

Mixed or Mixing Methods

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Key terms

- Multiple/ multi-methods (often used to denote the use of different methods within a single research paradigm)
- The following terms refer to using methods emanating from different paradigms (combining qualitative and quantitative approaches): mixed methods, triangulation, integrated, combined, etc.
- When can the use of mixed methods be used: data collection, data analysis, interpretation

WHAT ARE YOU DOING?

Conceptual and practical challenges

- Can research paradigms be mixed?
 - Can research methods be mixed?
 - How do you know if your research lends itself to the mixed methods approach?
 - When and why use mixed methods?
 - How do you design a mix methods study? What is the sequencing? Why?
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- Pluralists argue that the use of mixed methods is misguided and problematic
 - Proponents typically adhere to compatibility these and philosophy of pragmatism

Justification of the use of mixed methods

- A mixed method approach is one in which the researcher collects, analyzes, and integrates both quantitative and qualitative data in a single study or in multiple studies in a sustained program of inquiry (Creswell 2003)
- Many research problems are too complex to be understood using one method/ approach
- Used when methods together provide a better understanding than if only one was used
- Permits an examination of more complex issues/ questions
- Different methods complement each other
- Some variables can be quantifiable while others are not
- Clarify and challenge findings
- Sheds light on the 'unknown'

NOT ALWAYS APPROPRIATE! RESEARCH QUESTIONS AND OBJECTIVES WILL GUIDE!

Five main purposes (Greene, 2007)

- **Expansion:** different methods assess different phenomena to expand scope and range of study (address insufficient information – Creswell, 2008)
- **Triangulation:** measure same phenomena using different methods to increase confidence in the conclusions reached (more evidence the better and multiple angles – Creswell, 2008)
- **Complementarity and initiation:** methods used to investigate different aspects or dimensions of same phenomena. Initiation entails using the information to ask “I wonder why?” questions
- **Development:** results from one method informs the development of another methods

Key principle: A mixture or combination of methods that has complementary strengths and non-overlapping weaknesses.

Overview of qualitative and quantitative approaches (Afifi and Lieber, 2007)

Qualitative	Quantitative
Exploratory and confirmatory	Confirmatory and exploratory
Smaller N – flexible structure	Larger N – fixed structure
Data driven hypotheses: 1. Research questions guide and focus interview protocols 2. Findings inspire new hypotheses (and testing) and suggest additional research	Hypotheses drive data: 1. Data collection strategy dictated by hypotheses 2. Hypotheses are tested on data 3. Findings inspire new questions and suggest additional research
Holistic	Particularistic
Context dependent	Context independent
Experience near	Experience far

Mixed Methods within Designs

(Tashakkori, nd)



How can types of methods/ data be mixed (Creswell, 2008)

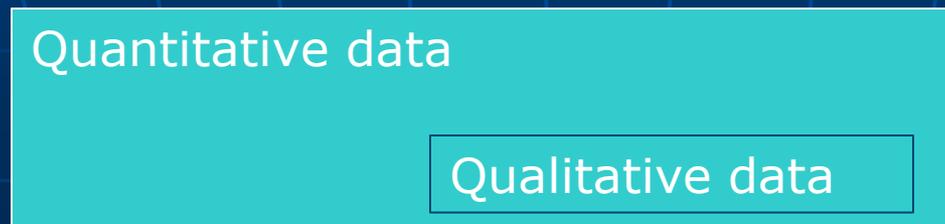
- Converge data



- Connect data



- Embed/ nest the data



Designs Options

QUAN \Rightarrow **QUAL**
Equal emphasis

qual \Rightarrow QUANT
qual preliminary

quant \Rightarrow QUAL
quant preliminary

QUANT \Rightarrow qual
qual follow-up

QUAL \Rightarrow quant
quant follow-up

Decision tree for mixed method design (adapted from Smit, 2010)

Mixing of quantitative and qualitative methods (converge, embed or connect) during analysis and interpretation

Timing of quantitative and qualitative methods

Weighting of quantitative and qualitative methods

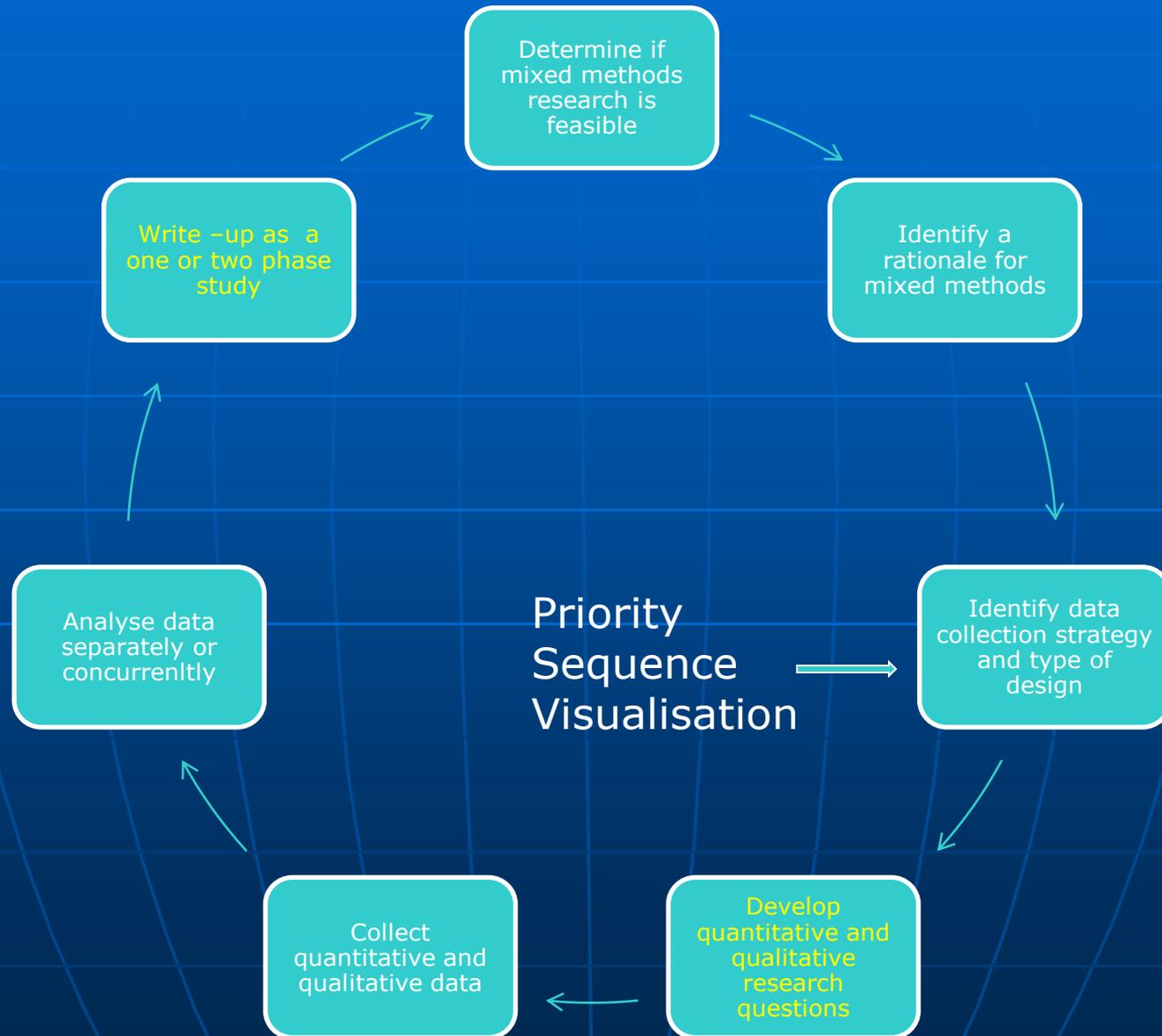
Concurrent timing

Sequential timing

Equal weight

Unequal weight

Steps for conducting a mixed methods study (Smit, 2010)



Taxonomy of Data Collection (Lofgreen, 2006)

Data Collection Technique	Setting		Manipulation		Orientation	
	Controlled	Natural	Yes	No	Confirmatory	Exploratory
Lab Experiment	X		X		X	
Single-Subject Study	X		X		X	
Field Experiment		X	X		X	
Survey Study		X	X		X	
Relationship Studies		X		X		X
Prediction Studies		X		X	X	
Archival studies		X				X
Causal-comparative		X		X	X	
Historical Research		X		X	X	X
Case/Field Study		X		X	X	X
Descriptive Research		X		X		X
Developmental Research*	X	X		X		X

Are you mixing methods?

What data you need and methods you are likely to use?
Data: demographic, perceptions, land use change, etc.
Methods: survey, GIS, focus groups, key informant interviews, media analysis, etc.



Sequencing of methods/ how to design a mixed method study

- Timing – consider data collection, analysis and interpretation
- What are you using mixed methods for?
 - When will you combine the data?
 - Is data X a sub-set of data Y?
 - How does one set of information link to another?
- Which information is more important and why (time allocation)?

How do you justify use of mixed methods?

Example of script (Creswell, 2008)

This mixed methods study will address _____ (overall content-aim of the study). A triangulation mixed methods design will be used, and it is a type of design in which different but complementary data will be collected on the same topic. In this study, _____ (quantitative instruments) will be used to test the theory of _____ (the theory) that predicts that _____ (independent variables) will influence _____ (positively, negatively) the _____ (dependent variables or outcomes) for _____ (participants) at _____ (the research site). Concurrent with this data collection, qualitative _____ (type of qualitative data, such as interviews) will explore _____ (the central phenomenon) for _____ (participants) at _____ (site). The reason for collecting both quantitative and qualitative data are to bring together the strengths of both forms of research to _____ (e.g., compare results, validate results, corroborate results).

Key questions (Mills and Airasian, nd)

- Does the study use at least one quantitative and one qualitative research strategy?
- Does the study include a rationale for using a mixed methods design?
- Does the study include a classification of the type of mixed methods design?
- Does the study describe the priority given to quantitative and qualitative data collection and the sequence of their use?
- Was the study feasible given the amount of data to be collected and concomitant issues of resources, time, and expertise?
- Does the study include both quantitative and qualitative research questions?
- Does the study clearly identify qualitative and quantitative data collection techniques?
- Does the study use appropriate data analysis techniques for the type of mixed methods design?

Challenges when using mixed methods

- Time and cost
- Sampling
 - Sequence
 - Concurrent?
 - Multi-stage (one sample population used for another method)
- Increase complexity of study
 - Higher skill set needed
 - Often requires interdisciplinary research teams
- Large volumes of data to interpret with different theoretical orientations Data analysis
- Presentation of findings
 - Linking ideas and issues
 - Identifying patterns and interrelationships
 - Challenges in terms of publishing
- Managing the iterative process
- Relatively new research field

Activity

Consider your research topic/ area. Identify and critically examine how you can use mixed methods. Which would you use? What sequence would you follow and why?