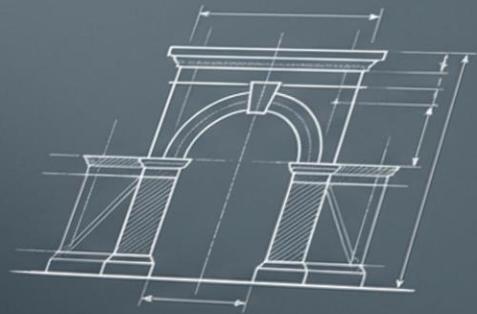
*Gate 1:
Does it change
concepts?*

*Gate 2:
Does it alter
treatments?*

*Gate 3:
Does it
stimulate
further
exciting
research?*

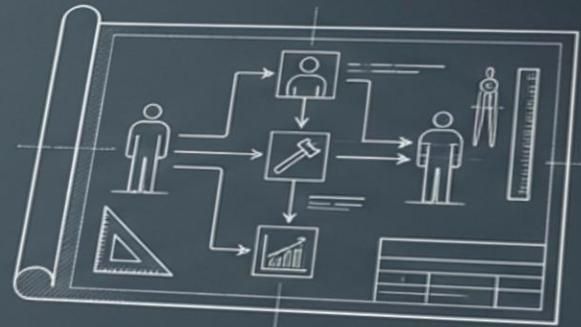
If a project cannot pass these tests, its relevance is questionable, regardless of design.

Frameworks for Structured Reasoning



FINER (General Evaluation)

-  Feasible
-  Ethical
-  Interesting
-  Relevant
-  Novel

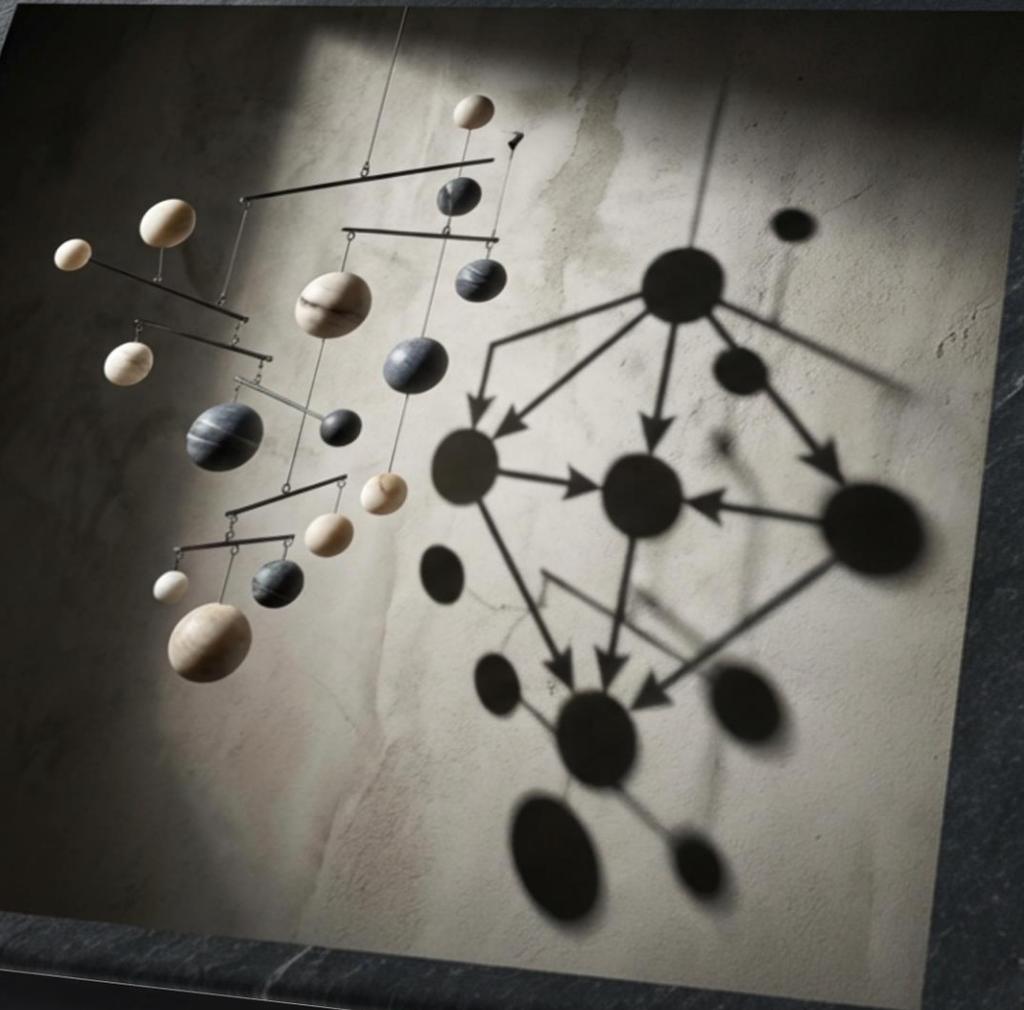


PICO (Clinical/Pragmatic)

-  Patient
-  Comparison
-  Intervention
-  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.

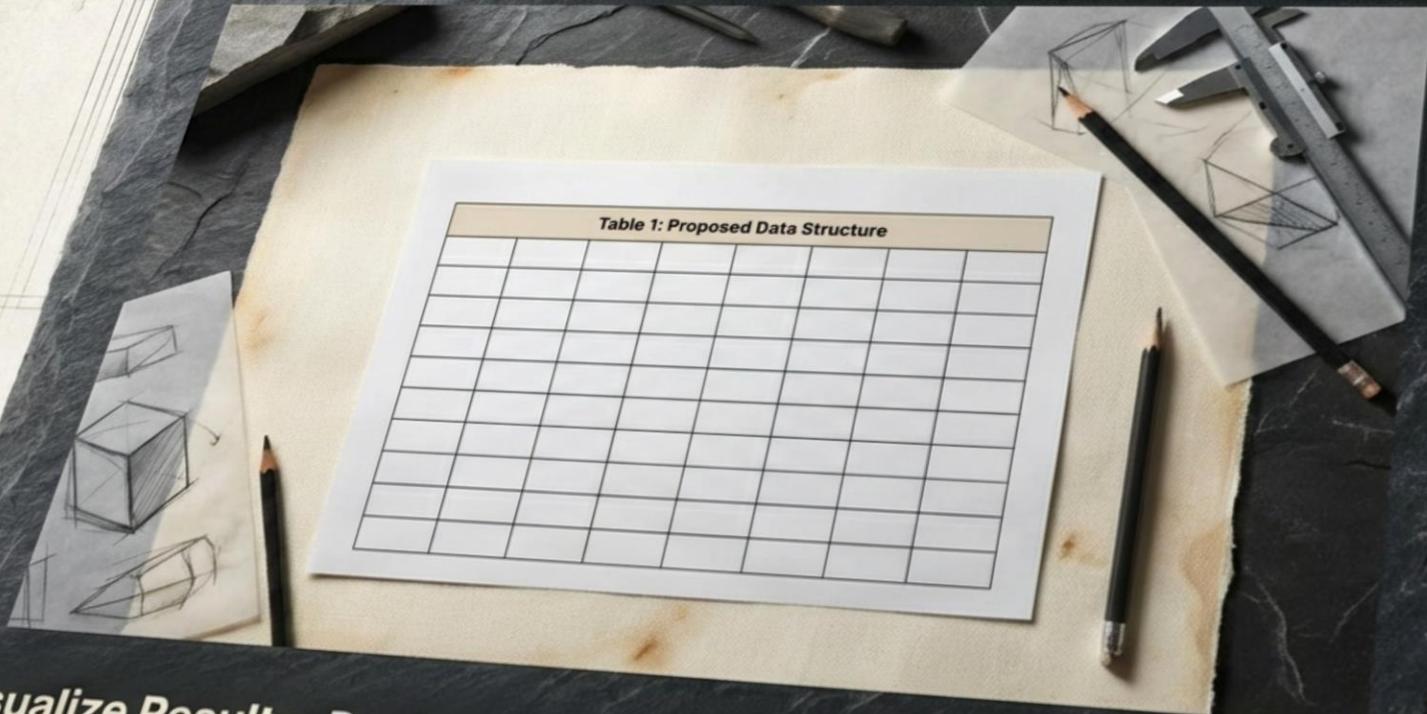
Pilot Studies Test Procedures, Not Results.



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. *Determining the Philosophy of Practice.*

Pragmatic Research

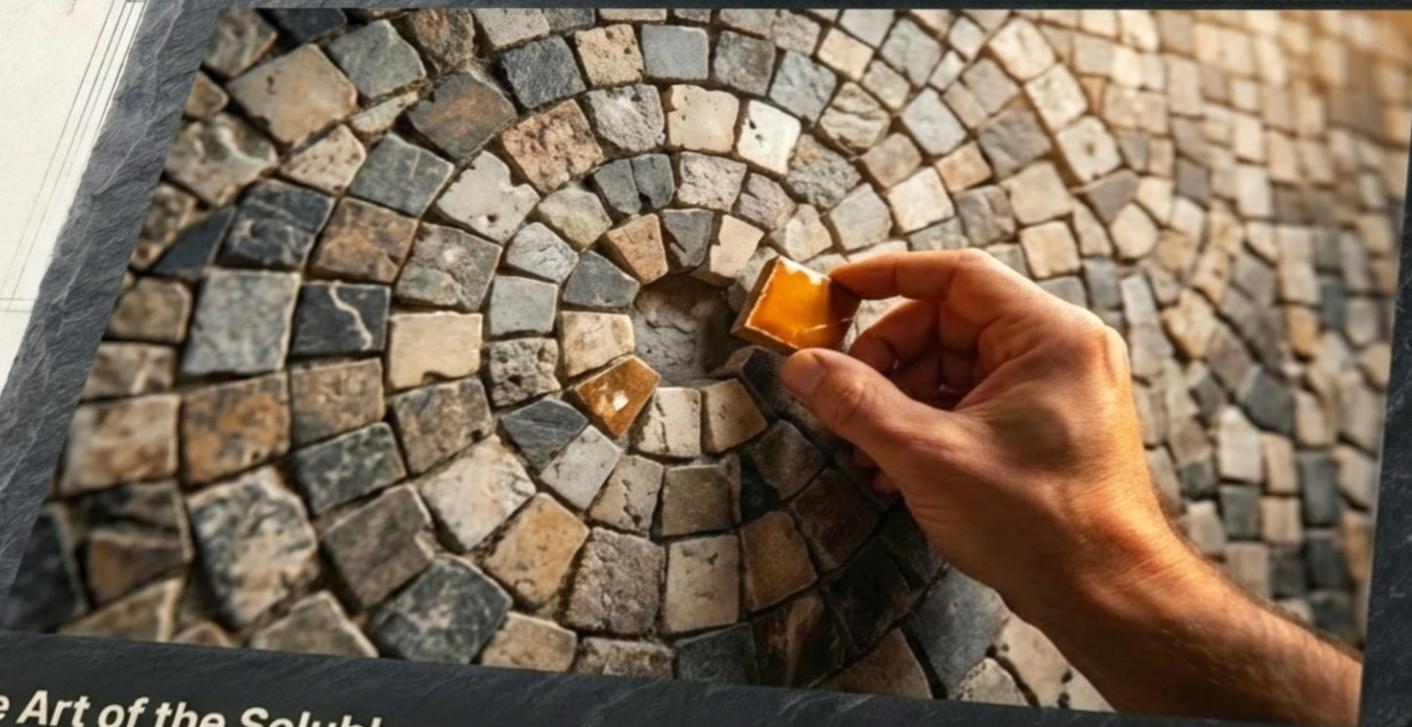
Decision making. Requires strict adherence to a predefined protocol.

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