An Introduction to Mixed Methods Research

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SSP, University of Nebraska-Lincoln
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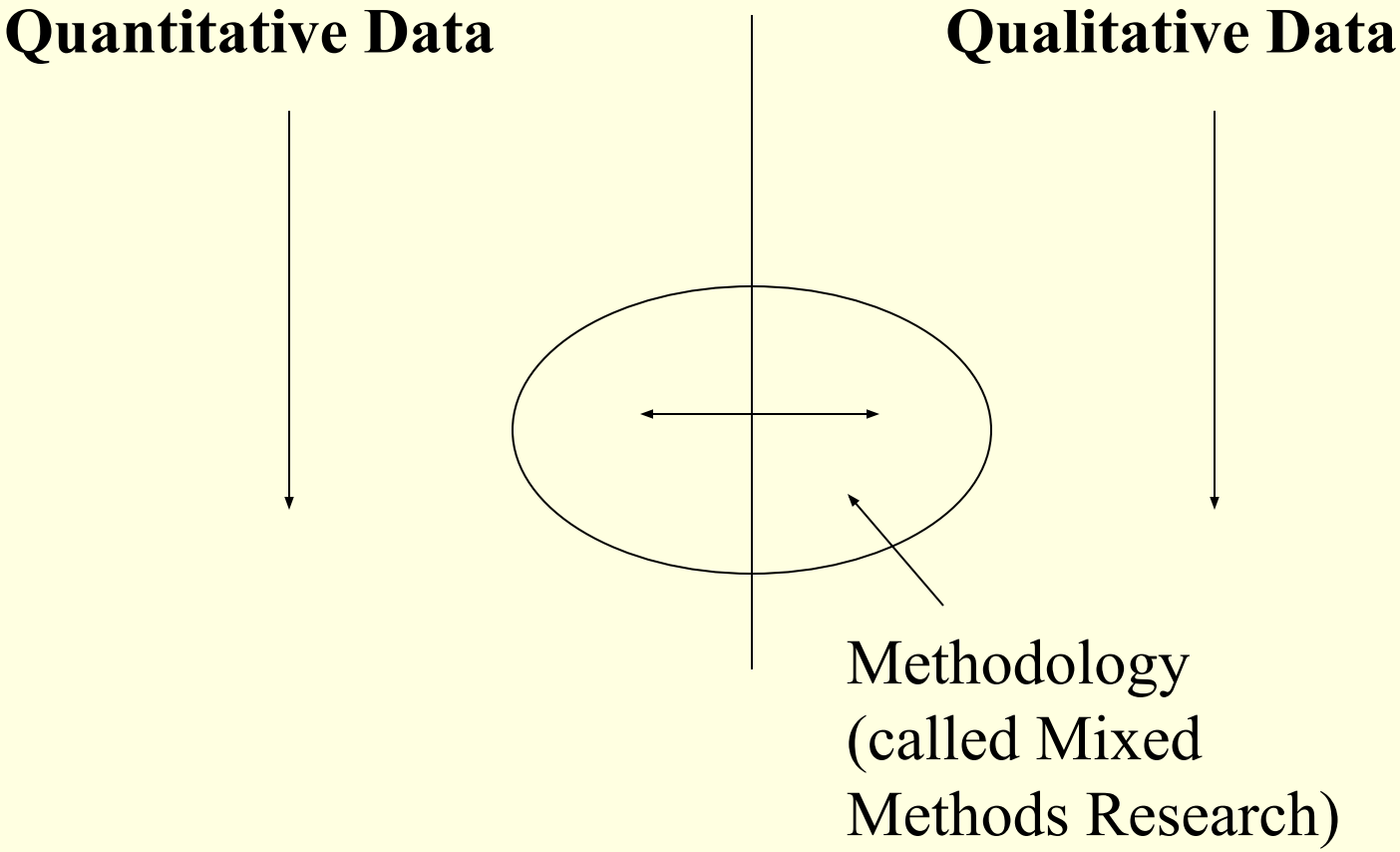
Office of Qualitative and Mixed Methods Research (OQMMR), Educational Psychology, UNL

- Purpose: To provide consultation on qualitative and mixed methods research, help scholars develop proposals for funding, and help conduct and evaluate funded projects.
- 5 Ph.D.s: Creswell, Plano Clark, Lu, Green, Shope; 2 RA's
- Began 5 years ago
- Current projects in health sciences, physics, language arts, family/child research, educational assessment, veterans affairs
- Funding sources: NIH, NSF, Dept of Veterans Affairs, National Department of Education, Kellogg Foundation, Esperance Family Foundation, NE Dept of Education
- 23 funded projects since opening; 28 journal publications and 5 books or book chapters
- Editorial Office of the Journal of Mixed Methods Research
- Self-supporting research office

Topics that I address in my mixed methods classes and workshops:

- Core idea of mixed methods research
- Assumptions about research needed
- When to use mixed methods research
- Basic components
- Mixed methods literature
- Philosophical assumptions
- Mixed methods designs
- Criteria for choosing a design
- Procedural challenges in using designs
- Standards for evaluation
- Future research

Understanding the core idea of mixed methods research



Learning the assumptions about research needed to conduct this form of inquiry

- Qualitative is legitimate
- Knowledge of qualitative research.
- Methodology evolves
- Diversity in methodology
- Times when quantitative and qualitative inadequate

Identifying situations in which mixed methods research is needed

- You are measuring a concept on an instrument. You have a sense that scores are not telling you the entire story. If you just asked a few people about the concept you might obtain a better understanding…mixed methods research provides a **more complete understanding** of the research problem than either quantitative or qualitative alone.

Identifying situations in which mixed methods research is needed

- You look over the instruments available to study a concept. They were developed from a different sample/population than the one you are studying. You consider that you will need to develop an instrument before you can administer it to your sample… Mixed methods is a methodology for developing better, more **context specific instruments**.
- You have gathered data about a factors that predict a concept on several instruments. Although you have general information about the importance of predictors, you can only guess as to what explains why the results occurred…Mixed methods helps to **explain results** (or how mechanisms work) in causal models.

Identifying situations in which mixed methods research is needed

- You are conducting an intervention study. You have an intervention that was developed by other researchers. You are not certain that it will work with the sample you are studying…Mixed methods is a way to explore first to **determine if an intervention will work.**
- We want to evaluate the performance of an organization. This calls for understanding the expected outcomes of the organization (needs assessment), designing some instruments to measure those outcomes, and then helping to explain why the outcomes occurred…Mixed methods is an approach to **tie together several steps in an evaluation process**.

Learning the basic components involved in mixed methods research

- *Mixed methods research is a methodology for conducting research that involves collecting, analyzing, and integrating quantitative and qualitative research in a single study or a longitudinal program of inquiry.*
- *The purpose of this form of research is that both qualitative and quantitative research, in combination, provide a better understanding of a research problem or issue than either research approach alone.*

It is a research methodology

- The entire process of research
  - Philosophical assumptions of inquiry
  - Research questions
  - Data collection
  - Data analysis
  - Data interpretation
  - Data reporting

It involves quantitative research

A research approach that involves:

- Variables, hypotheses, questions
- Instruments, closed-ended questions, reliability, validity
- Statistical analysis
- Generalizability, replicability, control, and lack of bias

It involves qualitative research

An inquiry approach which includes:

- Central phenomenon
- Broad, general questions
- Views of participants
- Reciprocity and respect
- Description and themes
- Interpretation
- Personal reflexivity
- Flexible structure
- Meaning or advocate for groups/individuals

It involves collecting both quantitative and qualitative data

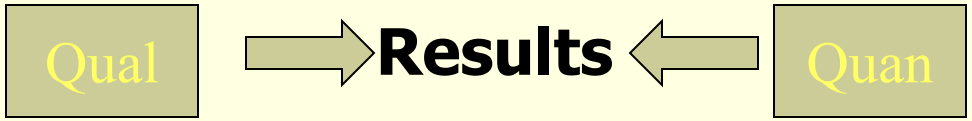
- Quantitative data
  - Instruments
  - Checklists
  - Records
- Qualitative data
  - Interviews
  - Observations
  - Documents
  - Audio-visual materials

It involves quantitative and qualitative data analysis

- Quantitative analysis
  - Use statistical analysis,
  - For description
  - For comparing groups
  - For relating variables
- Qualitative analysis
  - Use text and images,
  - For coding
  - For theme development
  - For relating themes

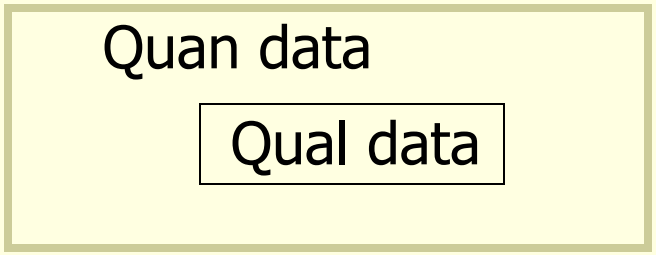
It involves mixing the data

Converge data:



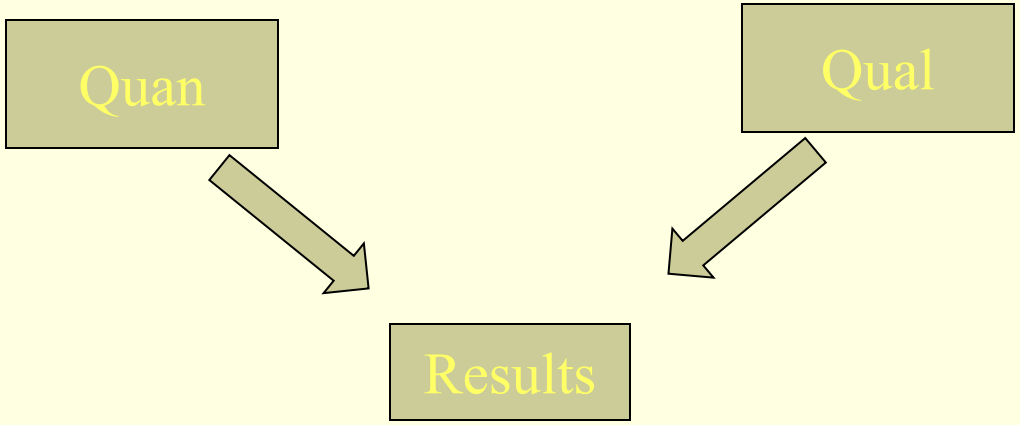
Connect data:

Embed the data:

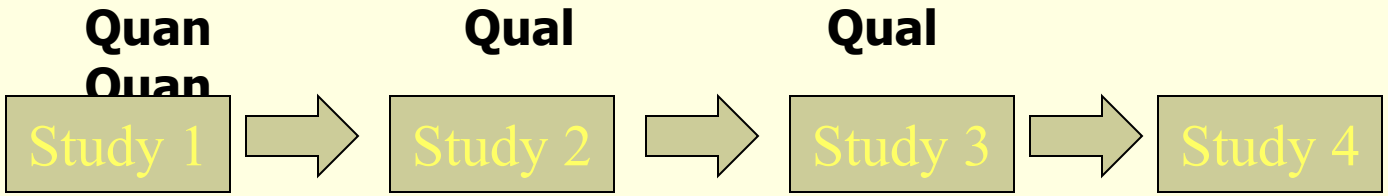


It may consist of a single study or multiple studies

Single Study:

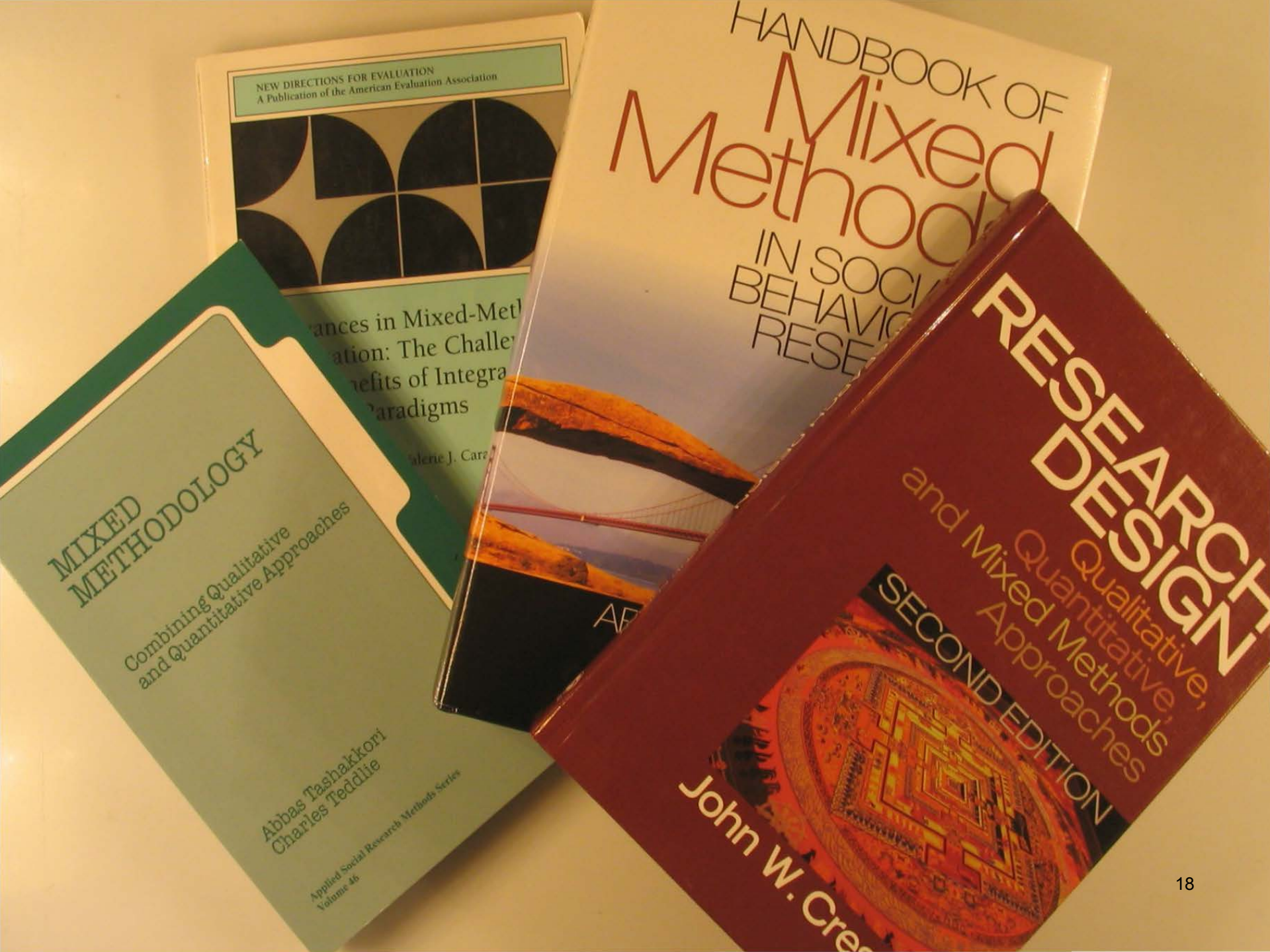


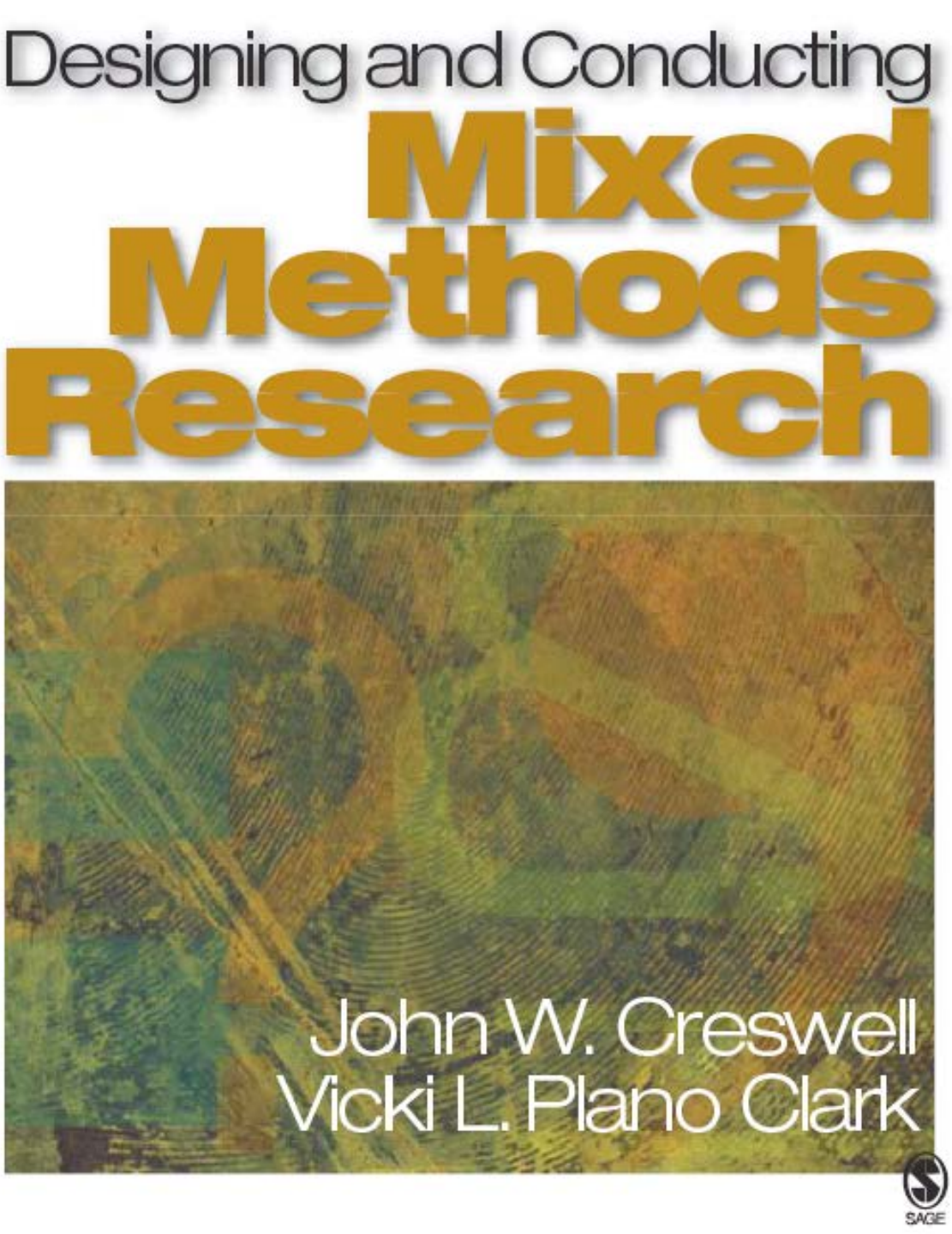
Multiple Studies:

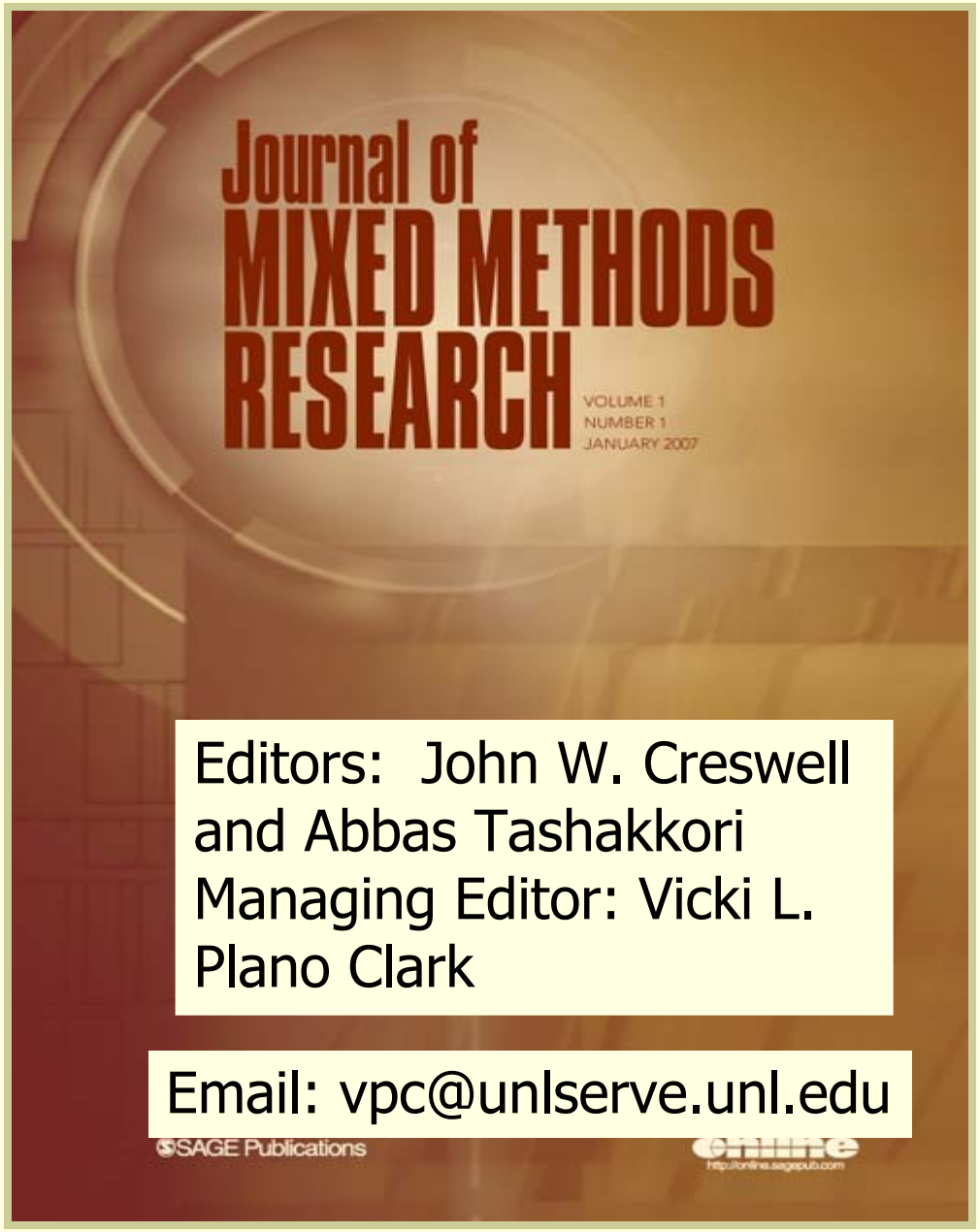


Recognizing the body of mixed methods literature

- 1988, 1989 – books, articles by sociologists, evaluators
- Accelerated interest in 1990s
- 14 books
- Journals
- Conference papers
- Methodological journal article publications
- Empirical journal article publications
- US and international interest


NEW DIRECTIONS FOR EVALUATION
A Publication of the American Evaluation Association
HANDBOOK OF
Mixed
Methods
MIXED METHODOLOGY
Combining Qualitative and Quantitative Approaches
Abbas Tashakkori
Charles Teddlie
Applied Social Research Methods Series
Volume 46
RESEARCH DESIGN
Qualitative, Quantitative, and Mixed Methods Approaches
SECOND EDITION
John W. Cre


Designing and Conducting
Mixed Methods Research
John W. Creswell
Vicki L. Plano Clark
SAGE



Editors: John W. Creswell and Abbas Tashakkori
Managing Editor: Vicki L. Plano Clark

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Topics addressed in this body of literature

- Paradigm use
- Research designs
- Threats to rigor of the designs
- Sampling procedures
- Data analysis approaches
- Writing study aims, research questions
- Notation system
- Interdisciplinary team research
- Writing mixed methods studies
- Evaluating mixed methods studies

Examining the philosophical assumptions behind mixed methods research

Worldview or philosophy (e.g., attitudes and beliefs about knowledge, such as constructivism, post-positivism)

Theoretical lens (e.g., feminist, racial)

Methodological approach (e.g., experiemental, survey, ethnography, mixed methods)

Methods of data collection (e.g. interviews, focus groups)

Adapted from Crotty M. *The foundations of social research: Meaning and perspective in the research process. London: Sage, 1998.*

Learning about aspects of a worldview or paradigm

- How we see reality in this world (ontology)
- How we know what we know (epistemology)
- How we view the role of values (axiology)
- How we conduct the procedures of research (methodology)
- How we view the use of language in research (rhetorical)

Understanding four typical worldviews

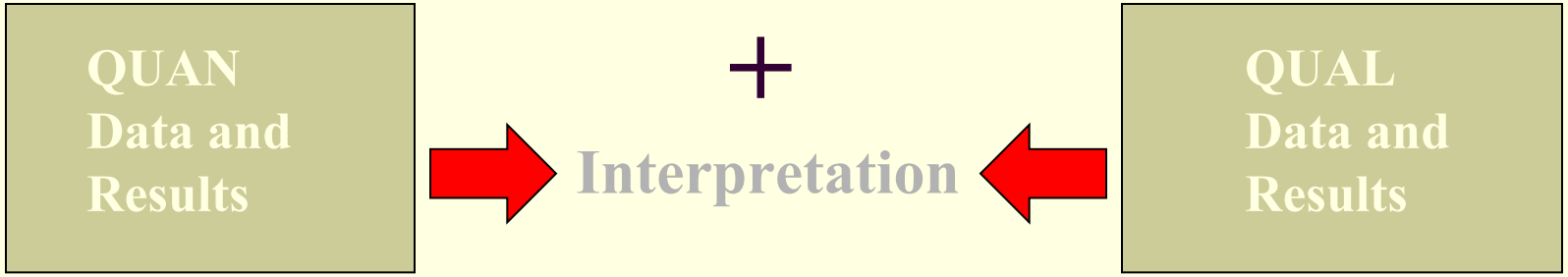
Postpositivism •Determination •Reductionism •Empirical observation and measurement •Theory verification	**Constructivism** •Understanding •Multiple participant meanings •Social and historical construction •Theory generation
Advocacy/Participatory •Political •Empowerment issue-oriented •Collaborative •Change-oriented	**Pragmatism** •Consequences of actions •Problem-centered •Pluralistic •Real-world practice oriented

Understanding the different worldview stances in mixed methods research:

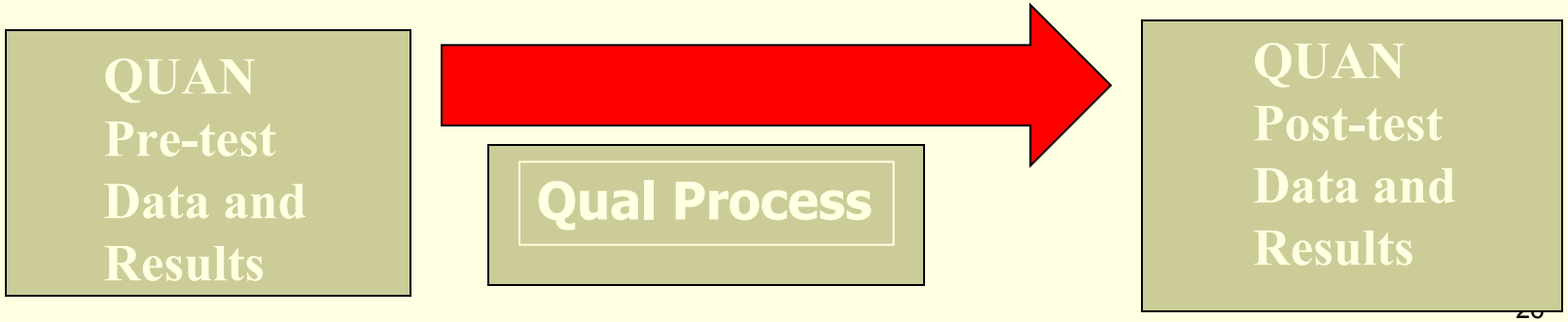
- Different stances:
  - Single worldview – pragmatism, transformative-emancipatory (advocacy/participatory)
  - Multiple worldviews made explicit
  - Worldviews change depending on type of design

Learning about the types of mixed methods designs typically used in research

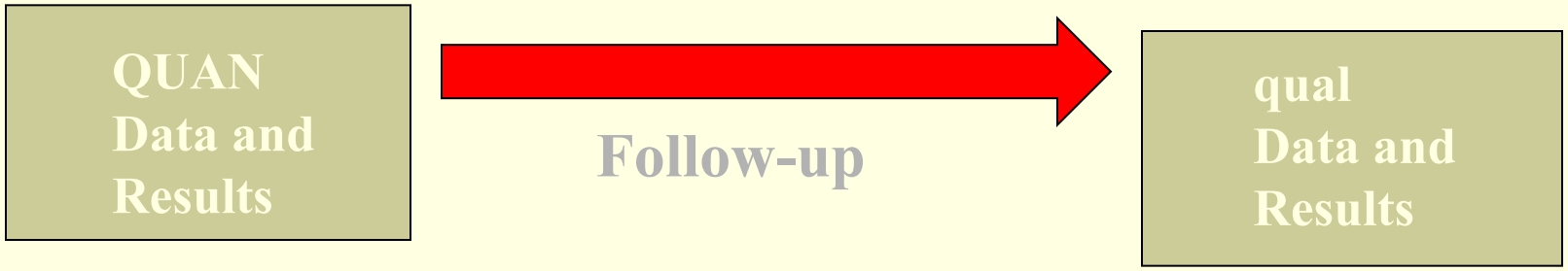
I. Triangulation Mixed Methods Design



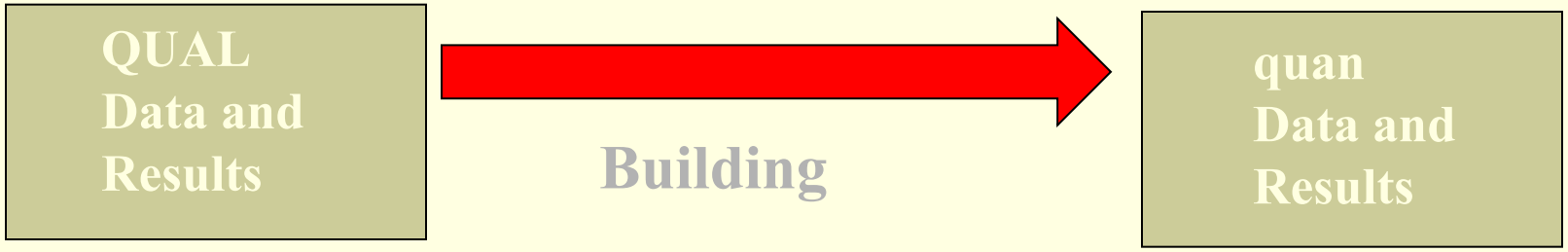
II. Embedded Mixed Methods Design



III. Explanatory Mixed Methods Design



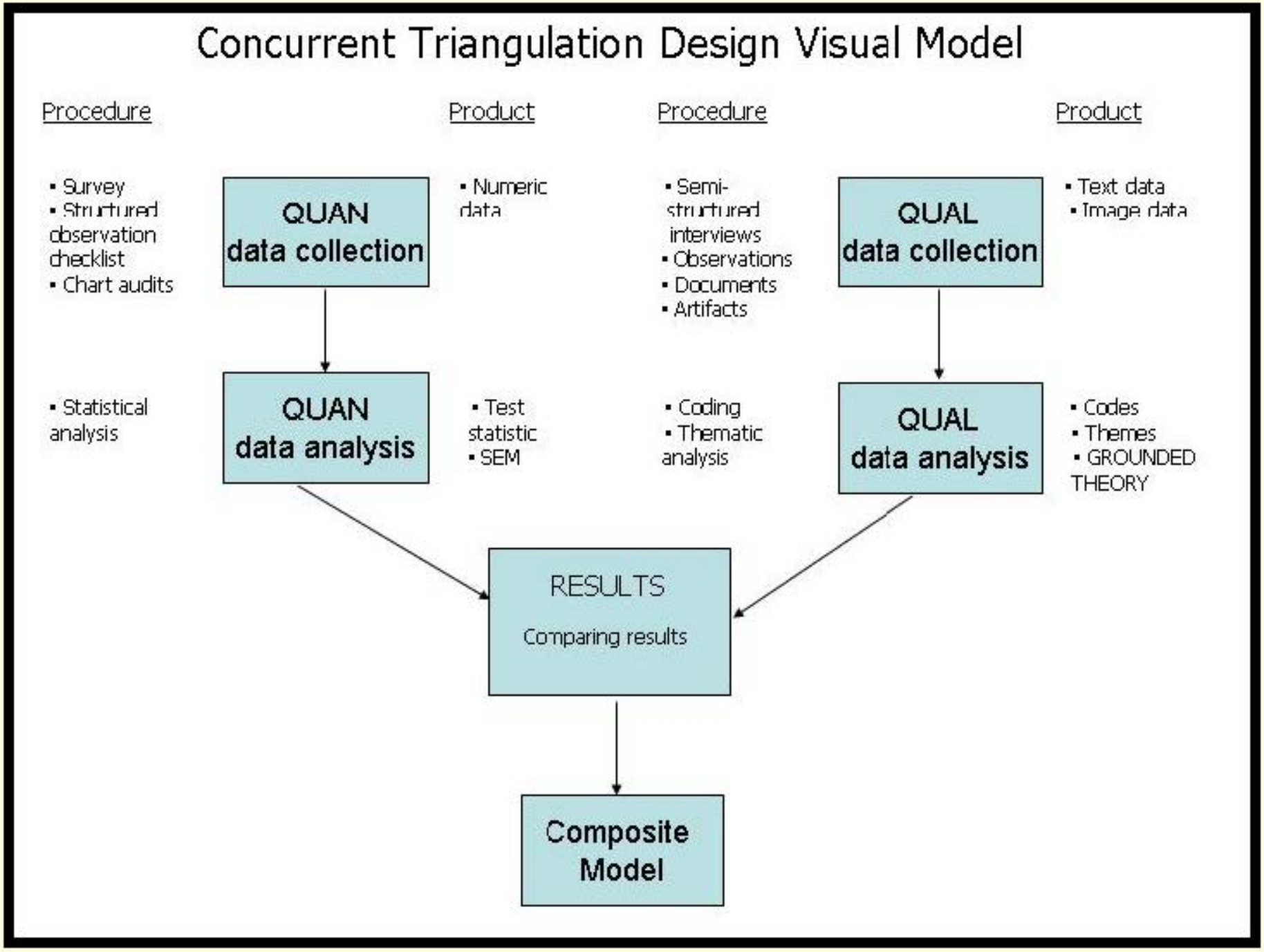
IV. Exploratory Mixed Methods Design



Learning about the concurrent Triangulation Design

- One-phase project
- Concurrent data collection
- Combine results
- Intent is to merge two separate “strands” of data

Concurrent Triangulation Design Visual Model

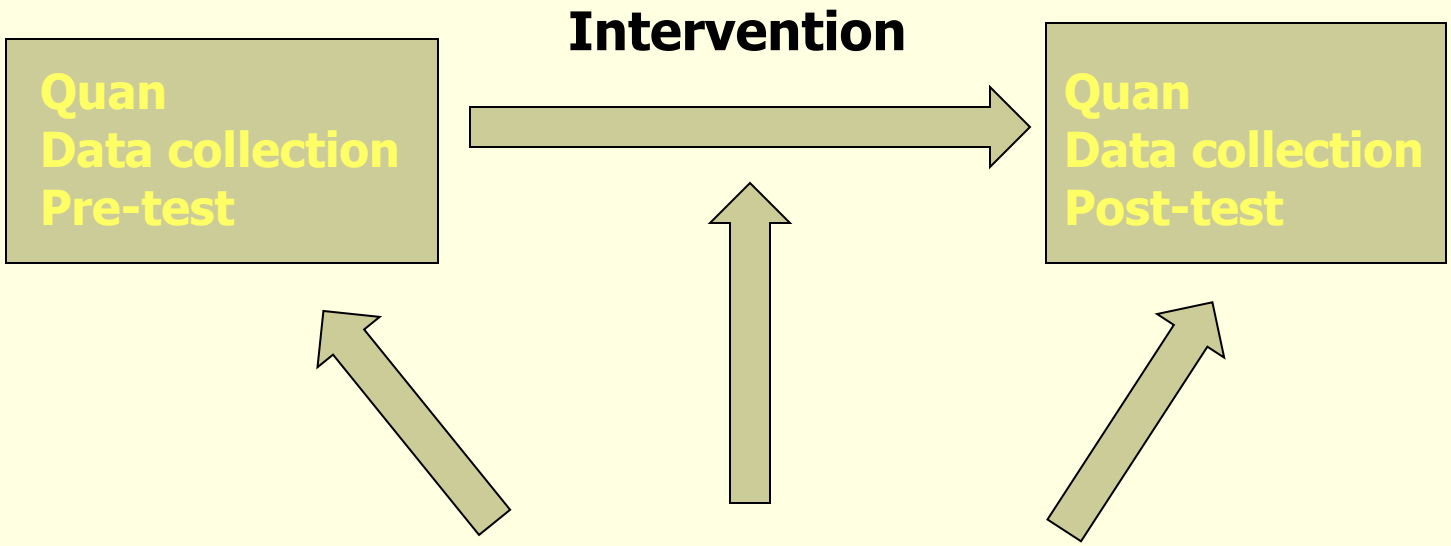


Learning about the Embedded Design

- Supportive role of one type of data or both forms of data (mixed methods within an experiment, case study, narrative study, correlational design)
- Concurrent or sequential data collection
- One phase or two phases
- Intent of enhancing the design

Embedded Research Design

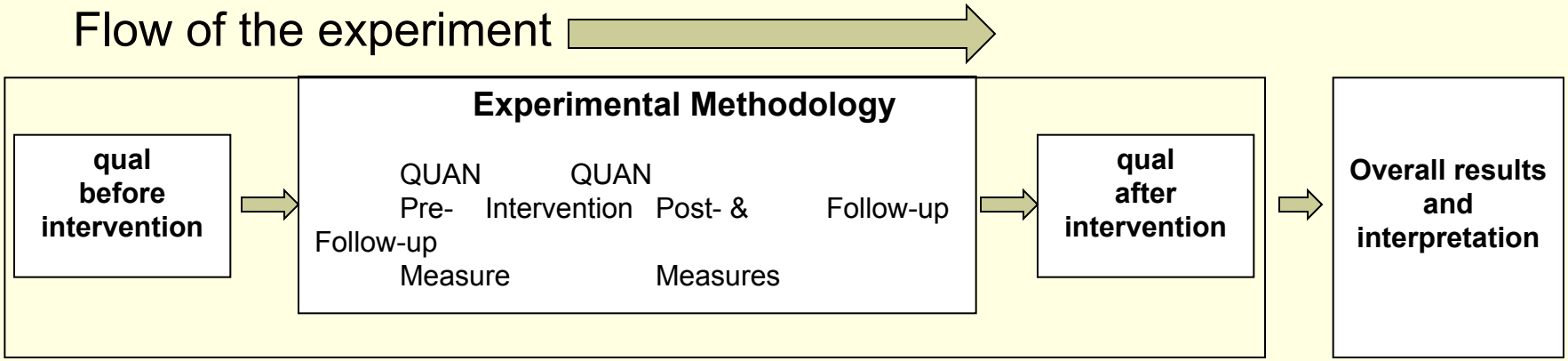
Experiment



Process – collection and analysis of qualitative data (before, during, after trial)

Embedded Design within an Experiment

Flow of the experiment



Procedures:
- One-on-one semi-structured interviews
- Thematic analysis

Products:
- Transcripts
- Developed intervention treatment

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

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

Products:
- Transcripts
- Themes and quotes

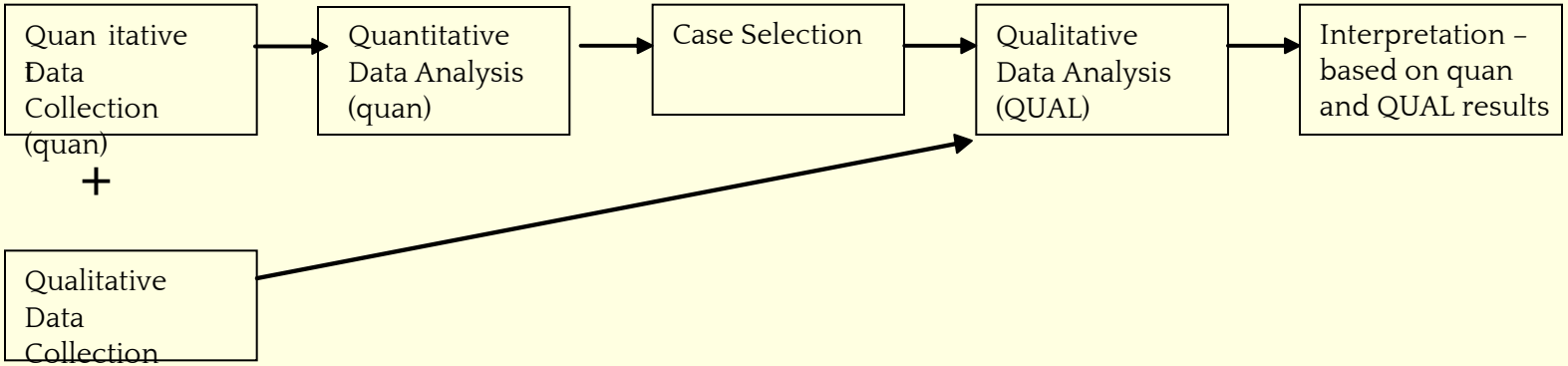
Procedures:
- Discuss treatment effectiveness
- Discuss themes in context of interventions and outcomes

Products:
Discussion

Learning about the Explanatory Sequential Design?

- Sequential data collection
- Two-phase project
- Quantitative phase first; qualitative, second
- One phase builds on other phase
- Intent: to explain results or to select participants to better understand results

An Explanatory Sequential Design



Quantitative Data*

- Number of cigarettes
- CES-D 6

Qualitative Data*

- Semi-structured interviews, audio recorded and transcribed

* Data collected 10 times over the course of a calendar year for 40 participants

Quantitative Analysis

- Graphic plot of CES-D6 scores over time for each participant
- Graphic plot of cigarettes/day values over time for each participant

Case Selection

- Selected 5 cases maximally varying
- Identified critical months in which smoking varied

Qualitative Analysis

- Description of each case
- Identification of life events occurring during critical months where smoking increased or decreased
- Thematic analysis of life events for each case
- Cross-case thematic analysis

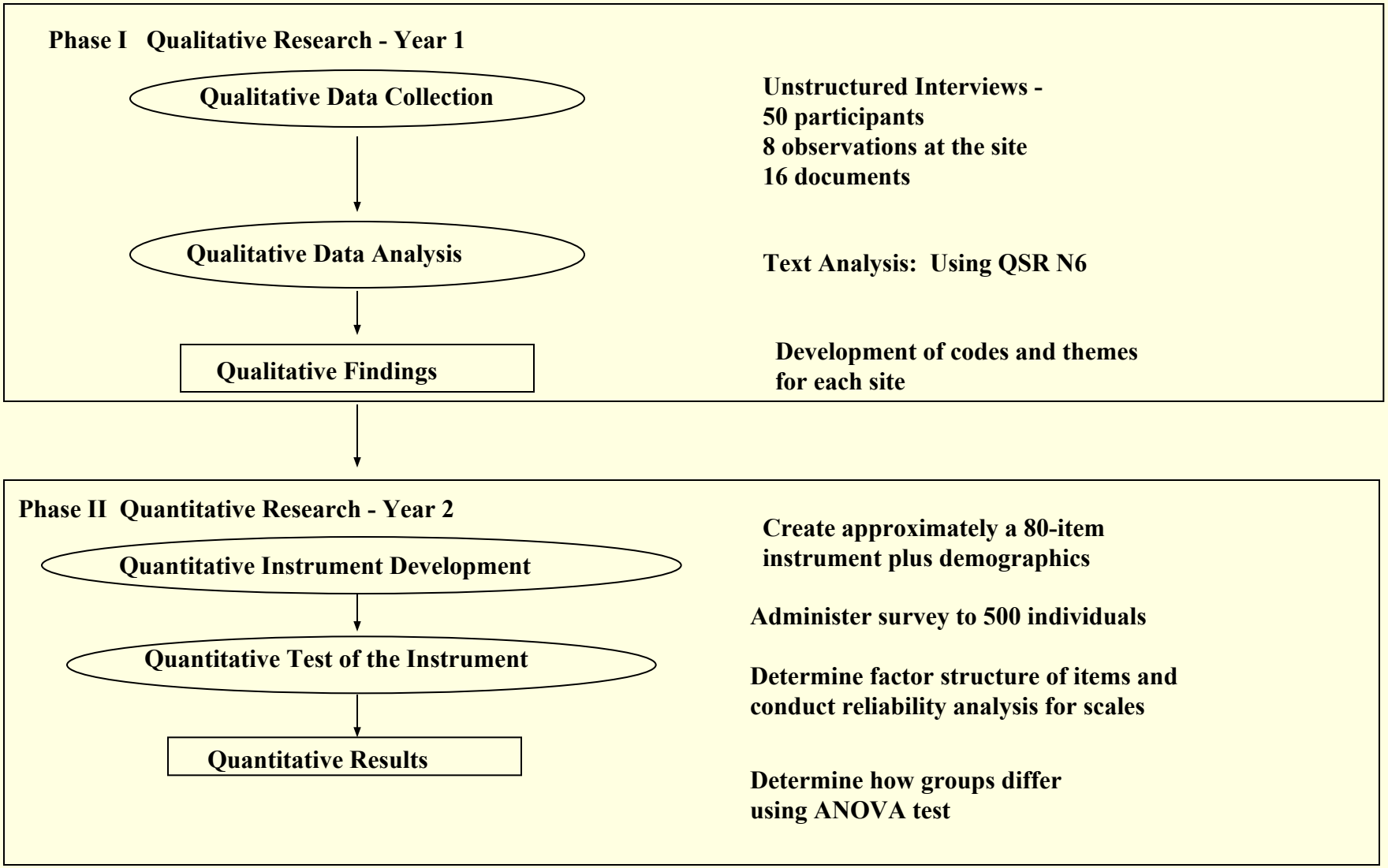
Interpretation

- Why did changes in smoking occur?

Source: Creswell, Plano Clark, Shope, McVea. (in progress)

Learning about the Exploratory Sequential Design

- Sequential data collection
- Two-phase project
- Qualitative phase first; quantitative, second
- One phase builds on other phase
- Intent: to first explore in order to develop an instrument, to identify categories, taxonomy for follow up



Exploratory Sequential Design

Identifying criteria for choosing a design

- Intent for conducting mixed methods research
- Concurrent (each strand stands alone then brought together) or sequential (one strand builds on the other)
- Emphasis or priority given to one strand
- Nature of research questions
- Resources available
- Stakeholders in field

Understanding the procedural challenges in using the designs

- Contradictory findings
- Data integration
- Sample selection
- Sample size
- Introducing bias
- Time
- IRB support

Recognizing standards for evaluating the "quality" of a mixed methods study

- Collection of both quantitative and qualitative data (in response to quantitative and qualitative questions)
- Mixing of the two forms of data
- Rigor of quantitative and qualitative approaches
- Contribution to the mixed methods literature
- Use of mixed methods terms

Needed research on mixed methods

- Visual diagrams and notation system
- Understanding types of designs, procedures (e.g., mixed methods questions), and reasons for mixed methods
- Understanding issues (threats to rigor) arising in designs
- Emerging language of methodology
- Adaptation to different fields of study
- Worldview perspectives
- Inferences in mixed methods research
- Skills needed
- Funding source requirements and guidelines
- International perspectives
- Writing mixed methods studies
- Collaborative research and team research

Additional Readings

Books:

- Creswell, J. W., & Plano Clark, V. L. (2007). *Designing and conducting mixed methods research.* Thousand Oaks, CA: Sage.
- Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Greene, J. C., & Caracelli, V. J. (Eds.) (1997). Advances in mixed-method evaluation: The challenges and benefits of integrating diverse paradigms. *New Directions for Evaluation, Vol. 74.* San Francisco, CA: Jossey-Bass Publishers.
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- Tashakkori, A. & Teddlie, C. (1998). *Mixed methodology: Combining qualitative and quantitative approaches*. Thousand Oaks, CA: Sage Publications.
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Additional Readings

Articles and Chapters:

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- Morse, J. M. (1991). Approaches to qualitative-quantitative methodological triangulation. *Nursing Research*, 40, 120-123.

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