The Research Problem

500 Research Methods
Fall 2002
Mike Kroelinger
For Today

♦ The Research Problem
♦ Teams for class presentations
♦ Review assignment #2
♦ Review outside readings
♦ Review assignment #3
♦ Questions & discussion
## Paradigms & Underlying Assumptions

<table>
<thead>
<tr>
<th>Paradigm</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ontological</td>
<td>Based on “branch of physics that studies the nature of existence or being as such.”</td>
</tr>
<tr>
<td>Epistemological</td>
<td>Based on a “branch of philosophy that investigates the origin, nature, methods, and limits of human knowledge.”</td>
</tr>
<tr>
<td>Axiological</td>
<td>Based on a “branch of philosophy dealing with values, as those of ethics, aesthetics, or religion.”</td>
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<tr>
<td>Rhetorical</td>
<td>“Used for mere effect; marked by or tending to use bombast; of, concerned with, being rhetorical…”</td>
</tr>
<tr>
<td>Methodological</td>
<td>Based on “a set or system of methods, principles, &amp; rules used in any given discipline.”</td>
</tr>
</tbody>
</table>

## Methodological Paradigm Assumptions

<table>
<thead>
<tr>
<th>Methodological Assumption</th>
<th>What is the process of research?</th>
<th>Quantitative</th>
<th>Qualitative</th>
<th>Mixed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Deductive process</td>
<td>Inductive process</td>
<td>Either or both</td>
<td></td>
</tr>
<tr>
<td>Cause &amp; effect</td>
<td>Mutual simultaneous shaping of factors</td>
<td>Linear and/or simultaneous</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Static design-categories isolated before study</td>
<td>Emerging design-categories identified during research process</td>
<td>May begin with either isolated or emerging</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Context-free</td>
<td>Context-bound</td>
<td>Either or both</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generalizations leading to prediction, explanation, and understanding</td>
<td>Patterns, theories developed for understanding</td>
<td>Either or both</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accurate and reliable through validity and reliability</td>
<td>Accurate and reliable through verification</td>
<td>Either or both</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Reasons for Selecting a Paradigm

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Quantitative Paradigm</th>
<th>Qualitative Paradigm</th>
<th>Mixed Paradigm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Researcher's Worldview</td>
<td>A researcher's <em>comfort with the ontological, epistemological, axiological, rhetorical, and methodological assumptions</em> of the quantitative paradigm</td>
<td>A researcher's <em>comfort with the ontological, epistemological, axiological, rhetorical, and methodological assumptions</em> of the qualitative paradigm</td>
<td>A researcher's <em>comfort with</em> sequential, concurrent, and/or transformative paradigms; usually pragmatic</td>
</tr>
<tr>
<td>Training and Experience of the Researcher</td>
<td>Technical writing <em>skills</em>; computer statistical skills; library skills</td>
<td>Literary writing <em>skills</em>; computer text-analysis skills; library skills</td>
<td>Draws on <em>all forms</em> of text and statistical analysis; library skills</td>
</tr>
</tbody>
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<tr>
<td>Researcher's Psychological Attributes</td>
<td>Comfort with <em>rules and guidelines</em> for conducting research; low tolerance for ambiguity; time for a study of short duration</td>
<td>Comfort with <em>lack of specific rules and procedures</em> for conducting research; high tolerance for ambiguity; time for lengthy study</td>
<td>Comfort with rules or without rules; <em>flexibility</em>; adequate time for lengthy study</td>
</tr>
<tr>
<td>Nature of the Problem</td>
<td>Previously studied by other researchers so that <em>body of literature exists</em>; known variables; existing theories</td>
<td>Exploratory research; <em>variables unknown</em>; <em>context important</em>; may lack theory base for study</td>
<td>May be previously studied or exploratory or both</td>
</tr>
<tr>
<td>Audience (e.g., journal editors &amp; readers, committees)</td>
<td>Individuals accustomed to/supportive of quantitative studies</td>
<td>Individuals accustomed to/supportive of qualitative studies</td>
<td>New, <em>emerging audiences</em> more knowledge about mixed or multi-methods</td>
</tr>
</tbody>
</table>
STEPS TO DEFINING THE RESEARCH PROBLEM

AREA

NARROW

SOURCES

EVALUATE

STATEMENT

BALANCE

FORMAT

RESEARCHABLE

FUTURE RESEARCH

OUTCOMES

SYNTHESIS

ANALYSIS

METHODS

VARIABLES CONCEPTS

POPULATION AUDIENCE

FEASIBLE UNDERSTOOD

FUTURE RESEARCH METHODS FALL 2001
Steps to Defining the Research Problem

- Decide on the general area of study or investigation
  - Generally influenced by your own experiences
  - Use Madsen’s criteria from p. 35-36.
Steps to Defining the Research Problem

- General area of investigation -- Madsen's criteria:
  - Sustain your interest & stimulate your imagination
  - Within your range of competencies
  - Manageable in size
  - Potential to make a contribution to body of knowledge
  - Based on obtainable data
  - Demonstrate your independent mastery of both the subject and method
Steps to Defining the Research Problem

- General area of investigation, continued
  - “My study is about………” or “the purpose of ……..”
  - Using Creswell’s example of *scripting* a single sentence that completes the above thought
  - Make it twelve words or less if possible
  - Becomes a working title for your research.
  - Is it researcable?
  - Example – My study is about the effect of size and color of screen icons on user perceptions
Steps to Defining the Research Problem

- Narrow the general topic down
  - To a specific statement of the research problem
  - Use a single paradigm if possible
  - Difficulty -- the topic & research question must be formulated before you have a thorough understanding of research
Steps to Defining the Research Problem

- Narrow the general topic down
  - Literature review usually limited at this point
  - Must make wise choices about what to investigate, study, explore
  - Is the topic better suited to a qualitative or quantitative paradigm?
    - Nature of the problem
    - Previously studied, much literature – quantitative
    - Exploratory study, lacking theory base -- qualitative
Steps to Defining the Research Problem

- Understand sources from which you define the problem
  - Experience
  - Experts that you know
  - Deductions from theory
  - Readily available problem
  - Review of literature
  - Limits of sources
Steps to Defining the Research Problem

- Evaluate the potential of the problem
  - Important enough to merit investigation or study?
  - Does it meet criteria?
Steps to Defining the Research Problem

♦ Evaluate the potential of the problem

♦ Criteria:
  ◆ Will findings make a contribution to body of knowledge?
  ◆ Will findings make a difference for others?
  ◆ Lead to definition of new problems or other research?
  ◆ Really researcable?
  ◆ Knowledge & experience in the problem area?
  ◆ Information or data available to you?
  ◆ Complete in the allotted time frame?
  ◆ Simple enough for your first study?
Steps to Defining the Research Problem

- A good problem statement
  - Clarify exactly what you want to determine or solve
  - Scope limited to a specific question; sub-questions
  - Operationally defines key terms
Steps to Defining the Research Problem

♦ A good problem statement
  ♦ Operational definition (quantitative study)
    ♦ Defines the variables operationally
    ♦ Defines a concept in terms of the operations or processes that will be used to measure or manipulate the concept
  ♦ Tentative definition (qualitative study)
    ♦ Emerge from data collection
    ♦ Not usually included in a list of definitions but is/are tentative pending visiting the field setting to gather info
Steps to Defining the Research Problem

- Balance between general & specific in problem statement
  - Avoid trivial problems that are meaningless
  - Broad enough to be significant according to the criteria you establish
  - Specific enough to be feasible for the research situation
Steps to Defining the Research Problem

- Format of problem statement – how you state the problem
  - Question – implies relationship between two or more variables
  - Statement – describes the scope of your work
  - Hypothesis -- relationships
  - Objective – achieve, measure
Steps to Defining the Research Problem

- Problem stated in a way that it is researchable
  - Is research into the “question” possible?
Steps to Defining the Research Problem

♦ Clear & feasible problem statement
  ♦ Can it be understood by others?
  ♦ Can you describe it concisely, clearly?
  ♦ Do you demonstrate understanding of the area being investigated, studied?

FEASIBLE UNDERSTOOD
We will spend time in upcoming classes on:

- Population or audience
- Concepts, constructs, variables
- Methods
- Analysis techniques
- Synthesizing findings
- Defining outcomes
- Defining future research
Summary

- Teams for class presentations
- Review assignment #2
- Review outside readings for first three weeks
- Review assignment #3
- Questions & discussion