Steps in Conducting a Scholarly Mixed Methods Study

John W. Creswell
University of Nebraska - Lincoln, jcreswell1@unl.edu

Follow this and additional works at: http://digitalcommons.unl.edu/dberspeakers

http://digitalcommons.unl.edu/dberspeakers/48

This Presentation is brought to you for free and open access by the Discipline-Based Education Research Group at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in DBER Speaker Series by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.
Abstract for DBER Group Discussion on 2013-11-14

Presenter(s), Department(s):
John Creswell
Professor
Department of Educational Psychology
University of Nebraska-Lincoln

Title:
Steps in Conducting a Scholarly Mixed Methods Study

Abstract:
Mixed methods research is a rapidly expanding methodology in the social and human sciences in the US and around the world. In this presentation I will first define mixed methods research (combining both quantitative and qualitative methods of research) and discuss what it is and what it is not. Then I will review a brief history of its development, and why it is important today. I will discuss several of the scientific developments in mixed methods that have occurred over the last ten years, such as the specification of types of designs, the formation of mixed methods questions, and the use of innovative approaches to jointly display quantitative and qualitative results. Finally, I will talk about the future of this methodology - where it is headed and some important worldwide developments that have encouraged mixed methods research.
Steps in Conducting a Scholarly Mixed Methods Study

John W. Creswell
University of Nebraska-Lincoln
How We Make Sense

A Mixed Methods Approach

Numbers

Personal Experiences
Let’s use quantitative and qualitative data (or quantitative research and quantitative research) together to gain a more complete understanding of our research questions.

Mixed methods is a research approach, popular in the social, behavioral, and health sciences, in which researchers collect, analyze, and integrate both quantitative and qualitative data in a single study or in a sustained long-term program of inquiry to address their research questions.
New NIH funding awards that self-identify as mixed methods \( (N = 226) \) (1997-2008)

Source: CRISP database;
Plano Clark (2010)
Table 1

<table>
<thead>
<tr>
<th>Year Range</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-2009</td>
<td>2524</td>
</tr>
<tr>
<td>2000-2004</td>
<td>532</td>
</tr>
<tr>
<td>1995-1999</td>
<td>100</td>
</tr>
<tr>
<td>1990-1994</td>
<td>26</td>
</tr>
<tr>
<td>1985-1989</td>
<td>17</td>
</tr>
<tr>
<td>1980-1984</td>
<td>3</td>
</tr>
</tbody>
</table>

*Note: The number represents the number of dissertations and theses which contained the words “mixed methods” in the citation and abstract. This search was conducted using the search engine “proquest” (Proquest Search Engine, 2009).*

Haines, C., 2011 unpublished dissertation, University of Nebraska-Lincoln
Mixed Methods
Social Science
Articles

How to Conduct a Mixed Methods Study: Recent Trends in a Rapidly Growing Literature
Mario Luis Small
Department of Sociology, University of Chicago, Chicago, Illinois 60637, small1@uic.edu

Keywords
qualitative versus quantitative, multimethod research, research design, methodology, formal models

Abstract
The present article selectively reviews a large number of recent studies that have been described as based on mixed methods. I begin by discussing a body of work that has emerged to promote mixed methods as a way to enhance research. I then review and critique some methodological issues in each of the following areas: mixed methods research design, data collection, and analysis. I conclude with a discussion of the implications of these issues for the future of mixed methods research.

Keywords
Mixed methods, qualitative research, quantitative research, data analysis, research design, methodology

Introduction to the Special Issue
Qualitative and Mixed Methods Research in Cross-Cultural Psychology
Alison Karasz
Albany Einstein College of Medicine

Guest Editorial
Qualitative and Mixed Methods in Social Work Knowledge Development
Deborah K. Palkett

Providing guidelines on qualitative and mixed methods in social work knowledge development is a daunting task. Qualitative methods also require careful consideration, but they rarely entail the degree of epistemological self-examination and ongoing consequential decision making that qualitative methods demand. As a reviewer of qualitative studies for academic journals and federal funders, and as the recipient of many such reviews (some quite negative), I have learned some lessons along the way. This editorial offers a few suggestions arising from these experiences that I hope will be of assistance to those interested in conducting qualitative research.

Qualitative methods have been contributing to more concretely specifiable. This editorial serves closer to the positivism end but will hopefully resonate with social work researchers all along the continuum who wish to make their own contributions to knowledge. I will make seven points—both elaborations and recommendations:

1. The burden of proof is heavier but doable.
2. Choose an approach and stick with it.
3. Theories and concepts matter.
4. Social justice values do not have to be predefined.
5. Research designs should be detailed and specific.
6. Writing the report: balancing description
Mixed Methods Health Science Articles
Select Mixed Methods Books

- Designing and Conducting Mixed Methods Research
- Mixed Methods Research for Nursing and the Health Sciences
- Advances in Mixed Methods Research
- Mixed Method Design: Principles and Procedures
- Transformative Research and Evaluation
- Mixed Methods in Social Inquiry
- Foundations of Mixed Methods Research
When did mixed methods develop in the social sciences and health/behavioral sciences? (1985-90)

Jennifer Greene – USA- University of Illinois – evaluator

John Hunter and Allen Brewer – USA - Northwestern and Boston College – sociologists

Alan Bryman - England – management

John Creswell – USA – education

Nigel and Jane Fielding – sociologist in UK

Jan Morse – nursing in Canada
If you walked into my office, with the idea of conducting a mixed methods study, I would take you through a series of questions to help you design your project.

I will take the steps out of order of what you typically see in a research project, but we will put them in order at the end.
Question 1. Do you have a mixed methods study? (or simply a quantitative study or a qualitative study)
What I am looking for (core characteristics of a mixed methods study):

1. Do you have a quantitative database? (closed-ended)
2. Do you have a qualitative database? (open-ended)
3. Do you plan on bringing the two databases together? (integration)
4. What procedures (design) will you use?
What I am NOT looking for:

- Keeping the databases separate
- The collection of BOTH quantitative and qualitative data (not content analysis)
- Multiple forms of quantitative data or multiple forms of qualitative data (multi-method)
- Only the transformation of qualitative data into quantitative (in analysis)
- Only formative/summative evaluation
- Only adding in qualitative data into an experiment
- Doing mixed methods because it is trendy
Question 2. Does your research problem or question merit a mixed methods study?

They say, choose your method based on your problem.
When is mixed methods suitable for a problem or question?

• When qualitative research or quantitative research is insufficient to fully understand the problem
Other types of problems, when:

• We need to explore before we administer instruments
• We need to explain our statistical results by talking to people
• We need to see if our quantitative results and our qualitative results match
• We need to enhance our experiments by talking with people
• We need to develop new instruments by gathering qualitative data
Question 3: What is the overall intent of your study?
My goal:

• To learn whether you are quantitatively- or qualitatively-oriented by the way you state your intent
<table>
<thead>
<tr>
<th>Quantitative</th>
<th>Qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>factors</td>
<td>explore</td>
</tr>
<tr>
<td>determinants</td>
<td>generate</td>
</tr>
<tr>
<td>relationship</td>
<td>develop</td>
</tr>
<tr>
<td>causes</td>
<td>create</td>
</tr>
<tr>
<td>influences</td>
<td>meaning</td>
</tr>
<tr>
<td>effects</td>
<td>personal experiences</td>
</tr>
</tbody>
</table>
1. Will help me think about what mixed methods design you will likely use
2. Will help me think about your discipline field background that you bring to mixed methods
3. Will help me think about what skills you have to begin conducting a mixed methods study
Examples of General Intent Statements

• “This article reports on the study conducted to understand students’ persistence in the Distributed Doctoral Program in Educational Leadership in Higher Education (ELHE) offered by the University of Nebraska-Lincoln (UNL).” (Ivankova & Stick, 2007)

• “We conducted an interview-based study of terminally ill individuals who were receiving palliative care.” (Kutner, Steiner, Corbett, et al., 1999)

• “...to understand patients’ experiences of transitions from hospital to a homeless shelter and determine aspects of these experiences associated with perceived quality of these transitions.” (Greysen, Allen, Lucas, et al., 2012)
Question 4: What quantitative and qualitative data will you collect to address this intent?
I will ask you to list your quantitative and qualitative data sources:

<table>
<thead>
<tr>
<th></th>
<th>Quantitative Data</th>
<th>Qualitative Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site and sample?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How many?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Types of data to collect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific instruments/protocols</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Types of scales/questions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
I will ask you to list your quantitative and qualitative data analysis steps:

<table>
<thead>
<tr>
<th></th>
<th>Quantitative Analysis</th>
<th>Qualitative Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Getting data ready for analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preliminary analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steps in analysis (including statistics, themes)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
List Multiple Types of Quantitative and Qualitative Data to be Collected and Analyzed

QUANTITATIVE RESEARCH

• **Quantitative data collection** (closed-ended)
  - Instruments
  - Behavioral checklists
  - Records

• **Quantitative data analysis**
  - Use numeric data,
    - For description
    - For comparing groups
    - For relating variables

QUALITATIVE RESEARCH

• **Qualitative data collection** (open-ended)
  - Interviews
  - Observations
  - Documents
  - Audio-visual materials

• **Qualitative data analysis**
  - Use text and image data,
    - For coding
    - For theme development
    - For relating themes
Are These Procedures Realistic and Feasible?

- Time
- Economically
- Skills
- Useful for stakeholders
Question 5. Why are you collecting both quantitative and qualitative data?
Basic reasons for using mixed methods (called the rationale in mixed methods):

• Need different, multiple perspectives, or more complete understandings
• Need to confirm our quantitative measures with qualitative experiences
• Need to explain quantitative results
• Need better contextualized instruments, measures, or interventions to reach certain populations
• Need to enhance our experiments
• Need to gather trend data and individual perspectives from community members
• Need to evaluate the success of a program by using a needs assessment AND a test of the success of the program
Questions 6. Do you plan on using a theory? Do you plan on advancing your philosophical stance?
Frame the study within theory/philosophy:

**Paradigm/Worldview** (epistemology, ontology, axiology, methodology)

↓

**Theoretical lens**
(e.g., feminist, racial, social science theories)

↓

**Methodological approach** (e.g., ethnography, experiment, mixed methods)

↓

**Methods of data collection** (e.g., interviews, checklists, instruments)

Adapted from Crotty M. (1998)
Further questions about philosophy:

- What is a philosophy?
- Which philosophies are typically used as the foundation in mixed methods research?
Philosophies to consider in mixed methods:

- Pragmatism
- Transformative worldview
- Critical realism
- Dialectic pluralism

- Multiple worldviews/paradigms
- Match worldview to design
- Worldview comes from your scholarly community
Further questions about theory:

- What is a theory?
- How do you find a theory?
- How will you use it in your mixed methods study?
Question 7. What mixed methods design will you use?
Parsimonious set of designs: Basic and Advanced

Basic Designs
- Convergent Design
- Explanatory Sequential Design
- Exploratory Sequential Design

Advanced Designs
- Intervention Design
- Transformative Design
- Multiphase Design
Basic mixed methods designs

**Convergent Parallel Design**

- Quantitative Data Collection and Analysis
  - Quantitative Results
  - Merge Results For Comparison
  - Interpret or Explain Convergence/Divergence
- Qualitative Data Collection and Analysis
  - Qualitative Results

**Explanatory Sequential Design**

- Quantitative Data Collection and Analysis
  - Quantitative Results
  - Determine Quantitative Results to Explain
  - Qualitative Data Collection and Analysis
  - Qualitative Results
  - Interpret How Qualitative Data Explains Quantitative Results

**Exploratory Sequential Design**

- Qualitative Data Collection and Analysis
  - Qualitative Results
  - Use Results to Form Variables, Instruments, Interventions
  - Quantitative Data Collection and Analysis Based on Variables, Instruments, Interventions
  - Quantitative Results
  - Interpret How Quantitative Results Provide New Results, New, Better Instruments, and Better Interventions
Advanced mixed methods designs

**Intervention Mixed Methods Design**

- Qualitative Data Collection, Analysis, and Results (Exploratory)
- Experiment Group
- Control Group
- Pre-test
- Pre-test
- Intervention
- Post-Test
- Post-Test
- Qualitative Data Collection, Analysis, and Results (Convergent)

**Social Justice Design (using an Explanatory Sequential Design example)**

- Theory
- Research Questions
- Quantitative Data Collection, e.g., survey
- Quantitative Results
- Qualitative Data Collection and Analysis
- Qualitative Results
- Interpret How Qualitative Data Explains Quantitative Results And Calls for Action
- Promote Social Justice

**Multistage Evaluation Design (using an Exploratory Sequential Design example)**

- Single Program Objective
  - Formative Needs Assessment (qualitative data collection)
  - Theory/Conceptual Framework (based on qualitative results)
  - Instrument Development (based on quantitative tests)
  - Formative Program Assessment (qualitative data collection)
  - Summative Program Evaluation (pre-post quantitative tests)
  - Program Revision
How do you choose your design?

- First select your basic design, then add if you have an advanced design
- Consider your scholarly community: quantitative or qualitative? (how to begin your study)
- Consider your skills: quantitatively-strong or qualitatively-strong (what will be emphasized)
- Consider your resources (collect at one time or space out)
- Consider the complexity of the design (what is the easiest? the hardest?)
Advanced Design: Betancourt et al. R 24 project examining the use of a family strength intervention with community input with refugees in Boston
Question 8. Can you draw a diagram of your design?
Convergent Design Wittink et al. (2006)

Procedures:
- Select 48 participants who self-identify as depressed.
- Survey measures: ratings of depression status, demographics, other health measures.

Products:
- Numerical item scores

Procedures:
- Select same 48 participants.
- Conduct semistructured interviews.

Products:
- Transcripts

Procedures:
- Classification of whether depression ratings converge
  - Means, SDs
  - Significance

Products:
- Four major themes
- Typology of patient perceptions

Merge the results

Procedures:
- Cross-tabulate qualitatively derived groups with quantitative variables.

Products:
- Matrix relating qualitative themes to quantitative variables

Interpretation

Procedures:
- Consider how merged results produce a better understanding.

Products:
- Discussion

Source: based on Wittink et al.(2006)
Procedures:
• Three groups: control group, compliance intervention group, alliance intervention group – group comparisons
• Outcome measures: 1) attitudes toward medication 2) adherence to treatment 3) avoidance of relapse
• DAI measure completed 3 times (pre, post, & follow up)

Products:
• Numerical item scores
• Change scores
• Test statistics

Experimental Methodology

Procedures:
• One-on-one semi-structured interviews – exiting the trial, participants from two experimental conditions;
• Thematic analysis

Products:
• Transcripts
• Themes and quotes

Intervention Design (Rogers, Day, Randall, & Bentall, 2003, study to improve the management of anti-psychotic medication)

Flow of the experiment
Question 9. Can you write a good purpose statement (or study aim) that fits your design?
How to write a mixed methods study aim:

• This mixed methods study will address [overall content aim]. A convergent parallel mixed methods design will be used, and it is a type of design in which qualitative and quantitative data are collected in parallel, analyzed separately, and then merged. In this study, [quantitative data] will be used to test the theory of [the theory] that predicts that [independent variables] will [positively, negatively] influence the [dependent variables] for [participants] at [the site]. The [type of qualitative data] will explore [the central phenomenon] for [participants] at [the site]. The reason for collecting both quantitative and qualitative data is to [the mixing reason].
Question 10. Can you write research questions for your mixed methods study?
Write 3 types of questions:

- Quantitative questions or hypotheses
- Qualitative questions
- A mixed methods question
### Basic design mixed methods questions:

<table>
<thead>
<tr>
<th>Design Type</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convergent Design</td>
<td>– To what extent do the quantitative and qualitative results converge?</td>
</tr>
<tr>
<td></td>
<td>– In what ways do the qualitative data help to explain the quantitative results?</td>
</tr>
<tr>
<td>Explanatory Design</td>
<td>– In what ways do the qualitative results generalize the qualitative findings?</td>
</tr>
</tbody>
</table>
Advanced design mixed methods questions:

• Intervention Design
  – How do the qualitative findings provide an enhanced understanding of the quantitative results?

• Transformative Social Justice Design
  – How do the qualitative findings provide an enhanced understanding of the quantitative results in order to explore inequalities?
  – How to the different phases in the project to address the overall research goal?

• Multistage Design
Now place these steps in order for a good mixed methods project:

- Problem
- Theory and/or philosophy
- Purpose (study aim)
- Rationale for gathering both quantitative and qualitative data
- Research questions (quantitative, qualitative, mixed)
- Types of data/analysis
- Definition of mixed methods
- Type of mixed methods design
- Diagram of the design
Steps in Conducting a Scholarly Mixed Methods Study

John W. Creswell
University of Nebraska-Lincoln