Overview of Lecture

• What is Mixed Methods?
• When Should Mixed Methods be Used?
• How Should a Mixed Methods Study be Designed?
• What are the Methodological Challenges in Conducting Mixed Methods Investigations?
What is Mixed Methods?

- Combination of QUANT and QUAL
- In reality already widely used
  - could consider a literature review as qualitative research
  - generating new (to myself) knowledge!
  - in other words all research projects embrace mixed methods (in a wider definition)
- collection or analysis of both qualitative and quantitative data in a single study
  - the data are collected concurrently or sequentially and are later integrated
Examples of Mixed Methods

• Most common form is to use qualitative methods to develop theory or hypothesis which is then validated in a quantitative study
  – Exploratory Sequential

• Also used to clarify or enhance the conclusions of the data analysis (e.g. explanation of causation)
  – Explanatory Sequential
When Should You Use Mixed Methods?

- When you need to triangulate (QUANT or QUAL on its own is inadequate)
- When you want to integrate a variety of theoretical perspectives
- When you want to validate or generalise the results of an initial theory
- When you want to enhance the conclusions of a quantitative study
Creswell et al (2011)

- Mixed methods research begins with the assumption that investigators gather evidence based on the nature of the question and theoretical orientation. Quantitative (mainly deductive) methods are ideal for measuring pervasiveness of “known” phenomena and central patterns of association, including inferences of causality. Qualitative (mainly inductive) methods allow for identification of previously unknown processes, explanations of why and how phenomena occur. Mixed methods research, then, is more than simply collecting qualitative data from interviews, or collecting multiple forms of qualitative evidence (e.g., observations and interviews) or multiple types of quantitative evidence (e.g., surveys and diagnostic tests). It involves the intentional collection of both quantitative and qualitative data and the combination of the strengths of each to answer research questions.
Philosophy in Mixed Methods

• Mixed methods researchers use and often make explicit diverse philosophical positions. These positions often are referred to as dialectal stances that bridge post-positivist and social constructivist worldviews, pragmatic perspectives, and transformative perspectives.
How Should a Mixed Methods Study be Designed?

• The same way you design any study!
  – Consider your philosophy and theory
  – Consider the research questions and the reasons for your choice of method
  – Develop your consistency matrix (see next slide)
  – Consider if you have resources (e.g., time, financial resources, skills)
Research Questions

- What wind energy technologies have dominated in the installation of new capacity over the last 5 years in the leading countries including China, USA, Australia and Germany?
- What wind energy technologies have dominated in the installation of new capacity over the last 5 years in South Africa?
- What is the difference between South Africa and the comparator countries?
- What are the reasons for the difference? In particular, what barriers exist to the adoption of new wind energy technologies in South Africa, if any?
- What can be learnt from this analysis which can facilitate technology transfer in developing countries?
## Consistency Matrix

<table>
<thead>
<tr>
<th>Question</th>
<th>Relevant Literature</th>
<th>Research Design</th>
<th>Data Collection</th>
<th>Data Analysis</th>
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</thead>
<tbody>
<tr>
<td>1; other countries</td>
<td>Reddy and Zhao, 1990</td>
<td>Comparative study based on secondary data</td>
<td>Secondary data</td>
<td>Descriptive statistics</td>
</tr>
<tr>
<td>2; RSA</td>
<td>de Jongh et al., 2014</td>
<td></td>
<td>Secondary data</td>
<td></td>
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<tr>
<td>3; difference</td>
<td>Reddy and Zhao, 1990</td>
<td></td>
<td>None</td>
<td>GAP analysis</td>
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<tr>
<td>4; reasons and barriers</td>
<td>Welman et al., 2005</td>
<td>Semi-structured questionnaire with stratified, purposive sampling</td>
<td>QUAL interview</td>
<td>CAQDAS</td>
</tr>
<tr>
<td>5; lessons</td>
<td>Welman et al., 2005</td>
<td></td>
<td>None</td>
<td>Content analysis</td>
</tr>
</tbody>
</table>
Types of Mixed Methods Design

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</thead>
<tbody>
<tr>
<td></td>
<td>QUAL AND QUAN</td>
<td>QUAN THEN QUAL</td>
<td>QUAL THEN QUAN</td>
<td>QUAL/QUAN WITHIN QUAN/QUAL</td>
<td>QUAN THEN QUAL WITHIN Framework</td>
<td>QUAL THEN QUAN THEN QUAN/QUAN</td>
</tr>
</tbody>
</table>

(Ozawa and Pongpirul, 2014)
Literature

Example of Recent MMR Study

E O Wilson TED Talk

• Class Exercise:
  – List the five Wilson rules for becoming a ‘good’ researcher
  – Is Wilson a positivist or constructivist in his approach? Explain your answer
  – Do you agree with him? Explain.