Steps in Conducting a Scholarly Mixed Methods Study

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Abstract for DBER Group Discussion on 2013-11-14

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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>
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<tr>
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<td>532</td>
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<td>1990-1994</td>
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<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
How to Conduct a Mixed Methods Study: Recent Trends in a Rapidly Growing Literature

Mario Luis Small
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Abstract
The present article selectively reviews the large number of recent studies that have been described as based on mixed methods. It begins by discussing a body of work that has emerged to promote mixed methods in social science research. I then review and critique empirical research that has been conducted using mixed methodological approaches and suggest some directions for future research.

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

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

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roviding guidelines on qualitative and mixed methods in social work knowledge development is a daunting task. Quantitative methods also require careful consideration, but they rarely entail the degree of epistemological self-searching 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 begins closer to the positivist 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 sidelined.
5. Research designs should be detailed and specific.
6. Writing the report: balancing description
Mixed Methods Health Science Articles

**Designing A Mixed Methods Study In Primary Care**

**Abstract**

Mixed methods research in clinical care involves the combination of qualitative and quantitative approaches. This study was designed to evaluate the impact of a mixed methods study on primary care practice.

**Introduction**

Mixed methods research in primary care involves the integration of qualitative and quantitative approaches. This study was designed to evaluate the impact of a mixed methods study on primary care practice.

**Methods**

The study involved the use of both qualitative and quantitative data collection methods. Qualitative data were collected through focus groups and interviews, while quantitative data were collected through surveys and questionnaires.

**Results**

The mixed methods study had a positive impact on primary care practice, with improvements in patient satisfaction and healthcare outcomes.

**Discussion**

The results of the study suggest that mixed methods research can be an effective approach to improving primary care practice.

**Conclusion**

Mixed methods research can be an effective approach to improving primary care practice.

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**Impact of clinical information-retrieval technology on physicians: A literature review of quantitative, qualitative and mixed methods studies**

**Keywords**

Information retrieval, clinical information technology, physicians, qualitative methods, mixed methods, systematic review.

**Summary**

This paper presents a systematic review of the impact of clinical information retrieval technology on physicians using quantitative, qualitative, and mixed methods approaches. The review identified 34 studies, of which 19 were quantitative, 18 were qualitative, and 7 were mixed methods.

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**Mixed methods research in mental health nursing**

**Keywords**

Mixed methods, mental health nursing, research design, mixed methods research.

**Abstract**

Mixed methods research in mental health nursing refers to the integration of quantitative and qualitative research approaches to gain a comprehensive understanding of mental health phenomena.

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**Using mixed methods research in medical education: basic guidelines for researchers**

**Keywords**

Medical education, mixed methods research, research design.

**Abstract**

Mixed methods research in medical education involves the integration of quantitative and qualitative approaches to improve educational practices and outcomes.
Select Mixed Methods Books
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><strong>Quantitative</strong></th>
<th><strong>Qualitative</strong></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
- Qualitative Data Collection and Analysis
- Qualitative Results
- Merge Results For Comparison
- Interpret or Explain Convergence/Divergence

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 Results 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**

1. **Qualitative Data Collection, Analysis, and Results (Exploratory)**
2. Experiment Group
3. Experiment Group Pre-test
4. Intervention
5. Post-Test
6. Qualitative Data Collection, Analysis, and Results (Convergent)
7. Qualitative Data Collection, Analysis, and Results (Explanatory)

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

1. Theory
2. Research Questions
3. Quantitative Data Collection e.g., survey
4. Quantitative Results
5. Qualitative Data Collection and Analysis
6. Qualitative Results
7. Interpret How Qualitative Data Explains Quantitative Results And Calls for Action
8. Promote Social Justice

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

1. Formative Needs Assessment (qualitative data collection)
2. Theory/Conceptual Framework (based on qualitative results)
3. Instrument Development (based on quantitative tests)
4. Formative Program Assessment (qualitative data collection)
5. Summative Program Evaluation (pre-post quantitative tests)
6. Program Revision
7. Single Program Objective
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.

**Procedures:**
- Descriptive statistics
- Group comparisons

**QUAN data collection**
- Products: Numerical item scores

**QUAN data analysis**
- Products: Classification of whether depression ratings converge
  - Means, SDs
  - Significance

**QUAL data collection**
- Procedures: Select same 48 participants.
- Conduct semistructured interviews.

**QUAL data analysis**
- Procedures: Constant comparative thematic analysis

**Merge the results**
- Procedures: Cross-tabulate qualitatively derived groups with quantitative variables.
- Products: Matrix relating qualitative themes to quantitative variables
- Procedures: Consider how merged results produce a better understanding.

**Interpretation**
- Products: Discussion

**Source:** based on Wittink et al. (2006)
Intervention Design (Rogers, Day, Randall,, & Bentall , 2003, study to improve the management of anti-psychotic medication)

Flow of the experiment

**Experimental Methodology**

- **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

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**Experimental Methodology**

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

- **Products:**
  - Transcripts
  - Themes and quotes

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**Overall results and interpretation**

Discuss treatment effectiveness
- Discuss themes in context of interventions and outcomes

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- **Qual before intervention**
  - One-on-one semi-structured interviews
    - Thematic analysis

- **Qual after intervention**
  - Discussion
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:

Convergent Design
- To what extent do the quantitative and qualitative results converge?

Explanatory Design
- In what ways do the qualitative data help to explain the quantitative results?

Exploratory Design
- In what ways do the quantitative results generalize the qualitative findings?
**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

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