



Research Design

- Q: do you have an idea of where your research problems are coming from?
 - It is best if you play an important role in formulating your research problems (as opposed to your major professor giving them to you)
 - Have a look at pp. 34-35 (Montello and Sutton reading): typical inspiration sources for your research questions

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- Also remember the point we made early on in this course:
 - Research is fundamentally a creative endeavor, even though norms and structures also play a huge role in science

TEDx Talk: Daniel Seara discusses creativity, science, and the importance of guessing

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- A problem statement will include some context to explain the problem to be investigated
 - However, the focus of the problem statement is a concisely-worded sentence (or two or three) that precisely defines the specific research question you are investigating
 - It is this sentence (or a very few sentences) that we will mainly focus on here

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- Problem statements can be formulated well no matter what theoretical perspective you investigate from
- The “scientific method” is most closely associated with the quantitative (empiricist) tradition
- Other perspectives have developed that emphasize aspects of what is “real” that cannot be so easily quantified

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- Example: humanist research
 - Humanism is concerned with the role of human experience and meaning
 - In geography, humanism connects experience and meaning with people/environment relations
 - Humanist geographers “enter into” their research to understand attitudes (not neutral/outside)
 - Humanist writing is subjective where writing in the physical sciences attempts to be thoroughly objective

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- Q: When might a humanist approach be appropriate?
 - Even within human geography, might there be times when humanism could be more successfully argued than others?

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- Even with such extremes (qualitative vs. quantitative, objective vs. subjective), clear problem statements can be written in most situations
 - **Quantitative:** problem statement will lead into a hypothesis (prediction of expected outcomes)
 - Example: “There is no relationship between ground slope angle and vegetation cover type”

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- Even with such extremes (qualitative vs. quantitative, objective vs. subjective), clear problem statements can be written in most situations
 - **Qualitative:** purpose statement will lead to a question to be answered by research
 - Example: “Did government actions contribute to spousal abuse in Willowgrove in the 1980s?”

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- Another important consideration relating to problem statement definition is the “matrix” or study area
 - Part of every geographical research project
 - No “right answers” here: geographers do good research in big areas and in small areas
 - Different study area definitions will lead to different research questions, however
 - Q: why would this be?

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- Another important consideration relating to problem statement definition is the “matrix” or study area
 - You need to consider the nature of the issue you want to investigate when you define your study area
 - Defining your study area is part of defining your research question(s)

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- Some guidelines for problem statements
 - Whether you start with a question or a hypothesis, you must return to it at the end of your work
 - If you start with a question, you must return to answer it
 - If you start with a hypothesis, you must state whether your findings did or did not support it

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- Some guidelines for problem statements
 - Whatever form your problem statement takes, it should lead to a question/ hypothesis that is
 1. limited
 2. unified
 3. exact

Problem Statement Guidelines

- 1. Make it Limited
 - A limited problem statement is one narrow enough to be workable
 - Make sure your problem is restricted enough so you can explore issues in the depth required to draw supportable conclusions

Problem Statement Guidelines

- 1. Make it Limited
 - Example: studying land-use planning
 - In the form of a question: “What role did government play in the development of land-use planning in the 1950s?”
 - As a hypothesis: “The government’s municipal act led to land-use planning in the 1950s”
 - Not: “Government played a role in the development of land-use planning”

Problem Statement Guidelines

- 2. Make it Unified
 - Your research must have one controlling idea from beginning to end
 - Beware of double-headed hypotheses:
 - “In its term in office the government introduced many social programs, but its downfall was its nuclear energy policy”
 - What is the controlling idea here, social programs or the government’s downfall?

Problem Statement Guidelines

- 3. Make it Exact
 - Avoid vague or easily misinterpreted terms such as “interesting” or “significant”
 - Example: “Cemeteries are interesting sources of data for reconstructing settlement histories”
 - Does “interesting” mean curious, good, exciting, important, worthwhile, or ...what exactly?

Beyond the Problem Statement

- Defining your problem is important, but this is only a first step
- Q: what ideas do you have now about how you want to plan your research?

Beyond the Problem Statement

- Key idea: develop an action plan
 - To avoid becoming a “career graduate student”, you need to formulate and follow a research action plan
 - See the research action plan handout