MIXED METHODS

NOVA SOUTHEASTERN UNIVERSITY

Fischler School of Education and Human Services
Applied Research Center
Overview

- Mixed Methods Research, Defined
- Quantitative Research
- Qualitative Research
- When to use Mixed Methods Research
- Types of Mixed Methods Research Designs
- Key Characteristics
- Steps in Conducting a Mixed Methods study
- Evaluating a Mixed Methods study
Mixed Methods Research, Defined

• A mixed methods research design is a procedure for collecting, analyzing, and “mixing” both quantitative and qualitative research and methods in a single study to understand a research problem.

• To utilize this design effectively, you must understand both quantitative and qualitative research.

• Philosophical Approaches

Quantitative Research

• A type of educational research in which the research decides what to study; asks specific, narrow questions, collects quantifiable data from participants (a large number of participants); analyzes these numbers using statistics; and conducts the inquiry in an unbiased, objective manner.

• Postpositivism – singular reality; objective; deductive

Quantitative Research (cont’d)

- Generally attempts to quantify variables of interest; questions must be measureable.
- Example:
  - What is the relationship between graduate students’ level of interaction, measured by the number of ‘hits’ in the course, and students’ grades in an online research methods course?
Quantitative Methodology

- Generally involves collecting numerical data that can be subjected to statistical analysis.
- Examples of data collection methodologies:
  - Performance Tests
  - Personality Measures
  - Questionnaires (with closed-ended questions or open-ended but transferred to quan data)
  - Content Analysis
- The data is generally referred to as “hard” data.
Qualitative Research

- A type of educational research in which the researcher relies on the views of participants; asks broad, general questions; collects data consisting largely of words (or text) from participants; describes and analyzes these words for themes; and conducts the inquiry in a subjective, biased manner.

- Constructivism – multiple realities; biased; inductive

“There are times we wish to know not how many or how well, but simply how” (Shulman, 1988, p. 7).

Example:

“What are the factors that influence a graduate students’ experience in an online research methods course?”
Qualitative Methodology

- Generally involves listening to the participants’ voice and subjecting the data to analytic induction (e.g., finding common themes)
- More Exploratory in nature
- Examples of data collection methods
  - Interviews
  - Open-ended questionnaires
  - Observations
  - Content analysis
  - Focus Groups
Steps for Conducting a Mixed Methods Study

1. Determine if a mixed methods study is feasible
2. Identify a rationale for a mixed methods study
3. Identify the data collection strategy and type of design
4. Develop quantitative, qualitative, and mixed methods questions
5. Collect quantitative and qualitative data
6. Analyze data separately or concurrently
7. Write the report as a one- or two-phase study
When to Use Mixed Methods Designs

- When both quantitative and qualitative data, together, provide a better understanding of your research problem than either type by itself.
- When one type of research (qualitative or quantitative) is not enough to address the research problem or answer the research questions.
- Pragmatism – practicality; multiple view points; biased and unbiased; subjective and objective

When to Use Mixed Methods (cont’d)

- To incorporate a qualitative component into an otherwise quantitative study
- To build from one phase of a study to another
  - Explore qualitatively then develop an instrument
  - Follow-up a quantitative study qualitatively to obtain more detailed information

Mixed Methods Research Methodology

- Utilizes both quantitative and qualitative data collection methodologies.
- Examples
  - Interviews and Questionnaires
  - Performance Tests and Observation
  - Questionnaires and follow up Focus groups
  - Document analysis, Performance Tests, Questionnaire, and Interviews
What Is Mixed Methods Research?

A mixed methods research design is a procedure for collecting, analyzing, and “mixing” both quantitative and qualitative research and methods in a single study to understand a research problem.
Key Characteristics of Mixed Methods Designs: Rationale

- Rationale
  - Test findings of first phase
  - Explain results of first phase in more detail
  - Provide a more complete understanding than either quantitative or qualitative alone

- Collecting both quantitative and qualitative data
  - Numeric data
  - Text data
Key Characteristics of Mixed Methods Designs: Analysis and Diagram

- Analysis matched to design ("mixing")
  - Data analysis strategies for triangulation design
  - Data analysis strategies for exploratory design
  - Data analysis strategies for explanatory design
- Diagram of procedures
  - Use notation system
  - Identify priority
  - Identify sequence
<table>
<thead>
<tr>
<th>Notation</th>
<th>Defined</th>
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</thead>
<tbody>
<tr>
<td>QUAN</td>
<td>Quantitatively driven study.</td>
</tr>
<tr>
<td>QUAL</td>
<td>Qualitatively driven study.</td>
</tr>
<tr>
<td>quan</td>
<td>Quantitative data is secondary to qualitative data.</td>
</tr>
<tr>
<td>qual</td>
<td>Qualitative data is secondary to quantitative data.</td>
</tr>
<tr>
<td>+</td>
<td>Indicates that quantitative and qualitative data are collected concurrently.</td>
</tr>
<tr>
<td>→</td>
<td>Indicates that quantitative and qualitative data are collected sequentially.</td>
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</table>
Key Characteristics of Mixed Methods Designs: Priority and Sequence

Priority
- Equal weight
- QUAN carries more weight than qual
- QUAL carries more weight than quan

Sequence
- Collect both quantitative and qualitative data at the same time
- Collect quantitative data first, followed by qualitative data
- Collect qualitative data first, followed by quantitative data
Triangulation Approach
Mixed Methods Designs: Triangulation Approach

- Researcher gives priority to both quantitative (QUAN) and qualitative (QUAL) data.
- Researcher collects both quantitative and qualitative data concurrently.
- Researcher compares the results from the quantitative and qualitative analyses to determine if the two data bases yield similar or dissimilar results.
- The term triangulation
Triangulation Approach

Validating Quantitative Data Design

Multilevel Design

Level 1:
QUAN or QUAL
data collection, analysis, result

Level 2:
QUAL or QUAL
data collection, analysis, result

Level 3:
QUAN or QUAL
data collection, analysis, result
Explanatory Approach
Mixed Methods Designs: Explanatory Approach

- Researcher places priority on quantitative (QUAN) data collection and analysis.
- Researcher collects quantitative data first in the sequence.
- Researcher uses the qualitative data to explain the results of the quantitative data.
Explanatory Approach

Follow-up Explanation Design

1. QUAN data collection
2. QUAN data analysis & results
3. Identify results for follow up
4. Qual data collection
5. Qual data analysis & results
6. Interpretation based on QUAN → qual
Embedded Approach
Mixed Methods Designs: Embedded Approach

- The embedded approach is used when one type of data is most critical to the researcher (e.g., when the researcher is most interested in quantitative data, then qualitative data plays the supportive role.

- This approach is used when different questions require different types of data (qualitative and quantitative).
Embedded Approach

Experimental Design (can use quasi-experimental design)

QUAN designs to be used within an Embedded Approach

Correlational Design

<table>
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<th>Experimental</th>
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<tr>
<td>Explanatory design</td>
<td>Between-subjects - pre- and posttest design</td>
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<tr>
<td>Predictive design</td>
<td>Within-subjects - cross-over design - factorial design</td>
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</tbody>
</table>

QUAN (IV or predictor variable) → Intervention → QUAN (DV or criterion variable) → Interpretation based on QUAN(qual)
Mixed Methods Designs: Exploratory Approach

- Research emphasizes qualitative (QUAL) data rather than quantitative (quan) data.
- Researcher has a sequence of data collection that involves collecting qualitative data followed by quantitative data.
- Researcher plans on the quantitative data to build on or explain the initial qualitative findings.

- **Objective**: Determine if the Faculty Development Program (FDP) impacts teaching style of pre-tenure faculty.

- **Research Questions**
  - **Quantitative** – What effect did the FDP have on teachers’ approaches to teaching?
  - **Qualitative** – *(Central)* – How did the teachers’ teaching strategies change in response to the FDP?
    - **Sub** - What steps did the teachers take to implement the change?
  - **Mixed Method** – How do the qualitative (qual) findings explain (expand on) the quantitative (QUAN) results?
Design. The mixed method design employed was an embedded approach with an experimental design. The quantitative method was quasi-experimental between-subjects approach utilizing a pre- and posttest control group design. Qualitative data was collected at two time points post intervention.

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</table>

N = non-random  
ATI = Approach to Teaching Inventory  
FDP = Faculty Development Program
Chapter 1: Introduction

- Statement of the Problem
  - The topic.
  - The research problem.
  - Background and justification (philosophical view points).
  - Deficiencies in the evidence.
  - Audience.

- Definition of Terms
Chapter 2: Literature Review

- Lit Review should include relevant headings and subheadings. Following the lit review the purpose statement then research questions should be presented.

- Purpose Statement -(a) the overall content aim, (b) the type of mixed method design, (c) the forms of data collection that will be used (very general), (d) the data collection site(s), and (e) the reason for collecting both forms of data (see Creswell, 2007).

- Research Questions
  - Quantitative
  - Qualitative
  - Mixed Methods
Chapter 3: Methodology

- Participants
  - Quantitative.
  - Qualitative.
- Instruments
- Procedures
  - Design
    - Quantitative data.
    - Qualitative data.
  - Data analysis.
- Limitations
Mixed Methods Template

- Email edmonds@nova.edu for the Mixed Methods specific template

Thank you for your Attention!