



Mixed Methods Research in Education

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How would you combine two types of data?

Qualitative Text Data

- This is a sample of a text file of words that might be collected on interview transcripts, observation fieldnotes, or optically-scanned documents.

Quantitative Numeric Data

- 2 3 4 2 5 2 3 1 1 2 3 4 2
3 3 2 1 1 1 5 3 4 1 2 3 1
4 4 5 5 4 1 2 1 4 3 3 5 1
4 2 3 1 5 5 2 2 1 5 3 5 1
3 1 5 3 2 2 5 1 3 2 4 4 3
1 2 4 2 2 4 1 5 5 4 2 1 5



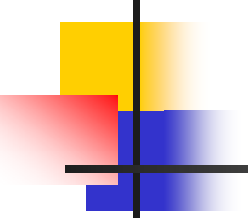
The Story of Mixed Methods Research

- Trace the history and development of mixed methods research
- How it was developed and defined
- Grew in technical and philosophical ways
- Become a “movement”
- Came under criticism
- Emerged as a methodology of the future in education

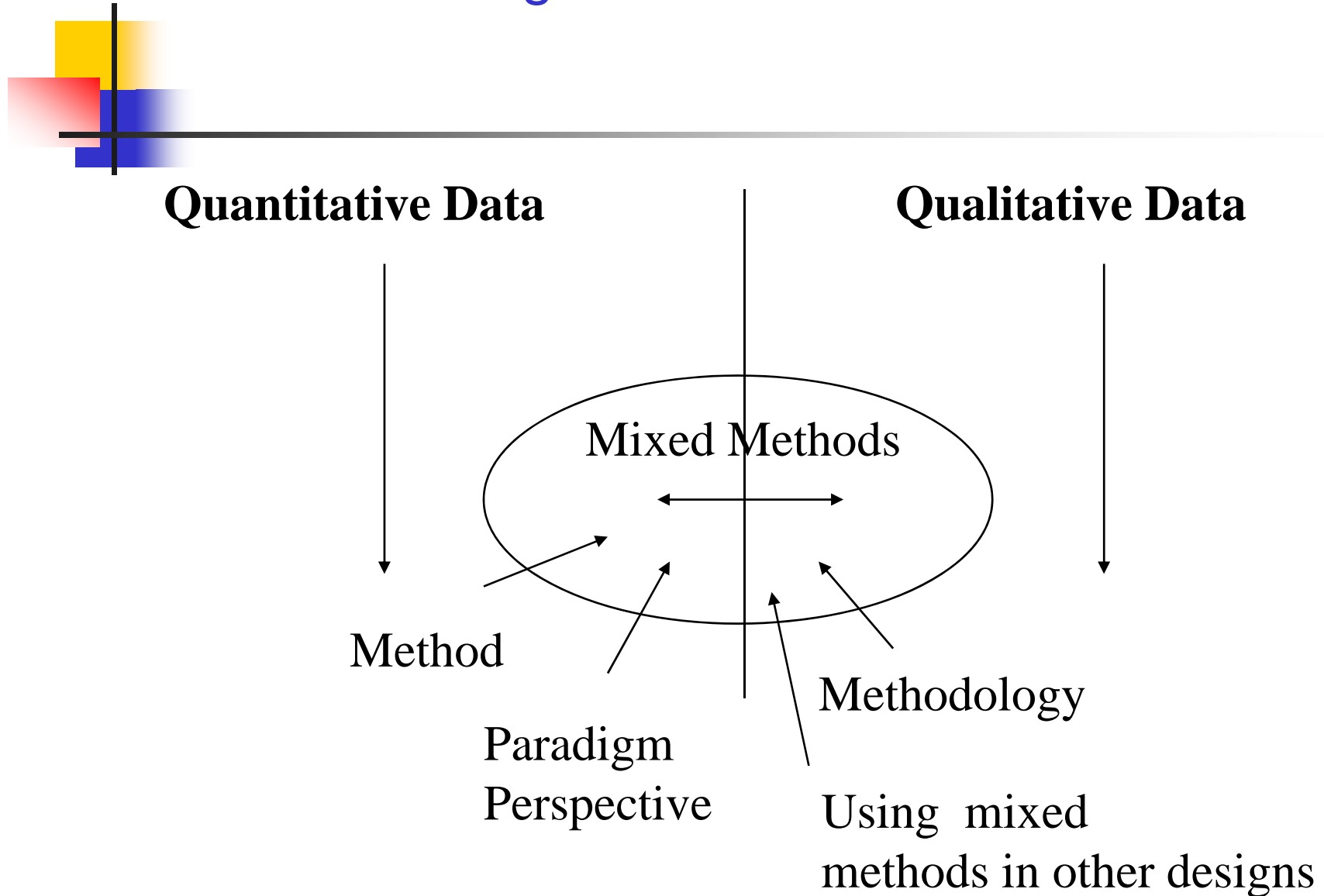


How Mixed Methods Developed and has been Defined

How, when, and why did mixed methods begin?

- 
- **How?**
 - Emerged as an evolution in 20th century
 - Quantitative research to qualitative to mixed methods
 - **When?**
 - Beginnings in 1988-1989
 - 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 – my chapter on combining, my teaching of proposal development class – 1st generation
 - **Why?**
 - Legitimacy of qualitative research
 - Increased interest in having two strands – quan and qual – in studies
 - Individuals looking for new methodologies

What emerged?





What emerged?

- A mixed methods approach in which the researcher:
 - Collects both quantitative and qualitative data
 - “Mixes” them
 - “Mixes” them at the same time (concurrently) or one after the other (sequentially)
 - Emphasizes both equally or unequally

Collects both quantitative and qualitative data,
although the boundaries are not always clear...



- Quantitative data (closed-ended)

- Instruments
- Checklists
- Records

- Qualitative data (open-ended)

- Interviews
- Observations
- Documents
- Audio-visual materials



Analyzes both the quantitative and qualitative data...

- 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

“Mixes” the two types of data...

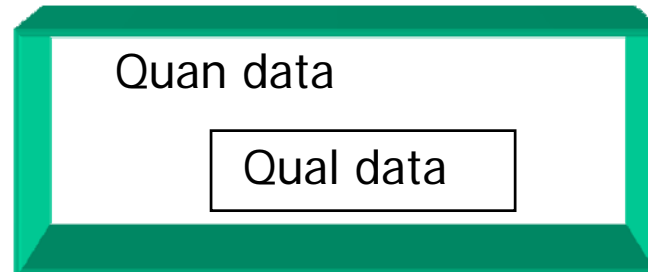
Converge data:



Connect data:



Embed the data:





What is the value of mixed methods over either quantitative or qualitative approaches alone?

- The insufficient argument – either quantitative or qualitative may be insufficient by itself
- Multiple angles argument – quantitative and qualitative approaches provide different “pictures”
- The more-evidence-the-better argument – combined quantitative and qualitative provides more evidence
- Community of practice argument – mixed methods may be the preferred approach within a scholarly community
- Eager-to-learn argument – it is the latest methodology
- “Its intuitive” argument – it mirrors “real life”

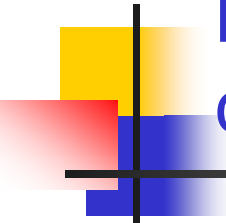


The Development of Techniques



Various ways “mixing” might occur:

- Quantitative and qualitative data are merged in a single phase study
- Quantitative results are obtained in a first phase and analyzed, and the results used (connected) to select participants and design questions for a second qualitative phase
- Qualitative results are obtained in a first phase and analyzed and the results used to study quantitatively a sample from a population in the second phase
- Qualitative data may be embedded within a larger quantitative study



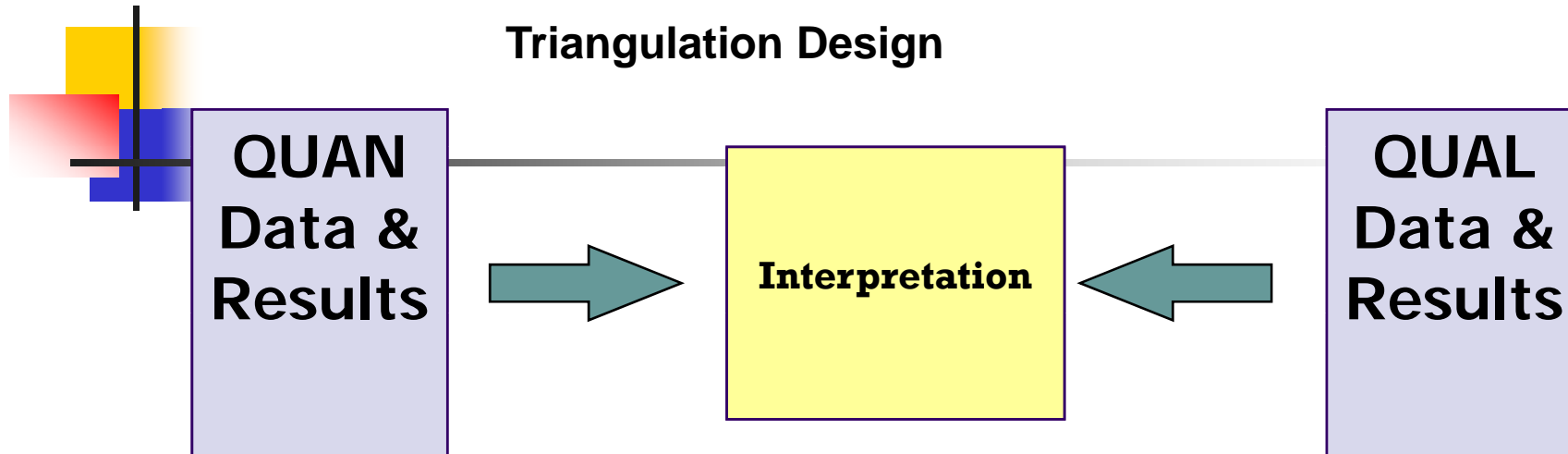
Leading to much discussion about what constitutes “mixing”...

- What
 - Data (Methods)
 - Qualitative and quantitative research
 - Philosophical assumptions
- Where
 - Throughout the process of research
 - Data collection
 - Data analysis
 - Interpretation (Conclusions, Discussion)

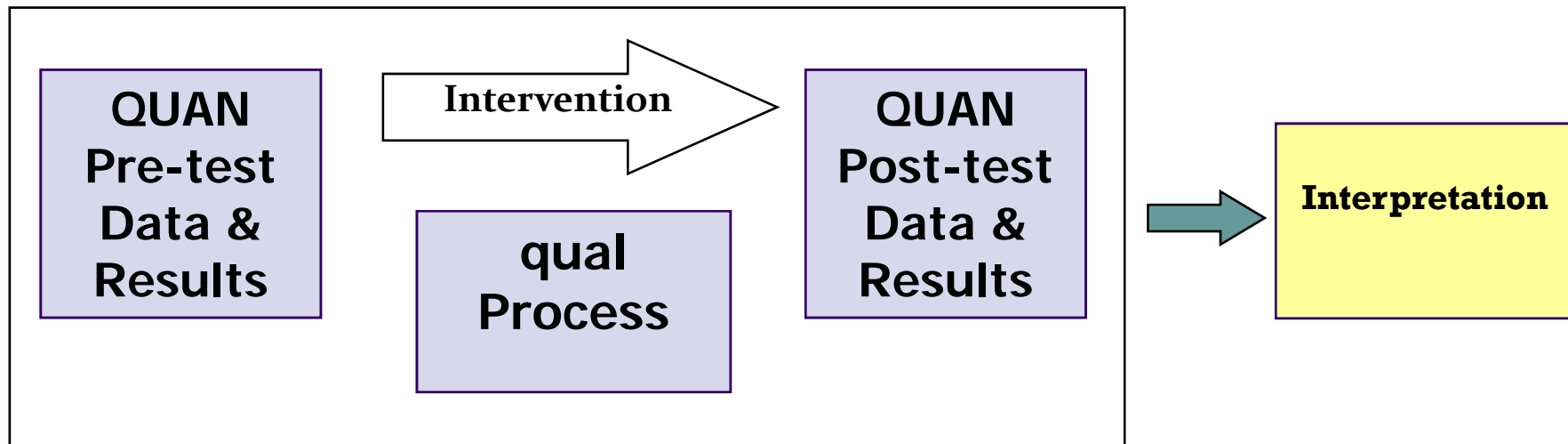
We can provide a picture of these “mixing” processes:

Concurrent Mixed Methods Designs

Triangulation Design

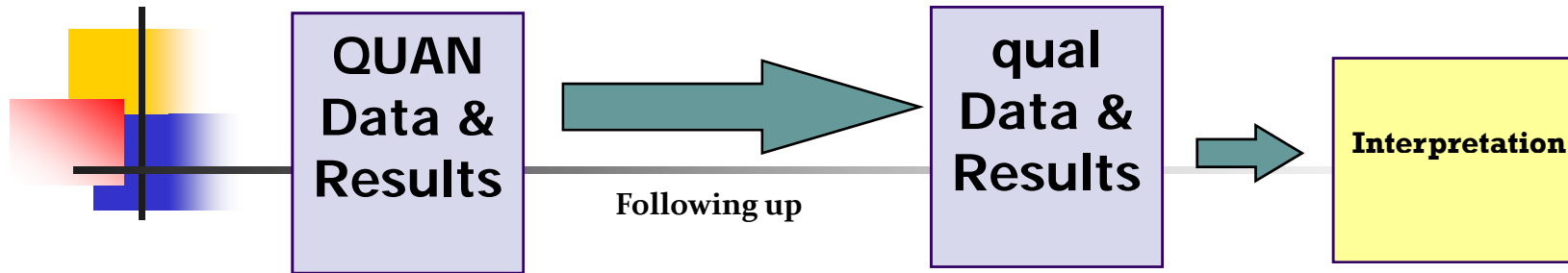


Embedded Design



Sequential Designs Mixed Methods Designs

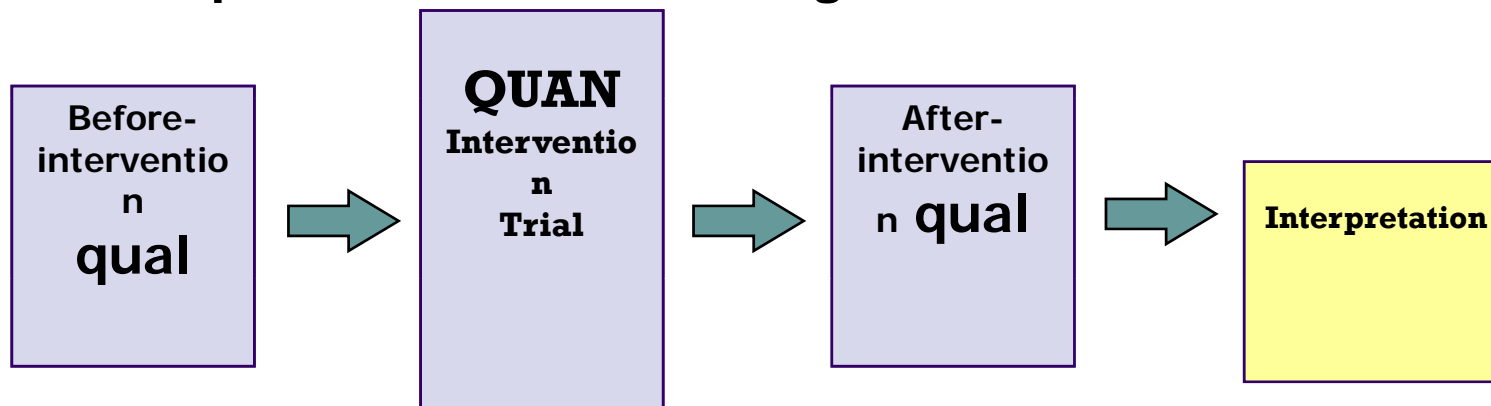
Explanatory Design



Exploratory Design

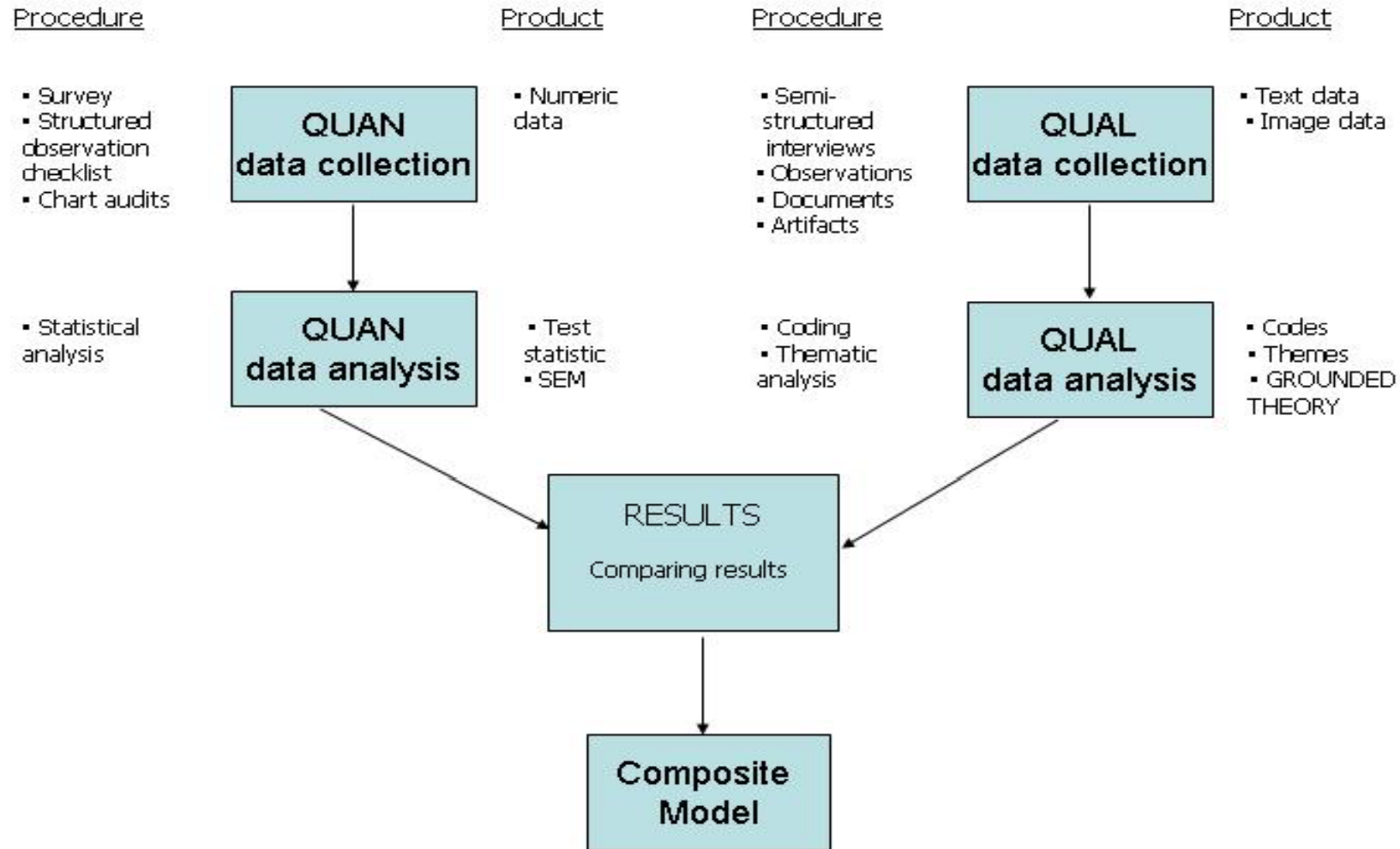


Sequential Embedded Design



Visual pictures of designs have emerged...

Concurrent Triangulation Design Visual Model





How do we actually “mix” the data?

- Triangulation concurrent study:
 - Side-by-side
 - Data transformation
 - Matrix

Emerging techniques of “joint matrices” of data

| Quantitative Counts Adj.Count** Row Pct Column Pct | Teachers N=2 | Administrators N=4 | Students N=4 | |
|---|-----------------------------|-------------------------------|-----------------------------|-----------------------|
| Qualitative Themes | | | | |
| Familiarity With the Form | 13 6.5 41.9 5.8 | 17 4.25 27.4 3.0 | 19 4.75 30.7 5.3 | 49 15.5 100.0 |
| Reactions to the Form | 23 11.5 22.2 10.2 | 100 25.0 48.3 17.4 | 61 15.3 29.5 16.9 | 184 51.75 100.0 |
| Use for Managing Depression | 67 33.5 38.6 29.8 | 177 44.25 51.0 30.7 | 36 9.0 10.4 10.0 | 280 86.75 100.0 |
| Changes to the Form | 115 57.5 37.5 51.1 | 196 49.0 32.0 34.0 | 187 46.8 30.5 51.7 | 498 153.3 100.0 |
| Situational Use of the Form | 7 3.5 8.9 3.1 | 86 21.5 54.4 14.9 | 58 14.5 36.7 16.1 | 151 39.5 100.0 |
| | 225 | 576 | 361 | |



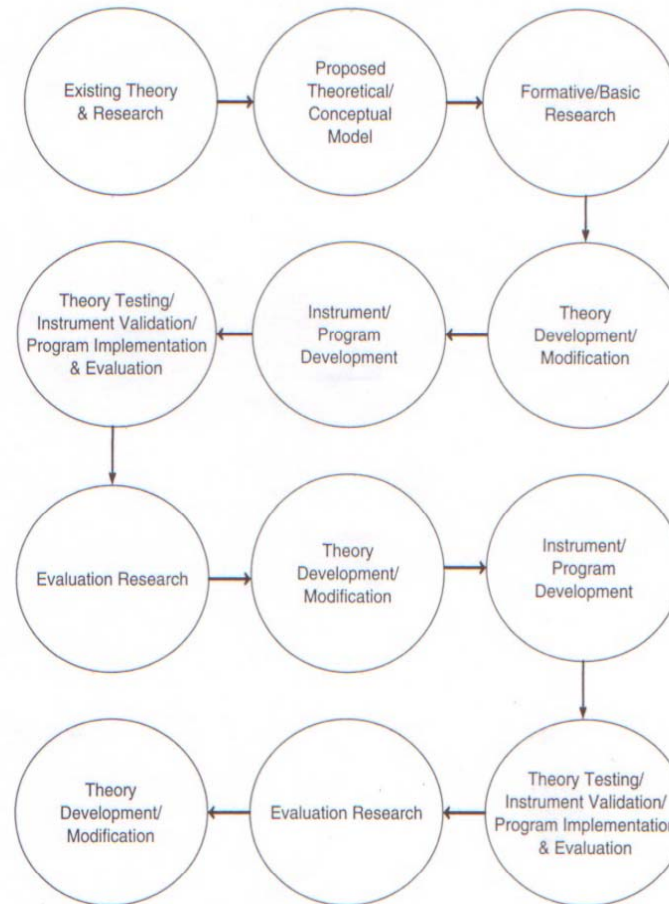
Concurrent Designs

- The second phase builds on the first phase
- We analyze results from the first phase
- This analysis helps us determine what to do in the second phase

We have more examples of complex designs... (Nastasi, Hitchcock, Sarkar, Burkholder, Varjas & Jayasena, 2007)


Study of mental health interventions for youth in Sri Lanka

Figure 1
Mixed Methods in Intervention Research Process: Theory to Adaptation



Scripts for designing mixed methods purpose statements...

This mixed methods study will address _____ (overall content-aim of the study). A triangulation mixed methods design will be used, and it is a type of design in which different but complementary data will be collected on the same topic. In this study, _____ (quantitative instruments) will be used to test the theory of _____ (the theory) that predicts that _____ (independent variables) will influence _____ (positively, negatively) the _____ (dependent variables or outcomes) for _____ (participants) at _____ (the research site). Concurrent with this data collection, qualitative _____ (type of qualitative data, such as interviews) will explore _____ (the central phenomenon) for _____ (participants) at _____ (site). The reason for collecting both quantitative and qualitative data are to bring together the strengths of both forms of research to _____ (e.g., compare results, validate results, corroborate results).



A new type of research question: A mixed methods question

Three ways to write this question:

Methodologically-focused:

- To what extent do the qualitative results confirm the quantitative results?

Content-focused:

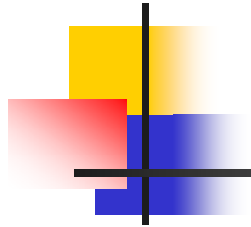
- How do the interviews with adolescent boys support the quantitative results that their self-esteem changes during the middle school years?

Hybrid of quantitative and qualitative elements:

- What results emerge from comparing the exploratory qualitative data about boy's self-esteem with outcome quantitative instrument data measured on a self-esteem instrument?

In planning a study out in advance...

- Title
- Introduction
 - (Problem)
 - Worldview/theoretical lens
 - Audience
 - Purpose Statement
 - Research Questions
- (Literature Review)
- Methods
 - Type of Mixed Methods Design (also add definition of mixed methods)
 - Types of Data Collection
 - Types of Data Analysis
 - Sequence/Emphasis/ Mixing Procedures
 - Figure of procedures
 - Anticipated methodological issues
- Ethical issues anticipated
- Validity issues
- Researcher resources and skills
- References, Appendices



Philosophical Developments

Morgan's (2007) Four paradigms stances: What is a paradigm?

- Paradigms as worldviews (all-encompassing perspectives on the world)
- Paradigms as epistemological stances (ontology, epistemology, methodology)
- Paradigms as examples (“best” or “typical” solutions to problems)
- Paradigms as shared beliefs in a research field (shared beliefs about the nature of questions and answers) ***

*** position supported by Morgan

Four epistemological stances...

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



Stances that have emerged in the mixed methods field:

- “Incompatibility” or “Incommensurable” thesis – mixed methods not possible
- “Dialectic” stance – multiple paradigms are possible, but each needs to be honored and new insights develop
- “Single paradigm” – pragmatism, transformative



The fit between paradigm and designs (or methods) (Creswell & Plano Clark, 2007) stance

Postpositivist Paradigm



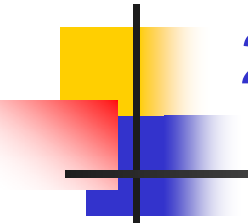
Survey

Constructivist Paradigm



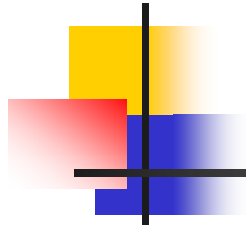
**Focus
Group
Interviews**





The “community of scholars” stance (Morgan, 2007; Denscombe, 2008)

- Shared community
- Shared set of research problems
- Shared practices
- Shared identity
- Information exchange
- Interpersonal networks
- Social acquisition of knowledge
- Informal groupings that transcend boundaries

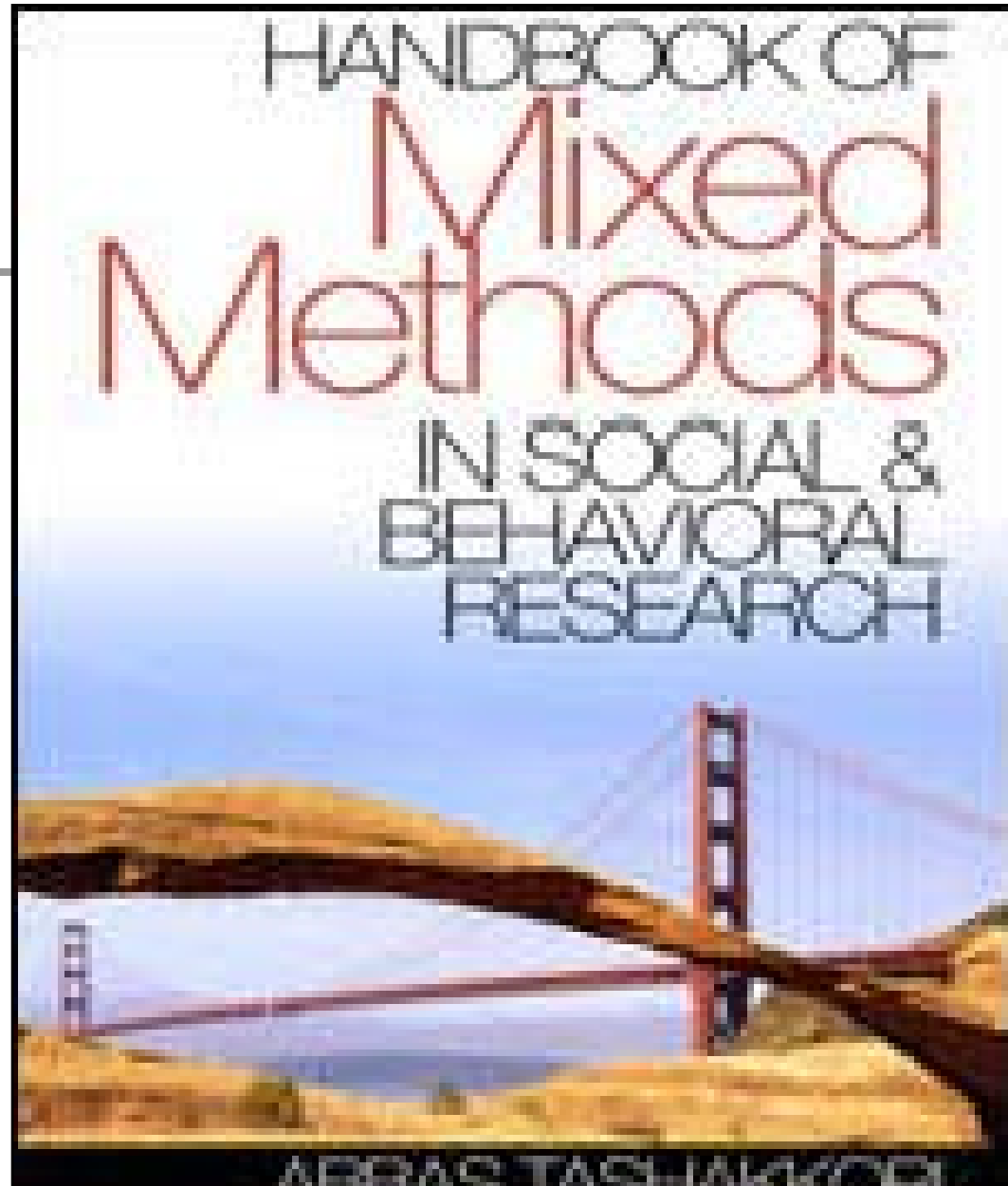


The “Movement” of Mixed Methods Research

Describing mixed methods as a “movement.”

“The emergence of mixed methods as a third methodological movement in the social and behavioral sciences began during the 1980’s.” (p. 697)

-Tashakkori & Teddlie (2003)

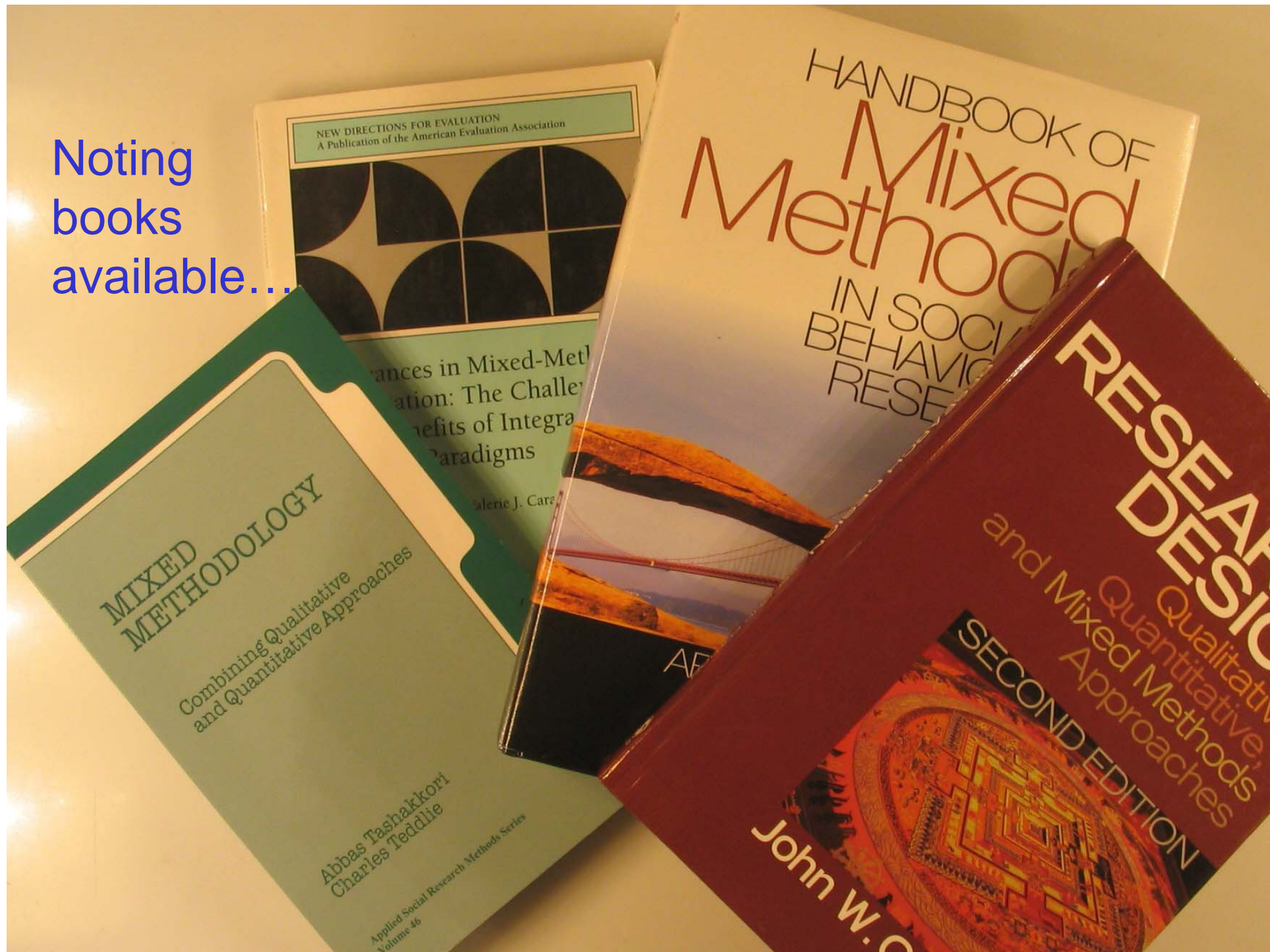


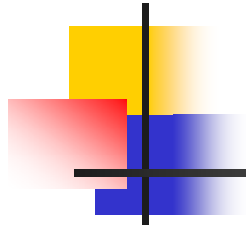
Tracking empirical studies...

Selected Mixed Methods Studies in Trauma Research (Creswell & Zhang, in progress)

| Authors (Year) | Journal | Topic | Quan Data | Qual Data | Integration | Impact Factor |
|--------------------------|---|---|--|---------------------------------------|--|---------------|
| Jones, Kafetsios (2005) | Clinical Child Psychology and Psychiatry | Political Violence and Psychological Well-being | HTQ and HSCL-25 | Open-ended questions and observations | Quan results are explored in a qual followup | 4.434 |
| Monneuse et al. (2008) | Journal of the Surgeons | Attitudes about Injury among High School Students | Questionnaire | Open-ended questions | Quan results are explored in a qual followup | 3.101 |
| Evans et al. (2007) | Journal of Traumatic Stress | Intrusive Memories Related to Violent Crime | Semi-structured interview | Semi-structured interview | Quan results are explored in a qual follow-up and vice versa | 1.884 |
| Yassi et al. (2004) | Nursing Research | Factors Associated with Staff Injuries | Telephone survey | Interview and focus group | Qual findings help to develop or select quan instruments | 1.748 |
| Feeny, Yivisaker (2003) | Journal of Head Trauma Rehabilitation | Context-Sensitive Behavioral Supports for Young Children with TBI | MAS and ABCI | Interview of open-ended questions | Quan results are explored in a qual followup | 1.643 |
| Banyard, Williams (2007) | Child Abuse & Neglect | Women's Voice on Recovery from Child Sexual Abuse | Structured Interview | In-depth, open-ended interview | Quan results are explored in a qual followup | 1.506 |
| Igreja et al. (2006) | The Journal of Nervous and Mental Disease | Women's Posttraumatic Suffering After the War | HTQ and SRQ | In-depth interview | Comparison of the data sources | 1.496 |
| Arditti (2003) | Journal of Loss and Trauma | Family Visiting at a Local Jail | Semi-structured interview | Semi-structured interview | Quan results are explored in a qual followup and vice versa | 0.528 |
| Gaskell (2007) | Developmental Neurorehabilitation | Evaluating Rehabilitative Activity Holidays for Burn-injured Children | SDQ and Self-perception Profile for Children | Qual questionnaire | Comparing the data sources | NA |

Noting
books
available...





MIXED METHODS
CONFERENCE

Programme

2008

www.mixedmethods.org

Cambridge University, UK

Seeing the development of
mixed methods conferences...



Anglia Ruskin
University

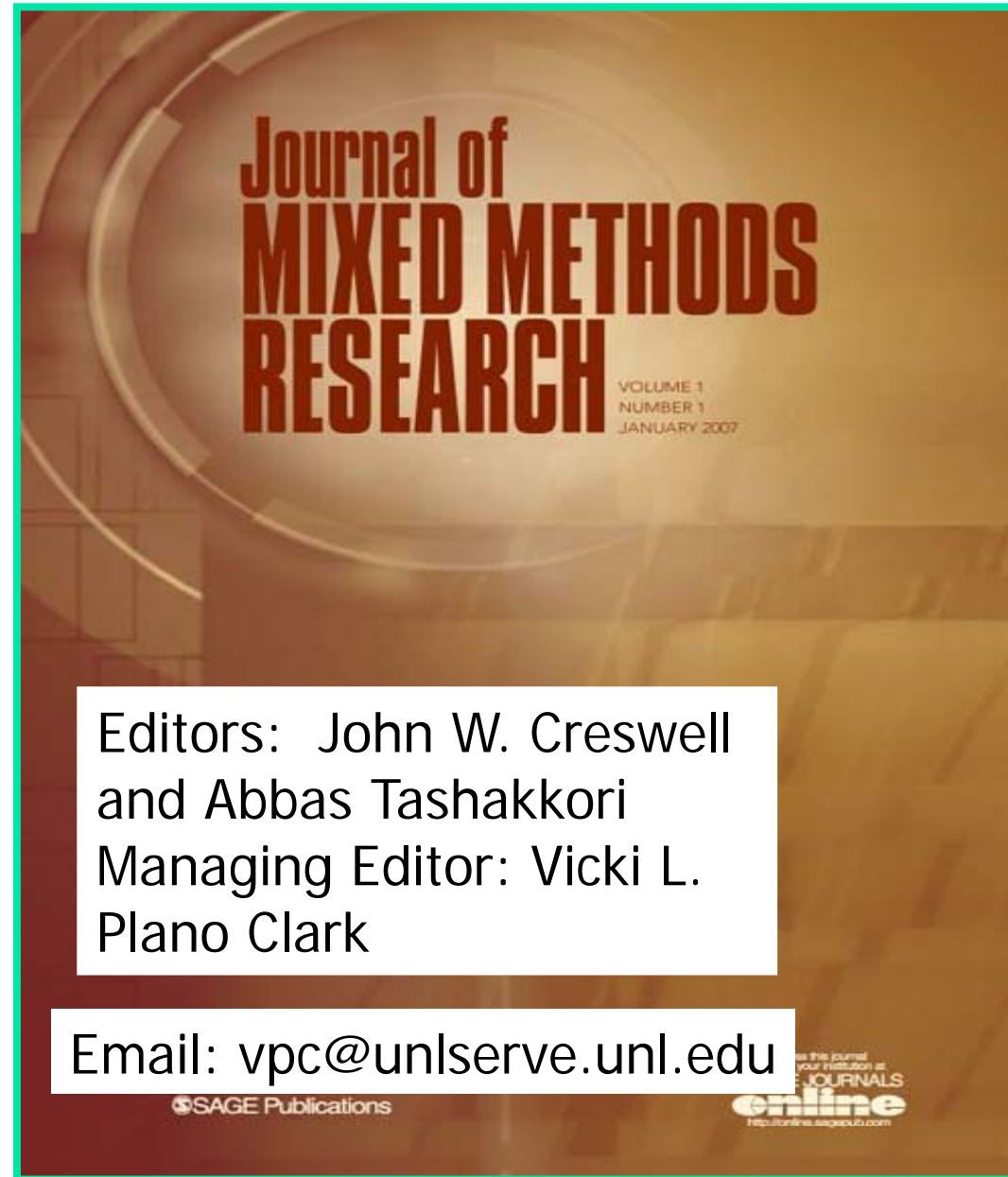
ONE HUNDRED AND FIFTY YEARS

50

1858-2008

ability into employability

Noting journals devoted to mixed methods research...

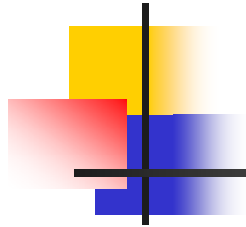




Additional mixed methods journals...

- *Field Methods*
- *Quality and Quantity*
- *Multiple Approaches to Research* (on-line)

- Other journals that publish mixed methods studies
(e.g., *International Journal of Social Research Methodology*)
- Special issue journals



The Critics and Concerns Raised about Mixed Methods Research



Noting what the critics are saying (Creswell, 2007 –IQIC2007)

- **Is there a post-positivist leaning to mixed methods?**
 - Howe, K. R. (2004). A critique of experimentalism. *Qualitative Inquiry*, 10, 42-61.
 - Giddings, L. S. (2006). Mixed-methods research: Positivism dressed in drag? *Journal of Research in Nursing*, 11(3), 195-2003.
 - Holmes, C. A. (2007). *Mixed(up) methods, methodology and interpretive frameworks*. Contributed paper for the Mixed Methods Conference, Cambridge, University, July 10-12, 2006.

- **Is there a dominant discourse in mixed methods research?**
 - Freshwater, D. (2007). Reading mixed methods research: Contexts for criticism. *Journal of Mixed Methods Research*, 1(2), 134-146.

- **What are some flaws in conducting mixed methods research? (e.g., mixing paradigms, protecting participants identities)**
 - Sale, J. E. M., Lohfeld, L. H., Brazil, K. (2002). Revisiting the quantitative-qualitative debate: Implications for mixed-methods research. *Quality and Quantity*, 36, 43-53.
 - Leahey, E. (2007). Convergence and confidentiality? Limits to the implementation of mixed methodology. *Social Science Research*, 36, 149-158.



Haven't we always been conducting mixed methods, but not calling it by that name?

■ Prior to 1988

- Quantitative and qualitative research used in studies
- Researchers often collected both strands
- Approach used in disciplines/fields such as evaluation, marketing

■ Since 1988

- More systematic use of both strands (calling it a distinct methodology)
- Specific language for discussing it has emerged (name, terms, diagrams of designs)
- Specific procedures for "mixing" have



A close inspection of issues likely to emerge in using the designs...

- Creswell, Plano Clark, Garrett (2008)
 - Contradictory findings
 - Data merging
 - Sample selection
 - Sample size
 - Introducing bias
 - Time



How do we evaluate a mixed methods study? Criteria...

- 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



What criteria do I use as a journal editor?

- I go to the “methods” section to see if **quantitative and qualitative data** are collected.
- I look in the “results” and “discussion” sections for some **connection, merging, or embedding** of one type of data in the other.
- I look in the “methods” discussion for **rigorous quantitative and qualitative procedures**.
- I look throughout the manuscript for how the author has **positioned the study within the field of mixed methods research** and how the study contributes a thoughtful, unique contribution to the mixed methods literature.
- I look in the “introduction” and throughout the manuscript for the **paradigm stance** of the author.
- I look at the “title” and the references to see if the author cites and is familiar with the **mixed methods literature**.
- I look in the “introduction” for the **rationale** for using mixed methods to study the research problem.



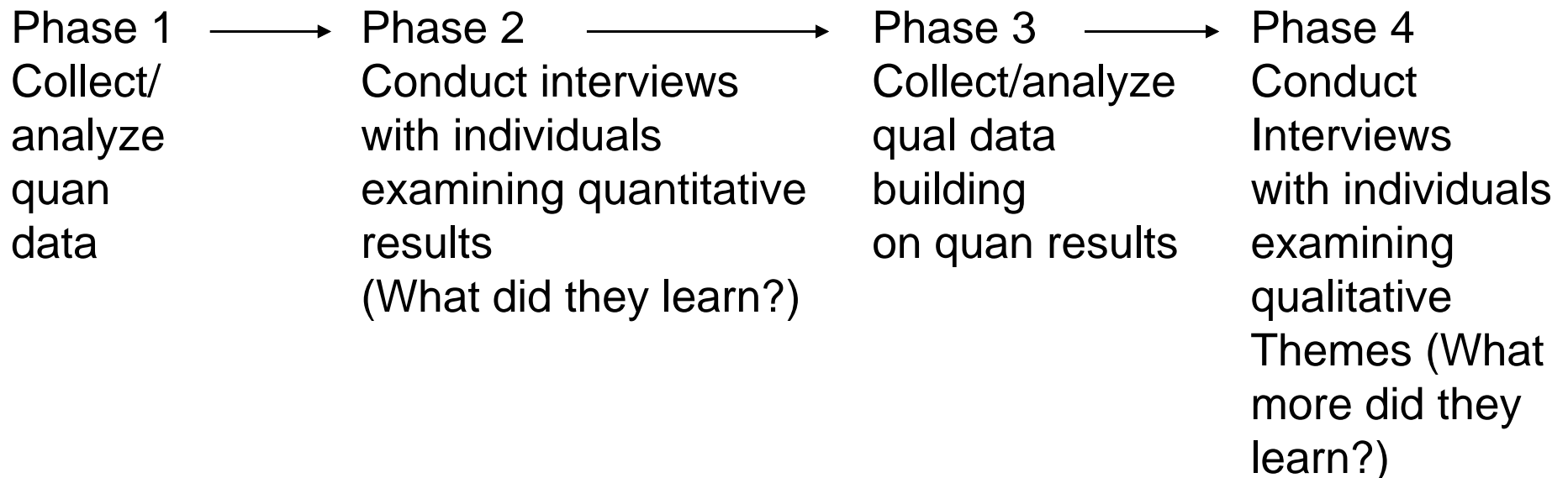
What will hold mixed methods back?

- Time/resources to conduct studies
- Lack of understanding the methodology
- Difficult to change research behaviors

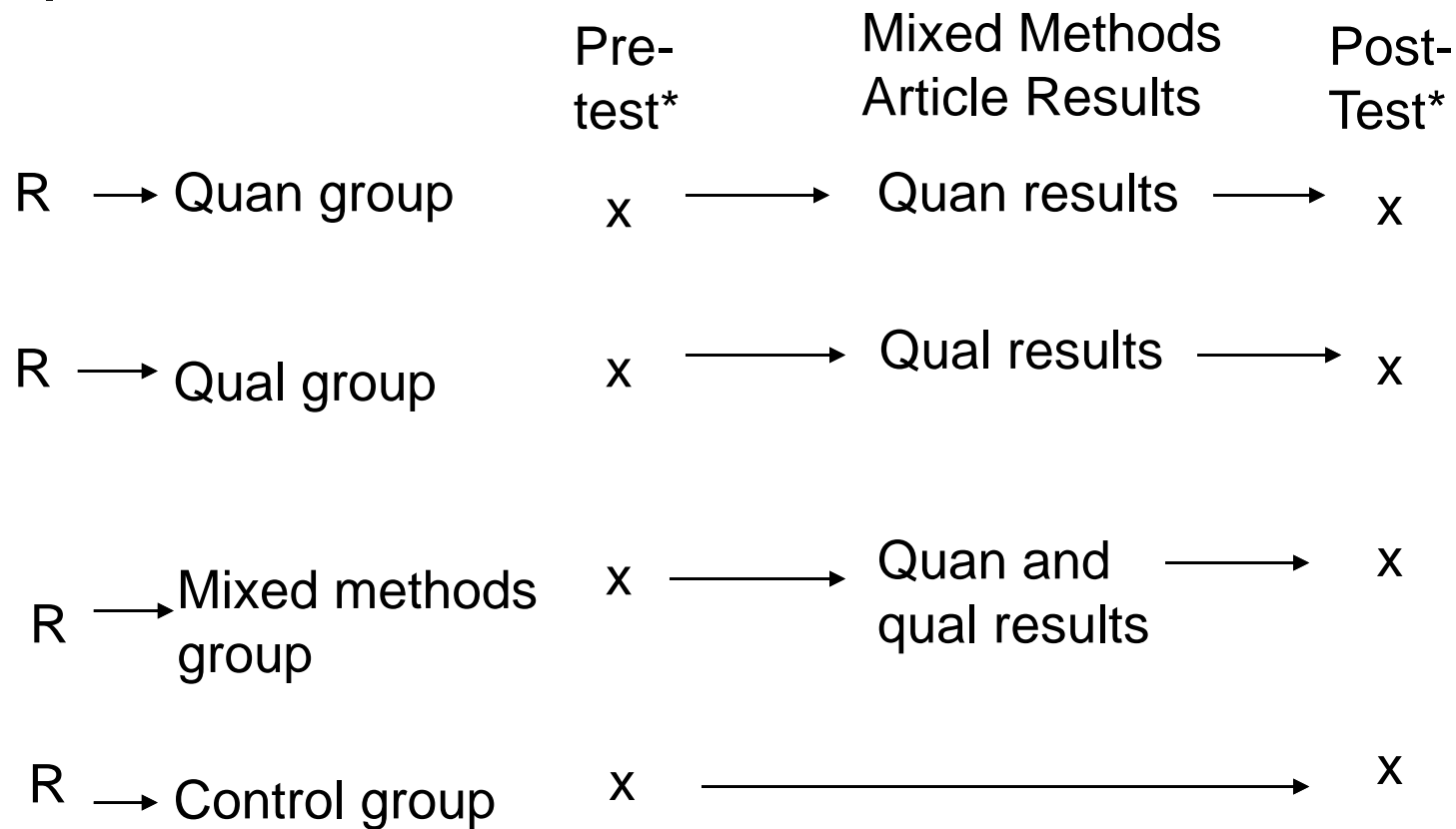


What value is added in a mixed methods study?

- We have anecdotal evidence through published studies
- We need an empirical test
- Value = the interpretations of our results; sequential study, qualitative project



Experimental test of the question (Hypothesis: Mixed methods group will report more interpretative knowledge gained on test than the other groups.)



*"Knowledge gained from interpreting results scale" (e.g. depth of understanding)



Future Directions

- What does the future hold?
 - Discipline expansion - unique discipline adoption
 - International cooperation - Little “Atlantic gap”
 - Increased graduate student interests
 - Refinement and expansion of techniques
 - More advocates (and more critics)
 - The need for an empirical study of the value added by mixed methods to qualitative or quantitative



Summary

- Mixed methods is a recent methodological development
- We know the basic feature of this approach
- Many techniques for conducting mixed methods research have developed
- There are different philosophical stances
- Mixed methods has grown into an interdisciplinary, world-wide movement
- Yet, critics have emerged, and challenges exist
- The future is positive, but there is much work left to be done

Additional Readings

Books:

- Creswell, J. W., & Plano Clark, V. L. (2007). *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage.
- Creswell, J. W. (2008). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage Publications.
- Greene, J. C. (2007). *Mixed methods in social inquiry*. San Francisco: Jossey-Bass.
- Mertens, D. M. (2005). *Research methods in education and psychology: Integrating diversity with quantitative and qualitative approaches* (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Plano Clark, V. L., & Creswell, J. W. (2008). *The mixed methods reader*. Thousand Oaks, CA: Sage.
- Tashakkori, A. & Teddlie, C. (1998). *Mixed methodology: Combining qualitative and quantitative approaches*. Thousand Oaks, CA: Sage Publications.
- Tashakkori, A. & Teddlie, C. (Eds.) (2003). *Handbook of mixed methods in social and behavioral research*. Thousand Oaks, CA: Sage Publications.

Additional Readings

Articles and Chapters:

- Caracelli, V. J., & Greene, J. C. (1993). Data analysis strategies for mixed-method evaluation designs. *Educational Evaluation and Policy Analysis, 15* (2), 195-207.
- Creswell, J. W., Plano Clark, V. L., Gutmann, M., & Hanson, W. (2003). Advanced mixed methods research designs. In: A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 209-240). Thousand Oaks, CA: Sage.
- Creswell, J. W., Plano Clark, V. L., & Garrett, A. L. (2008). Methodological issues in conducting mixed methods research. In M.M. Bergman (Ed.), *Advances in mixed methods research*. London: Sage.
- Greene, J. C., Caracelli, V. J., & Graham, W. F. (1989). Toward a conceptual framework for mixed-method evaluation designs. *Educational Evaluation and Policy Analysis, 11* (3), 255-274.
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- Morgan, D. L. (2007). Paradigms lost and pragmatism regained. *Journal of Mixed Methods Research, 1*, 48-76.
- Morse, J. M. (1991). Approaches to qualitative-quantitative methodological triangulation. *Nursing Research, 40*, 120-123.



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