



“Pro Tips” for Refining Research Questions and Developing a Successful Research Proposal

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Key Elements of a Research Proposal

1. Research problem
2. Research aims and objectives
 - a. Research questions
3. Research design
(methods and plans)





Framing and Selling the Problem


- Research is a structured way of finding answers or solutions to problems
 - Everything in your project and that follows in your proposal must clearly align to this problem
 - The problem is the cornerstone of your sales pitch in the proposal.
- Why should we care about this problem compared to all of the other problems and proposals out there? (How do I know this is important?)



- Relevant to EPA's mission (and be very explicit about where it ties into programmatic objectives, regional priorities, Strategic Plan etc)



- Relevant to the call for proposals or program (*use the specific language they use*)
- Relevant to needs of EPA's partners/ communities we serve (and be very specific about how this impacts them)
- Significant and novel enough to warrant research

- Frame your aims and objectives in terms of *both the* problem and the answers (solutions) you hope to find.
 - *“This research proposes to test a and b with a view towards improving understanding of c to address problem d outlined above”*
-  Way too often I see just a methodological statement as the objective: *“This research proposes to test a and b”*.



Research Questions: The *Real* Aims and Objectives

- Your research questions represent both the most basic blueprint for your work, and the formal boundaries of your inquiry
- The true aims and objectives for your work are *defined by* the questions you will ask and *bounded by* the limited range of answers they *can* generate
- Research questions set out a problem that can be challenged, examined and analyzed in a logical and systematic manner
- May require a wholesale re-write of problem and objectives in order to ensure continuity. That's OK! Research development and proposal writing is an iterative process.

- How am I going to provide answers to *each* of my research questions?
- How does the following shape what's possible? *What are my limitations?*
 - Facilities
 - Personnel/ expertise
 - Approach or strategy
 - Finance/ budget
 - Time
 - Agency rules/ constraints/ approvals
 - Available data, analytical approach etc
- What do I have to *change* in light of above?



- Research questions especially
- Save time and energy for a retrospective look!

