WEEK 12

Medical Research

MIXED METHODS RESEARCH

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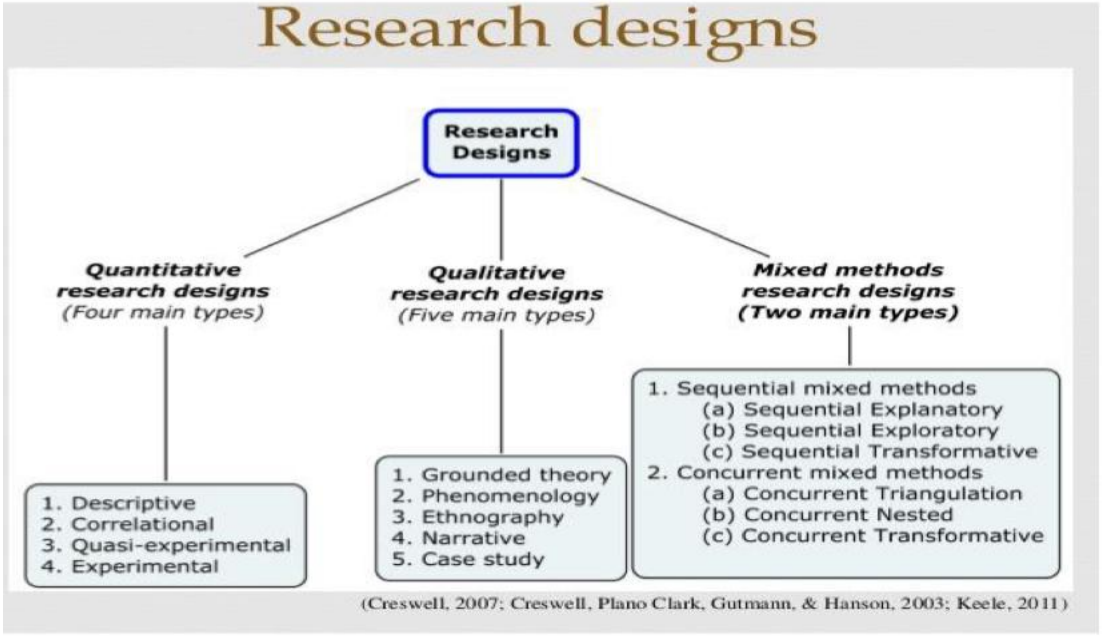
Mixed Methods Research (MMR)



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1. Introduction to Mixed Methods Research (MMR)

- Mixed Methods Research is often called the **“Third Methodological Orientation”**.
- It combines the strengths of **Qualitative Research** and **Quantitative Research** in one study.
- Became prominent in the early 1980s and is considered a **“quiet revolution”** because it helped bridge the gap between qualitative and quantitative approaches.

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2. Definition of Mixed Methods Research

- MMR is a research approach in which researchers **collect and analyze both quantitative and qualitative data within the same study**.
- Purpose: to gain a more complete understanding of a research problem.

Johnson et al. (2007):

Mixed methods research combines elements of qualitative and quantitative approaches to achieve greater breadth, depth, and confirmation of findings.

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3. Key Concept of MMR: Integration

- The most important concept is **Mixing (Integration)**.
- Researchers must integrate qualitative and quantitative data rather than simply collecting both.

Integration can occur:

- **Concurrently** → both types collected at the same time.
- **Sequentially** → one type collected after the other.

Important:

- MMR is more than adding a few open-ended questions to a survey.
- It requires deliberate integration of both datasets.

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4. Multi-Methods vs Mixed Methods

Multi-Methods	Mixed Methods
Uses more than one method	Uses both qualitative and quantitative methods
May use two qualitative methods	Must include qualitative + quantitative
Methods remain separate	Data are integrated
No mixing required	One type of data informs the other

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5. Rise of Mixed Methods Research

- Emerged as a recognized methodology in the **early 1980s**.
- Developed to reduce conflict between qualitative and quantitative researchers.
- Allows researchers to combine strengths of both approaches.

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6. Philosophy of Mixed Methods Research

- Based mainly on **Pragmatism**.

Pragmatism means:

- Use **"what works"** to answer the research question.
- Focus on solving the research problem rather than following one research philosophy.
- Values both:
    - **Objective knowledge** (quantitative)
    - **Subjective knowledge** (qualitative)

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7. Mixed Methods Data Collection

- MMR always involves collecting:
    - **Quantitative Data**
    - **Qualitative Data**

These datasets are later integrated to produce a more complete understanding.

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8. Qualitative vs Quantitative Research

Criteria	Qualitative Research	Quantitative Research
Purpose	Understand and interpret experiences and social interactions	Test hypotheses, examine cause-and-effect relationships, and make predictions
Sample Size	Smaller groups	Larger groups
Focus	Whole phenomenon	Specific variables
Data Type	Interviews, observations, field notes, open-ended responses	Numerical measurements using structured instruments

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9. Qualitative vs Quantitative Analysis

Criteria	Qualitative Research	Quantitative Research
Analysis	Identify themes, patterns, and meanings	Identify statistical relationships
Results	Detailed and context-specific findings	Generalizable findings
Scientific Method	**Bottom-Up (Inductive)**	**Top-Down (Deductive)**

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10. Inductive vs Deductive Approach

Inductive (Qualitative)

- Data → Patterns → Theory
- Researcher develops a new theory from collected data.

Deductive (Quantitative)

- Theory → Hypothesis → Data Testing
- Researcher tests an existing theory using collected data.

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11. When Do We Use Mixed Methods Research?

Use MMR when:

- Quantitative results alone do not provide the full picture.
- Qualitative data is needed to explain numbers and statistics.
- One method alone may produce misleading conclusions.
- A more complete understanding of a research problem is required.

Example:

- A questionnaire may show teachers have positive or negative emotions.
- Interviews are needed to explain **why** they feel that way.

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12. Rationales for Using Mixed Methods Research

A. Triangulation (Convergence)

- Uses both qualitative and quantitative methods to verify findings.
- One method confirms the results of the other.

B. Expansion

- Used when initial findings require further explanation.
- Often used to explain unexpected results.

C. Exploration

- Qualitative research is conducted first.
- Results help develop:
    - Variables
    - Hypotheses
    - Measurement instruments

D. Complementarity

- Different methods answer different parts of the same research question.
- Provides two connected perspectives on the phenomenon.

E. Offset Weaknesses (Compensation)

- One method compensates for the weaknesses of the other.
- Improves overall study quality.

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13. Planning Mixed Methods Research

Researchers must answer four questions:

1. **Sequence**
    - Which data will be collected first?
    - Quantitative or qualitative?
2. **Priority**
    - Which method will receive greater emphasis?
3. **Integration**
    - At what stage will the two datasets be combined?
4. **Theoretical Perspective**
    - Will a guiding theory or framework be used?

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14. Priority (Dominance)

- Priority refers to the amount of emphasis given to each method.
- Also called **Dominance**.

Examples:

- Quantitative may be dominant.
- Qualitative may be dominant.
- Both may have equal importance.

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15. Mixed Methods Notation

Symbol	Meaning
QUAN	Quantitative (major emphasis)
quan	Quantitative (minor emphasis)
QUAL	Qualitative (major emphasis)
qual	Qualitative (minor emphasis)
→	Sequential data collection
+	Simultaneous (concurrent) collection
=	Integrated/converged data
( )	Embedded method
MM	Mixed Methods

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16. Major Mixed Methods Designs

According to Creswell:

Sequential Designs

1. **Sequential Explanatory Design**
2. **Sequential Exploratory Design**
3. **Sequential Transformative Design**

Concurrent Designs

4. **Concurrent Triangulation Design**
5. **Concurrent Embedded (Nested) Design**
6. **Concurrent Transformative Design**

Sequential Explanatory Design

17. Definition

Notation:

QUAN → qual

- Quantitative data collected first.
- Qualitative data collected second.
- Qualitative phase explains quantitative findings.

Most commonly used mixed methods design in health and social sciences.

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18. Purpose of Sequential Explanatory Design

- To explain quantitative findings in greater depth.
- To understand reasons behind statistical results.
- To explore unexpected quantitative findings.

Process:

1. Collect quantitative data.
2. Analyze quantitative results.
3. Conduct qualitative study to explain findings.

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19. Characteristics of Sequential Explanatory Design

- **Priority:** Quantitative data.
- **Sequence:** QUAN first, then qual.
- **Purpose of qualitative phase:** Explain, refine, and elaborate quantitative findings.
- Usually considered a **two-phase project**.

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20. Data Integration in Sequential Explanatory Design

- Integration usually occurs during:
  - Data interpretation.
  - Discussion of findings.

Questions researchers ask:

- Which results need further explanation?
- What qualitative questions emerged from quantitative findings?

Interview questions are often developed directly from survey results.

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21. Example: Hearing Loss Study

QUAN Phase

- Participants rate their conversational ability before and after rehabilitation.

qual Phase

- Participants are interviewed to explain reasons behind their ratings.

Purpose:

- Explain statistical results through personal experiences.

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22. Example: Healthcare Access Study

Aim

- Identify individuals with disabilities who experience difficulty accessing healthcare.

QUAN Phase

- Survey identifies “access-stressed” individuals.

qual Phase

- Interviews explore:
    - Barriers to healthcare access.
    - Consequences of not receiving care.

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23. Advantages of Sequential Explanatory Design

- Provides detailed explanation of statistical findings.
- Combines strengths of quantitative and qualitative methods.
- Helps understand the meaning behind numerical results.
- Useful for investigating unexpected findings.

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24. Drawbacks of Sequential Explanatory Design

- More time-consuming than concurrent designs.
- Risk of losing participants between phases.
- Difficult to fully plan the qualitative phase because it depends on quantitative results.