

Mixed Methods Research

Mixed Methods Research WORKSHOP

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Deakin University, Melbourne

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Mixed Methods Research

- * Introduce and definitions
- * Historical & philosophical roots of MMR
- * Authorities & publications in the field
- * Terminologies, notation system & visuals
- * Purposes
- * Research designs & typologies



Research Fellow at Curtin University, WA. Ros is a Fellow of the Australian Human Resources Institute (FAHRI) and Co-Convenor of the Mixed Methods Research Special Interest Group of ANZAM. She utilizes mixed methods in many of her funded research projects and publishes in the use of mixed methods across business and management disciplines. She has run several workshops on mixed methods at doctoral symposiums and academic conferences. She has been granted \$1.09 (AUD) million in research funding and has over 90 publications.



Definition Mixed Methods

In general, mixed methods research represents research that involves collecting, analyzing, and interpreting quantitative and qualitative data in a single study or in a series of studies that investigate the same underlying phenomenon.

Leech N, Onwuegbuzie A, (2008) A typology of mixed methods research designs, *Quality and Quantity*, 43(2), March, pp. 265-275.

Definition Mixed Methods

- *Mixed methods research is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems that either approach alone.*
- Creswell and Plano Clark (2007: 5)

Methodological dichotomy

Quantitative (Positivist)

Objective reality

Causal

Detached

Samples/populations

Contrived

Variables

Numerical

Statistical

Impersonal

Qualitative (postpositivist)

Subjective reality

Meanings

Human intentions

Personally involved

Study cases

Actors in natural settings

Verbal & pictorial data

Generalise case findings

Mixed Methods

Research Problem

Ontology

Epistemology

Mark's Onion

Research Design

**Make
methodological
choice**

Methodology

Quantitative

Monomethod

Multimethod

Mixed Methods

Qualitative

Monomethod

Multimethod

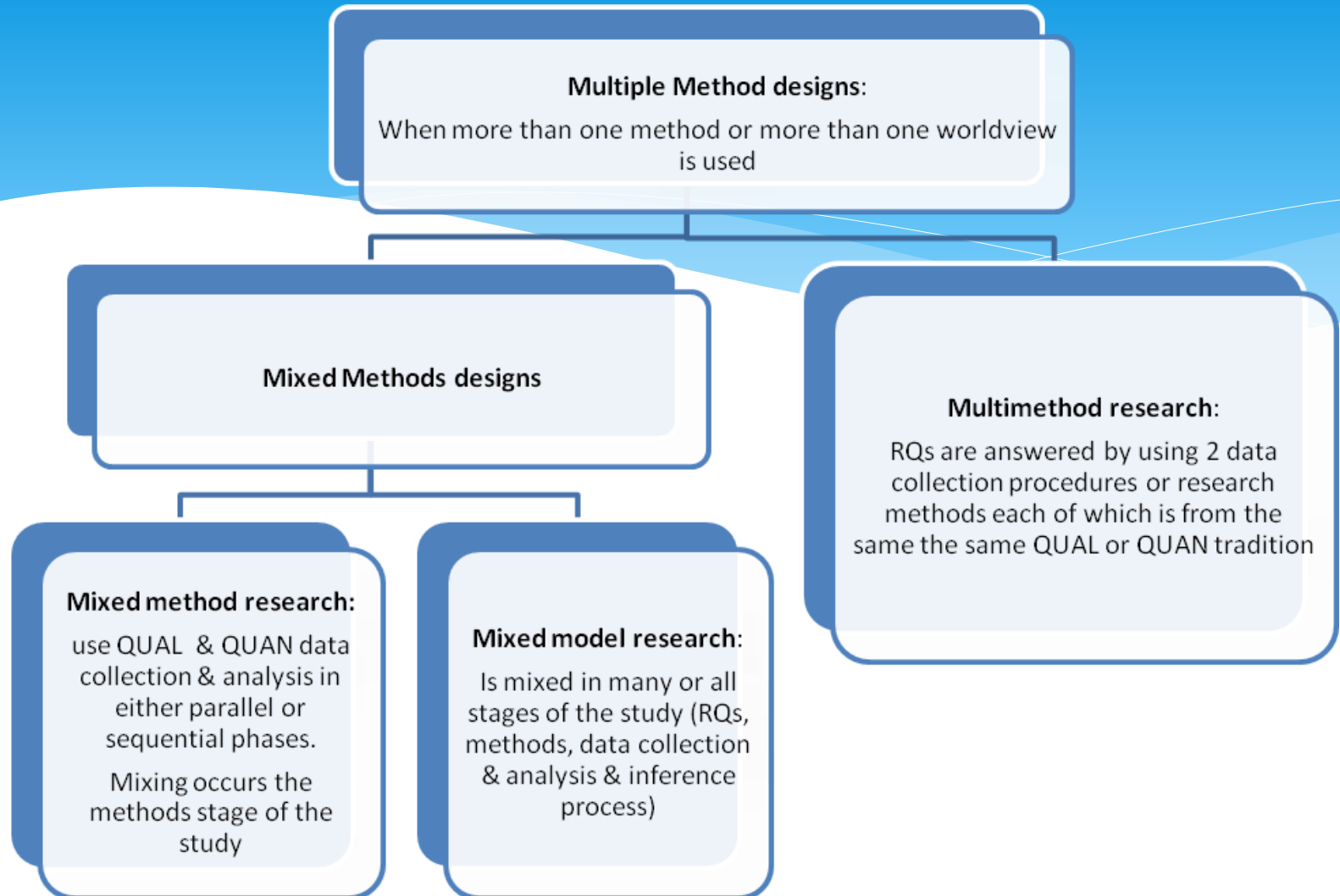
Paradigmatic Issues

Ontology:

- * philosophical study of the nature of reality
- * worldview

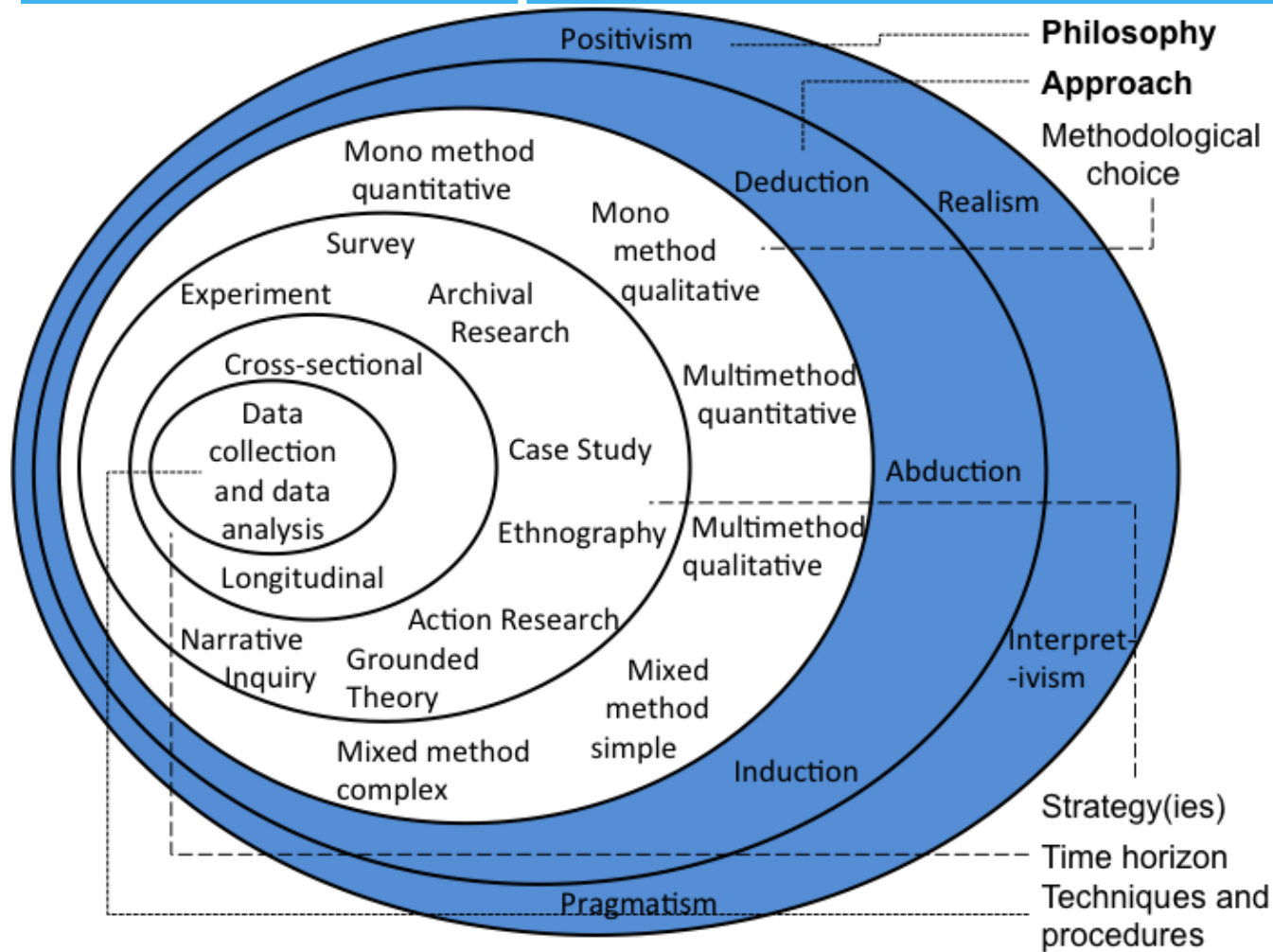
Epistemology:

- * Philosophy/theory about the nature and scope of knowledge
- * Questions what knowledge is and how it can be acquired and the extent of its validity and limits

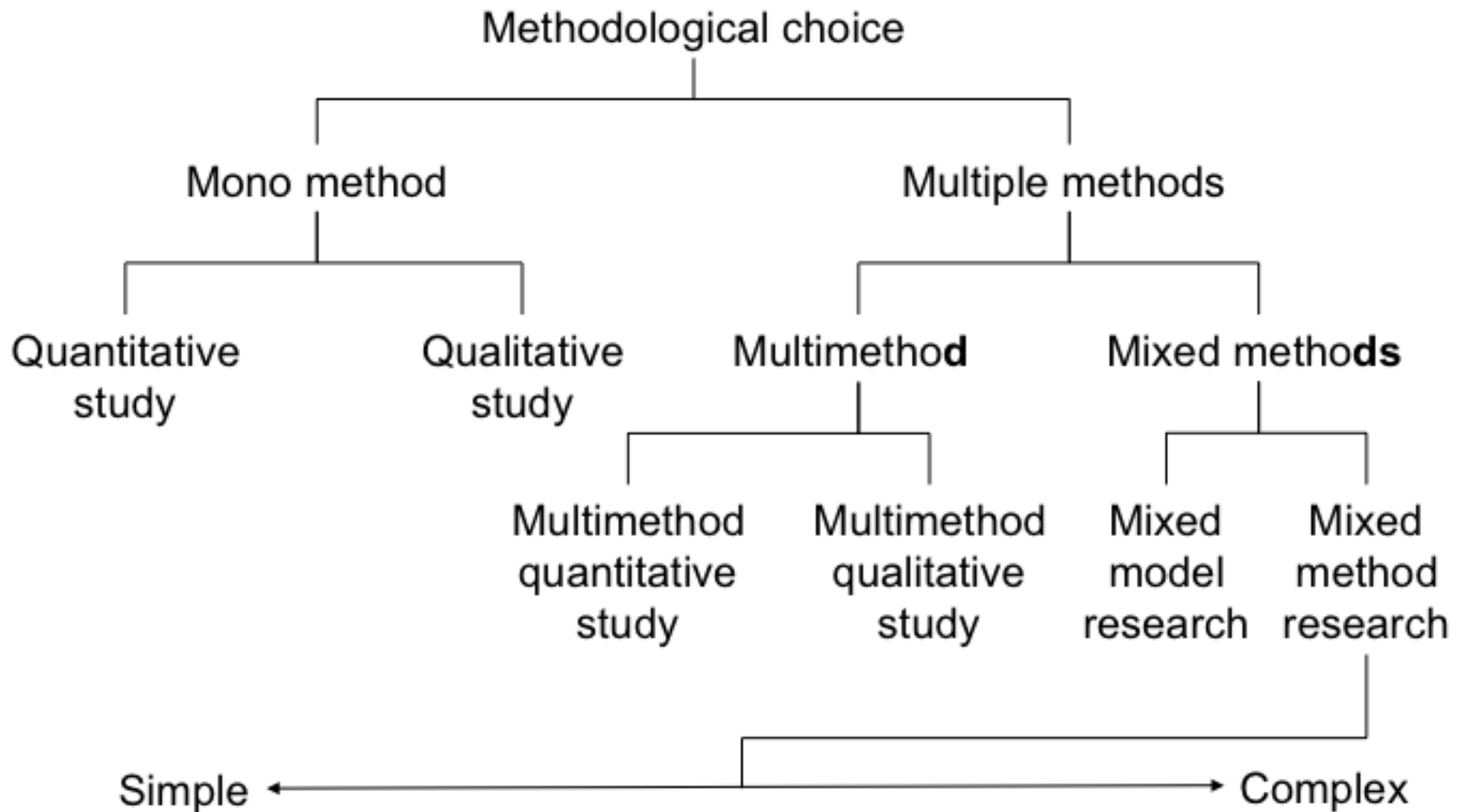


Source: Adapted from Teddlie and Taskakkori (2003, p. 11)

Research choices and the research process 'onion'



Basic typology



Historical perspective- MM

- * 'Paradigmatic wars'- catalyst
- * Short History-early 1980's
- * Rejects the 'either or' approach
- * 'Quiet' revolution-resolve tensions
- * Third methodological movement

Tashakkori & Teddlie (2003) Handbook of Mixed Methods in Social & Behavioural Sciences

- * Last ten years research methods texts have begun to address Mixed Methods
- * Authorities emerging in the area

History of mixed methods research

Creswell and Plano Clark (2007) *Designing and Conducting Mixed methods Research*, Thousand Oaks, CA, Sage Publications

Formative period (1950s-1980s)



Paradigm debate period (1970s-late 1990s)



Procedural development period
(late 1980s-2000)



Advocacy as a separate design period
(2000+)

Third Methodological Movement

- * Growing body of trans-disciplinary literature.
- * Prominent research methodologists/authorities from across discipline fields are emerging and guiding the commentary and the movements' momentum.
- * ...‘today, we see cross-cultural international interest, interdisciplinary interest, publication possibilities, and public and private funding opportunities for mixed methods research’
(Creswell and Plano Clark 2007: 18) .



Table 1: Summary of empirical papers aligned with discipline fields

DISCIPLINE	QUANT	QUAL	MIXED	TOTAL
Marketing <i>3 Journals 1993-2002</i> Hanson and Grimmer (2005)	553 (75%)	78 (11%)	105 (14%)	736 (100%) (31%)
International business <i>4 Journals 2000-2003</i> Hurmerinta-Peltomaki and Nummela (2006)	269 (68%)	57 (15%)	68 (17%)	394 (100%) (17%)
Strategic management <i>1 Journal 1997-2006</i> Molina-Azorin (2009)	441 (78%)	30 (5%)	99 (17%)	570 (100%) (24%)
Organizational behaviour <i>1 Journal 2003-2008</i> Molina-Azorin and Lopez-Fernandez (2009)	197 (85%)	17 (7.5%)	17 (7.5%)	231 (100%) (10%)
Operations management <i>1 Journal 2003-2007</i> Molina-Azorin (2008)	146 (78%)	23 (12%)	18 (10%)	187 (100%) (8%)
Entrepreneurship <i>2 Journals 2003-2007</i> Molina-Azorin (2008)	178 (76%)	37 (16%)	20 (8%)	235 (100%) (10%)
TOTAL	1784 (76%)	242 (10%)	327 (14%)	2,353 (100%)

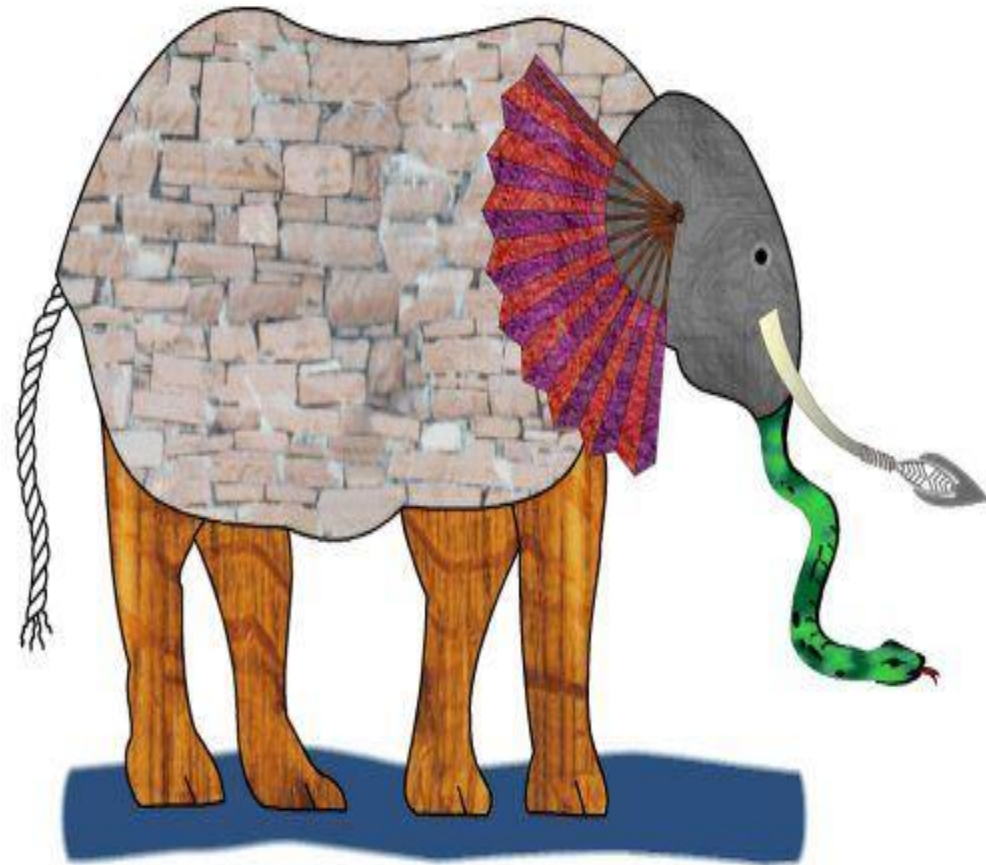
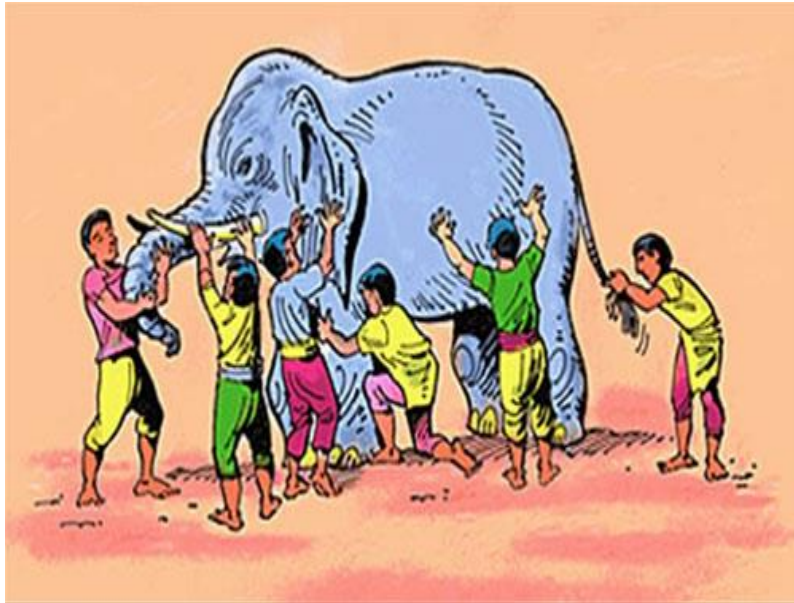
* Empirical articles = quantitative, qualitative and mixed methods (not conceptual)


Source: Adapted from Cameron and Molina-Azorin (2011, p. 266). 'The acceptance of mixed methods in business and management', *International Journal of Organizational Analysis*, Vol.19, No.3, pp. 256-271

Pragmatism and MMR

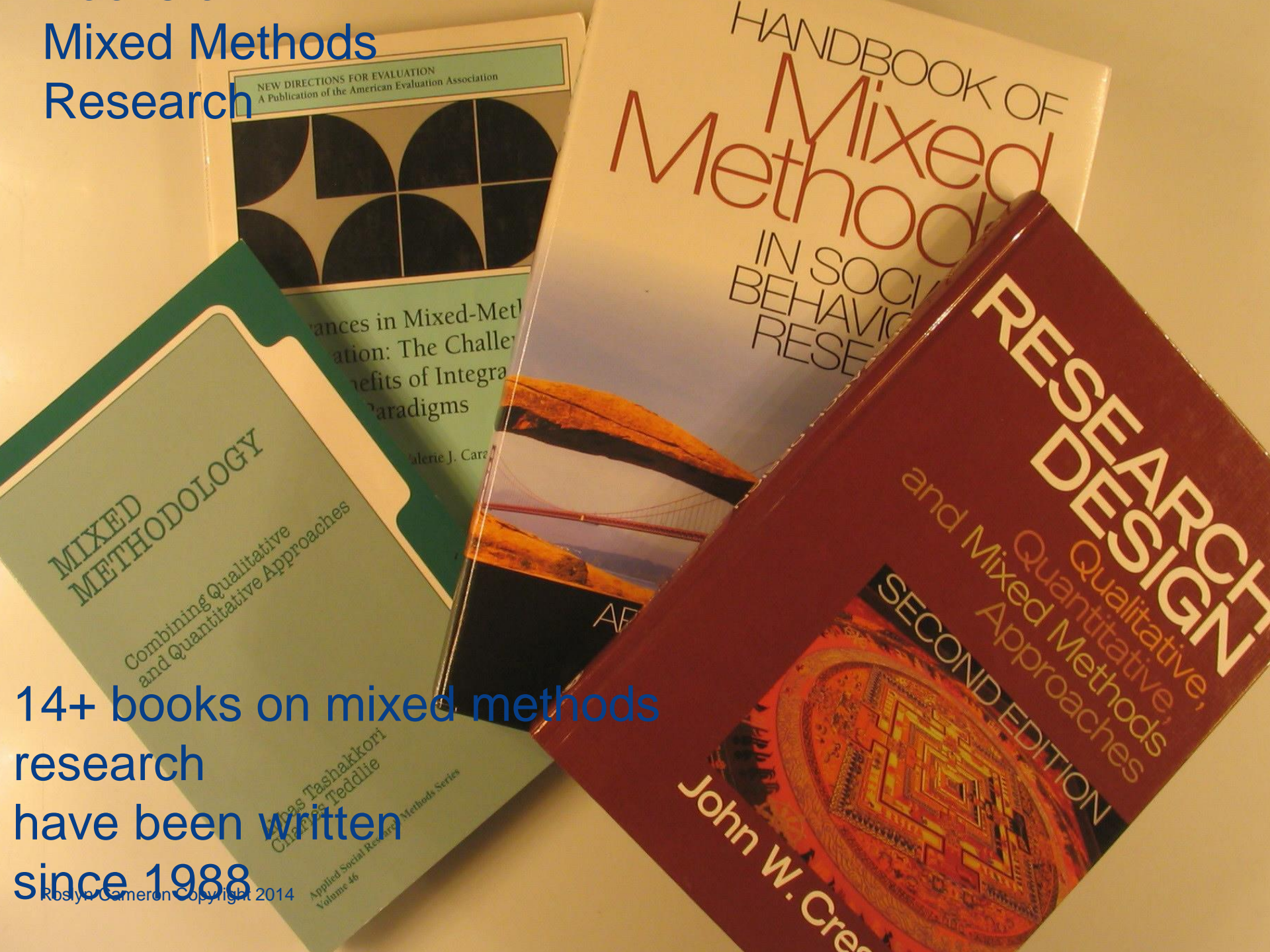
- Several authors propose pragmatism as the best paradigm for justifying MMR:
- * Pragmatism supports the use of both QUAL & QUAN in same study & rejects incompatibility stance
- * Pragmatic researchers consider the RQ to be more important than either the method or paradigm that underlies it the method-”dictatorship of the RQ”
- * Pragmatists rejects forced choice between postpositivism & constructionism with regards to logic, epistemology etc
- * Methodological decisions depend on the RQ and stage of the study
- * Pragmatism is very practical and applied
- * Teddlie & Tashakorri (2003:21) *Handbook of Mixed Methods in Social & Behavioural Sciences*
- * Thousand Oakes: CA, Sage Publications.
- * Maxcy,S. (2003). Pragmatic threads in mixed methods research in the social sciences:The search for multiple modes of inquiry and the end of the philosophy of formalism. In A. Tashakorri & C. Teddlie (Eds.), *Handbook of mixed methods in social & behavioral research* (pp. 51-90). Thousand Oaks,CA:Sage

6 Blind Men & an Elephant



- 
- * The most interesting part about this story is that since none of the men can experience the elephant in its entirety *on his own*, the only way to fully grasp the whole thing would be to share and accept each others' perceptions and then add them all together. If each men were able to do this, the entire picture of the elephant could be realized. But, in their utter insistence on being *right*, each man is doomed to never see the entire picture.

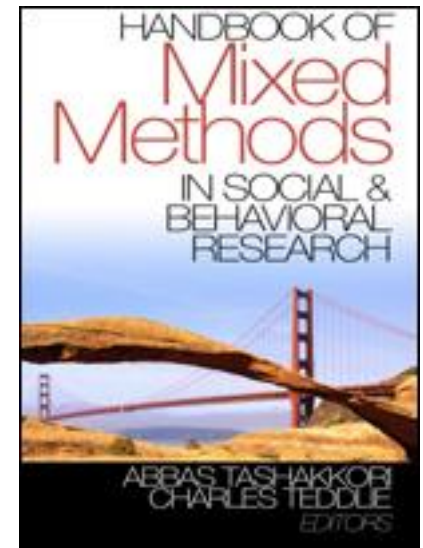
Mixed Methods Research



14+ books on mixed methods
research
have been written
since 1988

Authorities/ recent texts

- * **Starter Kit:**
- * Creswell JW and Plano Clark VL (2007; 2011)
- * Tashakkori A and Teddlie C (Eds.) (2003; 2008; 2010)
- * Greene and Caracelli (1989)
- * Greene (2007)
- * Bergman (2008)
- * Andrews & Halcomb (2009)
- * Morse & Neihaus (2009)
- * Onwueugbuzie, A
- * Johnson, B
- * Mertens, D

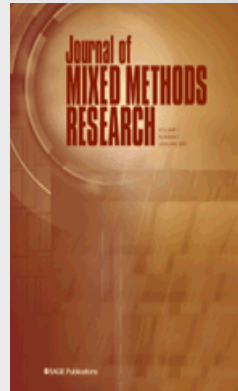


Gurus & their recent words

- * Teddlie & Tashakkori (2009) Foundations
- * Teddlie & Tashakkori (2003, 2010) SAGE handbook Eds 1 and 2
- * Creswell and Plano Clark (2011) Design & Conduct
- * Plano Clark & Creswell (2007) Reader
- * Greene (2007) – Social inquiry
- * Bergman (2008) – Theory & application in multiple fields
- * Morse & Niehaus (2009) - Design
- * Mertens (2005) – Education and Psychology
- * Bazeley (2003) – CAQDAS - NVIVO
- * Andrew & Halcomb (2009) – Nursing and Health Sciences
- * Hesse-Biber (2011) – Theory & practice

Journals

- * ***Journal of Mixed Methods Research (JMMR)***
(first issue Jan 2009)
- * ***Quality and Quantity International Journal of Methodology***
- * ***International Journal of Multiple Research Approaches (IJMRA)***
(first issue Oct 2009)



Special issues- IJMRA

- * *International Journal of Multiple Research Approaches (IJMRA)*
- * *Special Issues:*
- * *Special Issue ECRM 2013 Conference, (Vol.8, Issue 2)*
- * *Mixed Methods Research: Philosophy, Policy and Practice in Education (Vol. 7, Issue 1)*
- * *Mixed Methods in Genders & Sexualities Research (Vol. 7, Issue 2)*
- * *Mixed Methods in Education 2012 Vol 6 (3)*
- * *Mixed Methods in Business & Management 2011 Vol5 (3)*
- * *Mixed Methods in Health Sciences 2011 Vol 5 (1)*
- * *Mixed Methods for Novice Researchers: 2009 Vol 3 (1)*
- * *Teaching Mixed Methods: 2008 Vol 4 (1)*
- * *General Issue with Section: Computer Assisted Multiple and Blended Research: 2008 Volume 2 (1)*

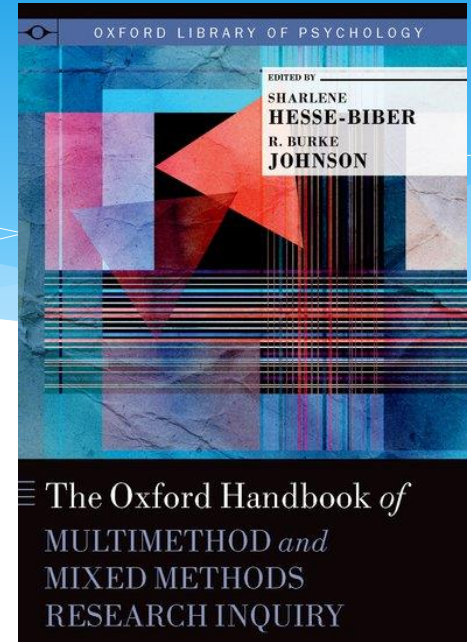
Journals Special Issues on MMR

International Journal of Educational Research
2008 Vol 47 (2)

- * ***International Journal of Social Research Methodology Theory and Practice***
2005 Issue 3
- * ***Organisational Research Methods 2015***
- * ***Feature Topic: Mixed Methods in the Organizational Sciences***

MMR in Management & Business

- * Professor Allan Bryman - UK
- * Assoc. Prof. Jose Molina Azorin- Spain
- * Dr Ros Cameron – Australia
- * Oxford University Press commissioned a
- * *Handbook on Multimethods and Mixed Methods Research Inquiry* to be published in 2015. Editors Professors Burke Johnson and Sharlene Hesse-Berber (USA)
- * Molina-Azorin & Cameron (2015)
- * Chapter 26 History and Emergent Practices of Multimethod and Mixed Methods in Business Research



ANZAM MMR (SIG)

- * Australian and New Zealand Academy of Management (ANZAM) launched its *MMR Special Interest Group (SIG)* at its 2011 annual conference.
- * In business and management fields the use of MMR is growing and has been researched through several studies (Bryman 2008, Bazeley 2008, Cameron 2010, 2011; Currall & Towler 2003; Molina-Azorin 2008, 2009; Molina-Azorin & Cameron 2010, Cameron & Molina-Azorin 2011).

Terminology

Bridges Website

Adopted from Tashakkori and Teddlie's (2003)
*Handbook of mixed methods in the social and
behavioral research*) Glossary.

<http://www.fiu.edu/~bridges/glossary.htm>



Basic MM terminology

- * Monomethod
- * Mixed method
- * Multimethod

- * **Inference:** an umbrella term to refer to a final outcome of a study. The outcome may consist of a conclusion about, an understanding of, or an explanation for an event, [a] behaviour, [b] relationship, or a case (Teddlie & Tashakkori, 2003, p. 35)
- * Inference quality
- * Inference transferability
- * Meta-inference

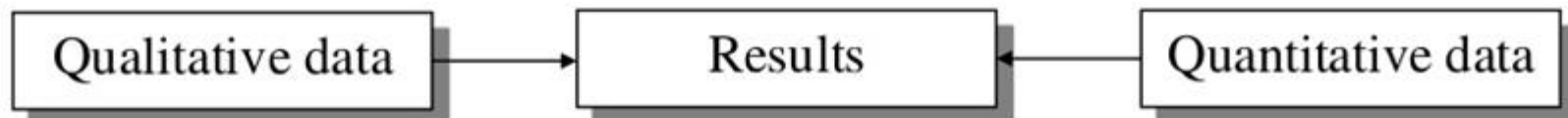
- * Rules of integration
- * Points of interface

MM Notations (Morse 1991)

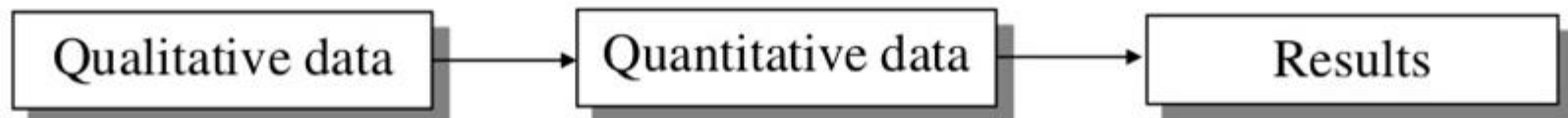
- * QUAN or quan refers to quantitative
 - * QUAL or qual refers to qualitative
 - * Use of upper case refers to emphasis, primary or dominant method
 - * Use of lower case refers to lower emphasis, priority or dominance
 - * MM refers to mixed methods
-
- * “→” data collected sequentially
 - * “+” data collected simultaneously
 - * “=” converged data collection
 - * “()” one method embedded in the other

Mixing the data

➤ **Merge the data:**



➤ **connect the data:**



➤ **Embed the data**



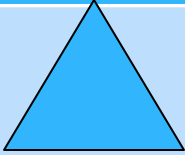
Purpose or utility of MM research

- * Can answer research questions that other methodologies cannot
 - * Provides better (stronger) inferences
 - * Provides the opportunity for presenting a greater diversity of divergent views (*Teddlie & Tashakkori, 2003*)
1. Maximising the strengths and reducing the limitations of single methods
 2. Research questions should determine method
 3. Increased validity
 4. Passport benefits
 5. Institutional and financial arguments (*BERA, n.d.*)

Purpose of MMR

Greene, J. C., Caracelli, V. J., & Graham, W. F. (1989).

Toward a conceptual framework for mixed methods evaluation design. *Educational Evaluation and Policy Analysis*, 11, 255-274.



triangulation;

- Seek convergent results



complementarity;

- Explore interconnected &/or distinct aspects of a phenomenon



initiation;

- Examine similarities, contradictions & new perspectives



expansion

- Add breadth and scope to a project



development

- Use methods in ways to complement one another (eg interviews inform development of a survey)

Neal, Hammer and Morgan (2006)

Broadest Purpose

Combine different strengths of different methods

Convergent Findings

Uses different strengths using each method to investigate the same phenomenon and comparing the results

qual=quan

Comprehensive Coverage

Uses different strengths by assigning each method a distinct set of purposes within the study as a whole

qual+quan
qual+QUAN
QUAL+quan

Connected Contributions

Uses different strengths by connecting methods so that one contributes to the performance of another

qual→quan
quan→qual
qual→QUAN
quan→QUAL
QUAN→qual
QUAL→quan

Andrew & Halcomb (2006).

- * **purpose** of mixed methods research is not to replace either qualitative or quantitative research, but rather to **extract the strengths** and **diminish the weaknesses** in both approaches within a single study
- * researcher needs to evaluate the most appropriate methodological approach to answer the specific **research question**
- * must clearly elucidate the **rationale** for using a mixed methods design, rather than a singularly qualitative or quantitative approach
- * Andrew, S., & Halcomb, E. J. (2006). Mixed methods research is an effective method of enquiry for community health research. *Advances in Contemporary Nurse*, 23(2), 145-153.

Example

- * **A Rationale for Employing Mixed Methods Design in Doctoral Research about Female Students' Academic Achievement in Secondary Schools in Papua New Guinea**
- * Dinah R. Dovona-Ope (oped@usq.edu.au)
- * Faculty of Education, University of Southern Queensland, Australia
- * *International Journal of Pedagogies and Learning*, 4(2), pp. 59-67. February 2008

Mixed Methods Typologies

Principal Method Principal Method
Quantitative Qualitative

Qualitative Preliminary qual → QUAN	Quantitative Preliminary quan → QUAL
Qualitative Follow-up QUAN → qual	Quantitative Follow-up QUAL → quan

Complementary Method:
Preliminary

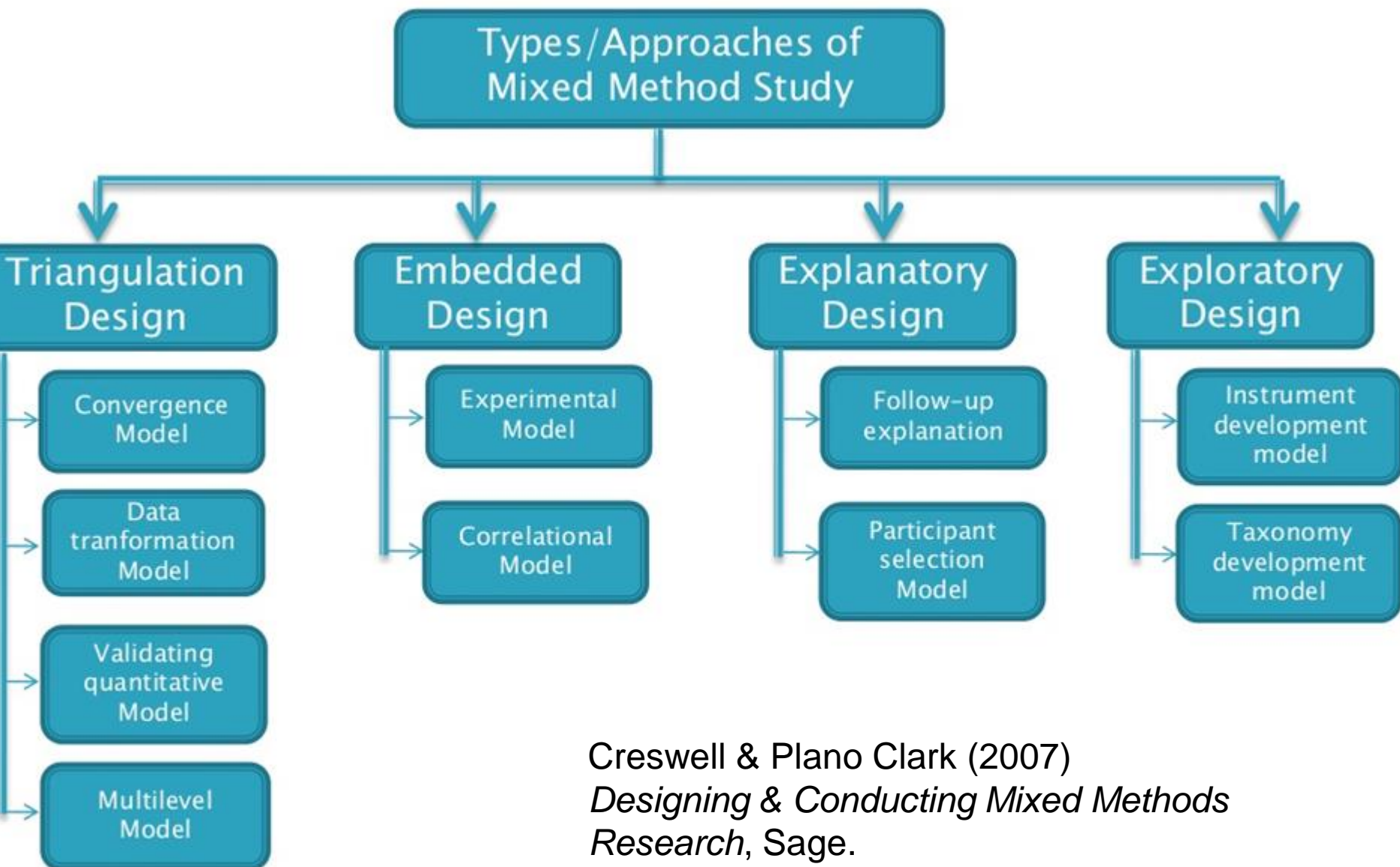
Complementary Method:
Follow-up

* Morgan, D. (1998). Practical strategies for combining qualitative and quantitative methods: Applications to health research. Qualitative Health Research, 8, (3), 362-376.

Creswell et al (2003)

Creswell et al. (2003)	Stage of integration	Implementation	Priority / Status
<i>Sequential designs</i> *Sequential explanatory	Interpretation	QUAN→qual	Usually QUAN, can be QUAL or equal
*Sequential exploratory	Interpretation	QUAL→quan	Usually QUAL, can be QUAN or equal
*Sequential transformative	Interpretation	QUAL→QUAN QUAN→QUAL	Either dominant or both equal
<i>Concurrent designs</i> *Triangulation	Interpretation or analysis	QUAL+QUAN	Equal
*Nested	Analysis	Qual within QUAN Quan within QUAL	Either dominant
*Transformative	Usually, analysis, can be interpretation	QUAL+QUAN	Either dominant or both equal

Creswell, J. W., Plano Clark, V. L., Guttman, M., & Hanson, W. (2003). Advanced mixed methods research designs. In A. Tashakkori & C. Teddlie (Eds.), Handbook of mixed methods in social & behavioral research (pp. 209-240). Thousand Oaks, CA: Sage



Creswell & Plano Clark (2007)
Designing & Conducting Mixed Methods Research, Sage.

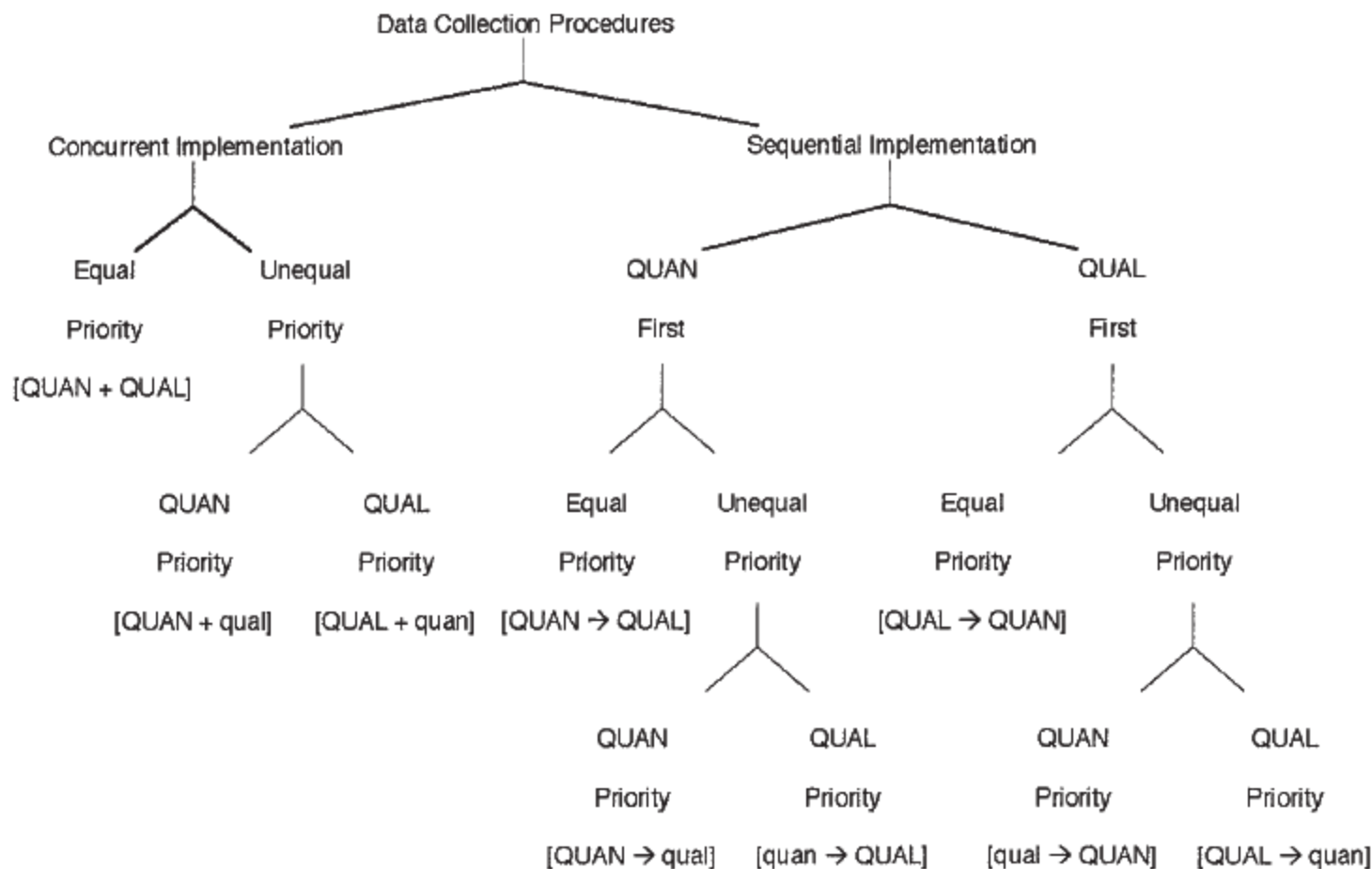
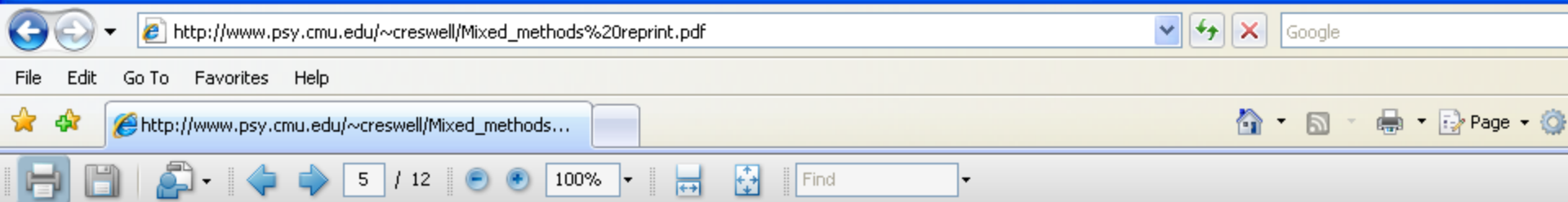


Figure 1. Options related to mixed methods data collection procedures. QUAN = quantitative data was prioritized; QUAL = qualitative data was prioritized; qual = lower priority given to the qualitative data; quan = lower priority given to the quantitative data.



Designs

Sequential Explanatory

Sequential Exploratory

Sequential Transformative

Concurrent Triangulation

Concurrent Nested

Concurrent Transformative

Procedural Notations

QUAN → qual

QUAL → quan

Advocacy Lens

QUAN → qual

or

Advocacy Lens

QUAL → quan

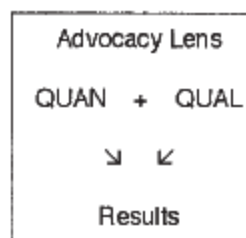
QUAN + QUAL

↘ ↙

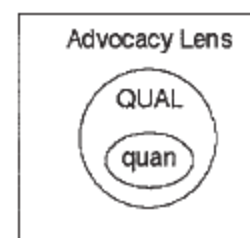
Results



or



or



Mixed Method Typologies

Procedure	Mixed Method	Mixed Model
Concurrent	Concurrent mixed method	Concurrent mixed model
Sequential	Sequential mixed method	Sequential mixed model
Conversion	Conversion mixed method	Conversion mixed model

Tashakkori & Teddlie (2003)

Sequential Mixed Model

Exploratory using 1 method

Confirmatory using other method

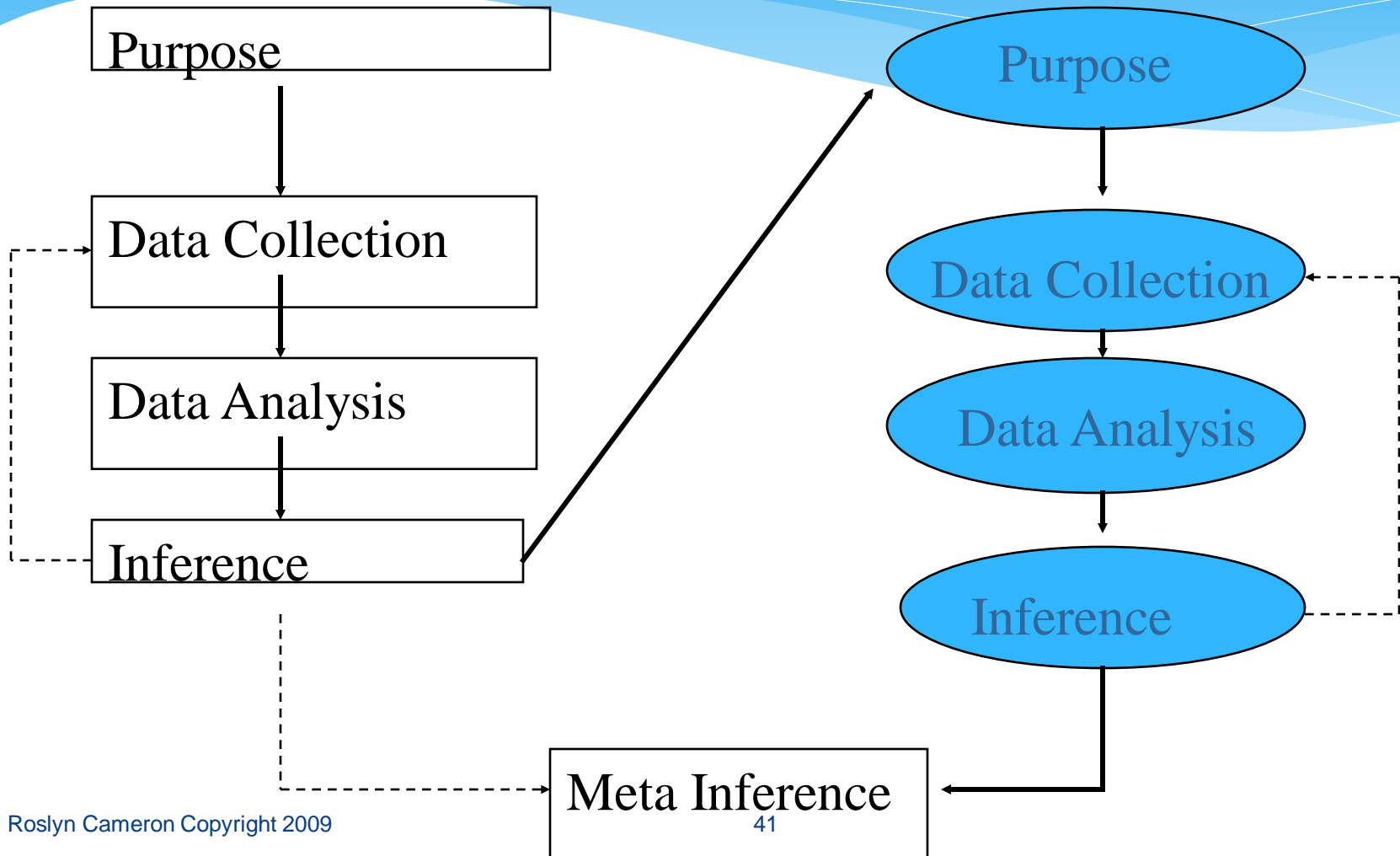
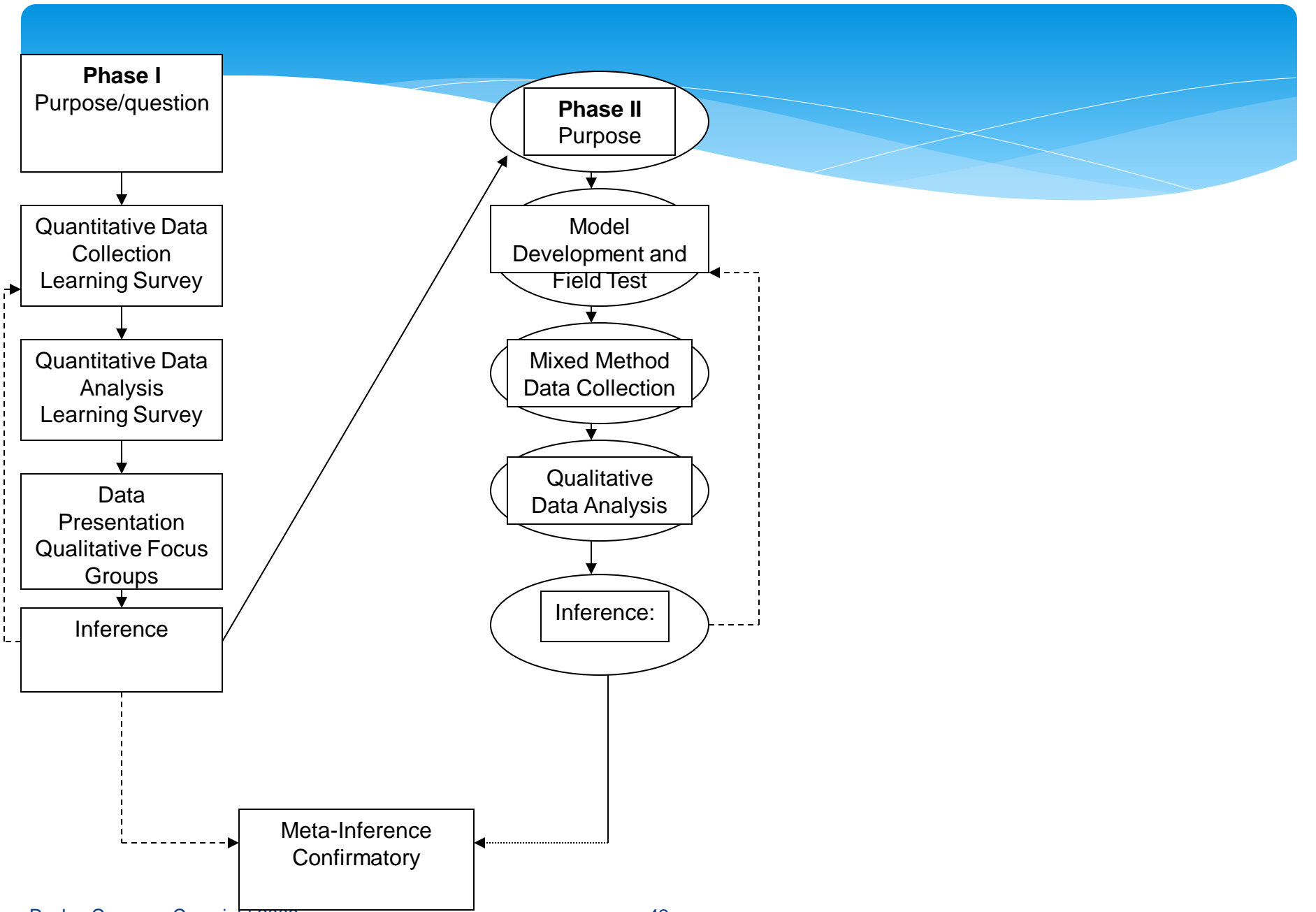


Figure 3.3.2b Sequential Mixed Method design - applied



Conversion Mixed Method

Research
purpose

1 type or question-
exploratory or
confirmatory-QUAN or
QUAL

Data Collection

1 type of data collected &
transformed (qualitized /
quantitized)

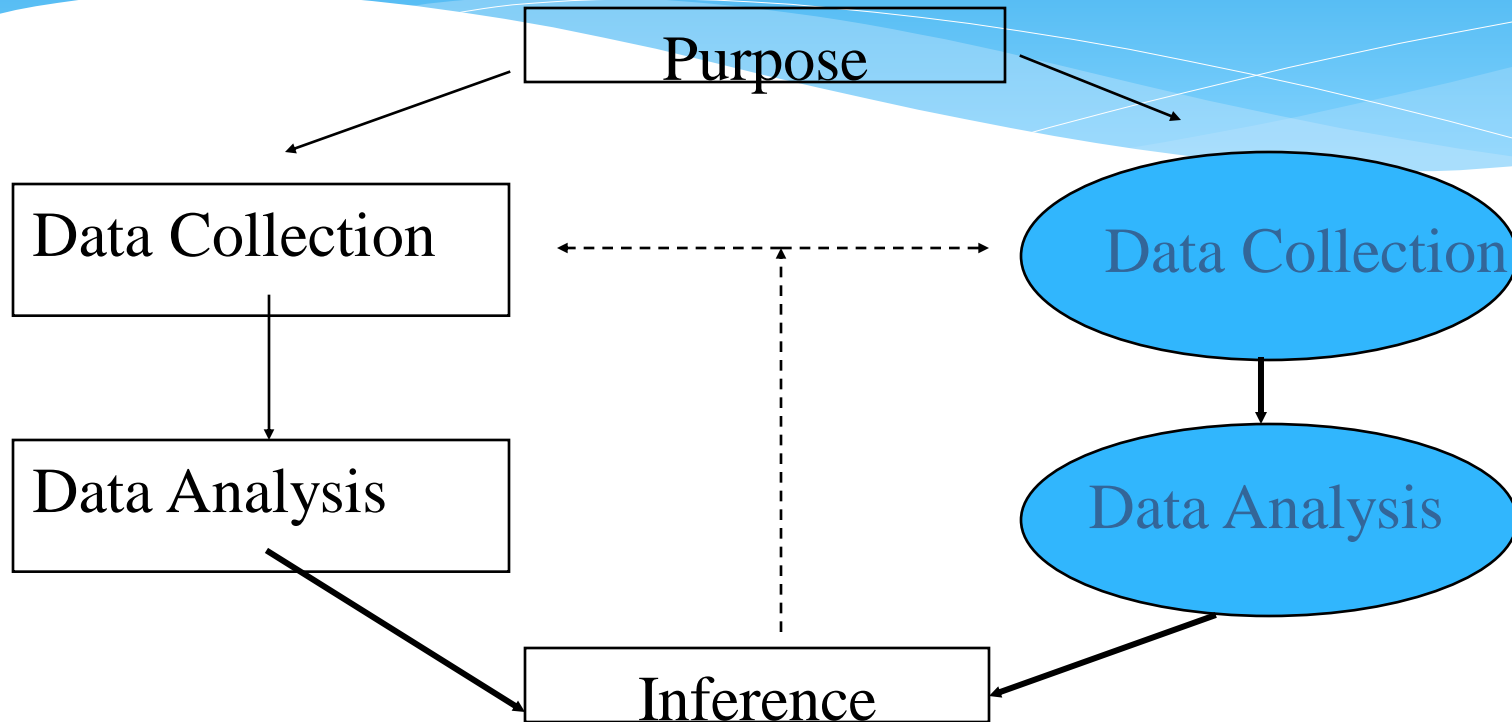
Data Analysis

Data Analysis

Predominantly QUAL or
QUAN –data is
transformed and
reanalyzed in another
approach to aid final
inferences

Inference

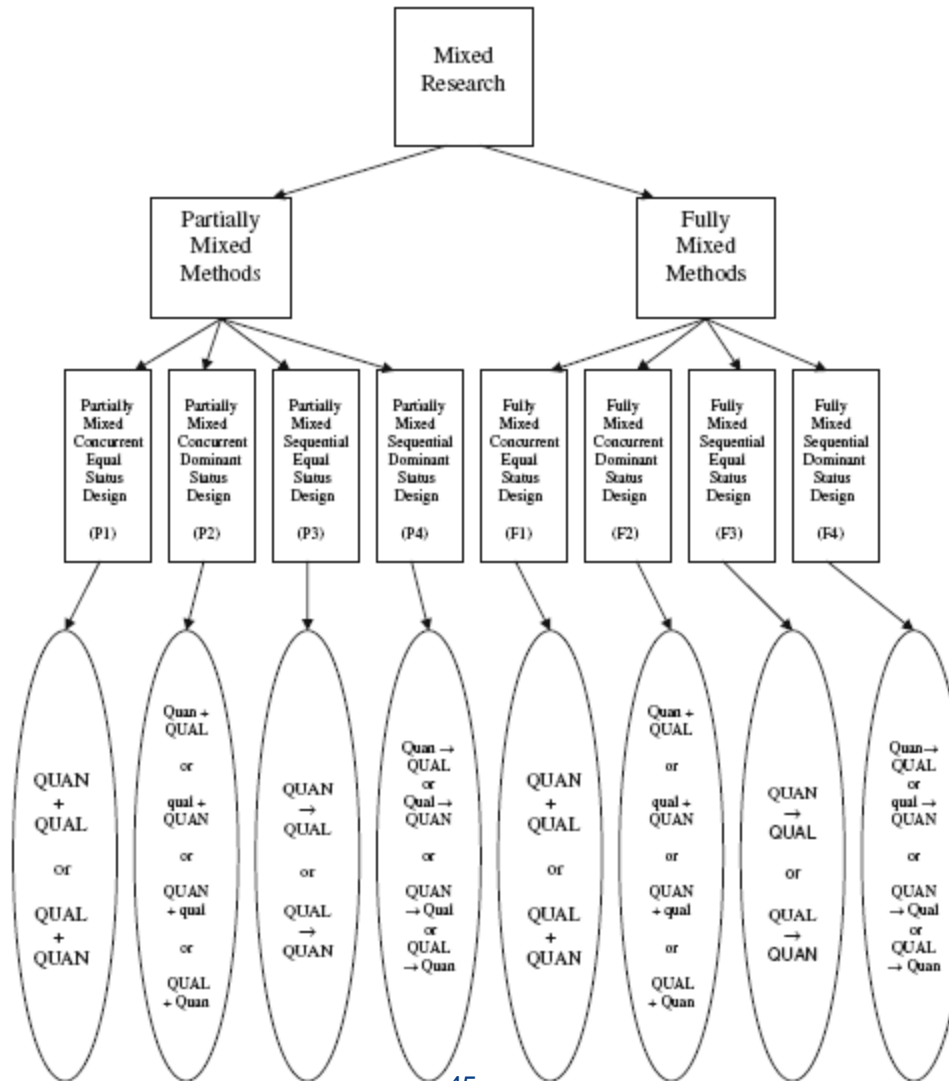
Concurrent Mixed Method



1kind of question simultaneously addressed by both QUAN & QUAL data. One type of inference is made on the basis of both data sets- triangulation mixed method design (Creswell,2002)

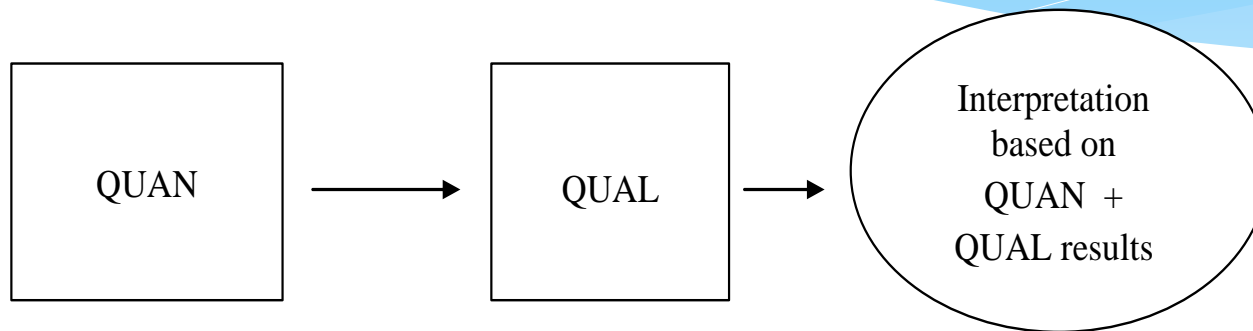
Leech & Onwuegbuzie 2009

Leech, N. L., & Onwuegbuzie, A. J. (2009). A typology of mixed methods research design, *Quality & quantity*, 43(2), 265-275.



Visual Diagrams MMR

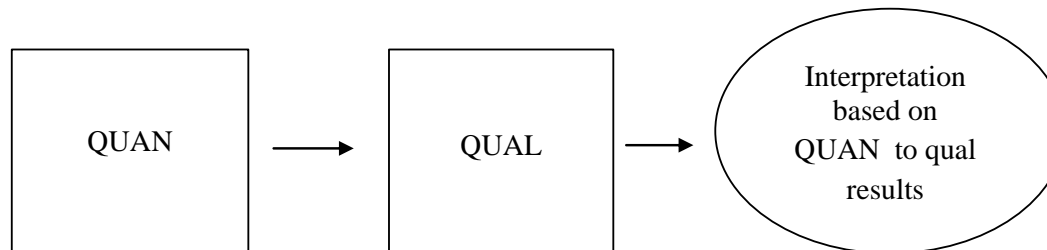
Figure 3: Explanatory Sequential Design-Study A



Source: Adapted from Creswell and Plano Clark (2007, p. 73)

Cameron (2012) Extended MMR Notation System

Figure 4: Application of the extended MMR notation system to Study A



DS: Primary(1)
S-SIZE 1: (n=246)

INST: QT (Survey)

ANSIS: QT-1 (Descriptive)
ANSIS: QT-2 (Factor analysis)

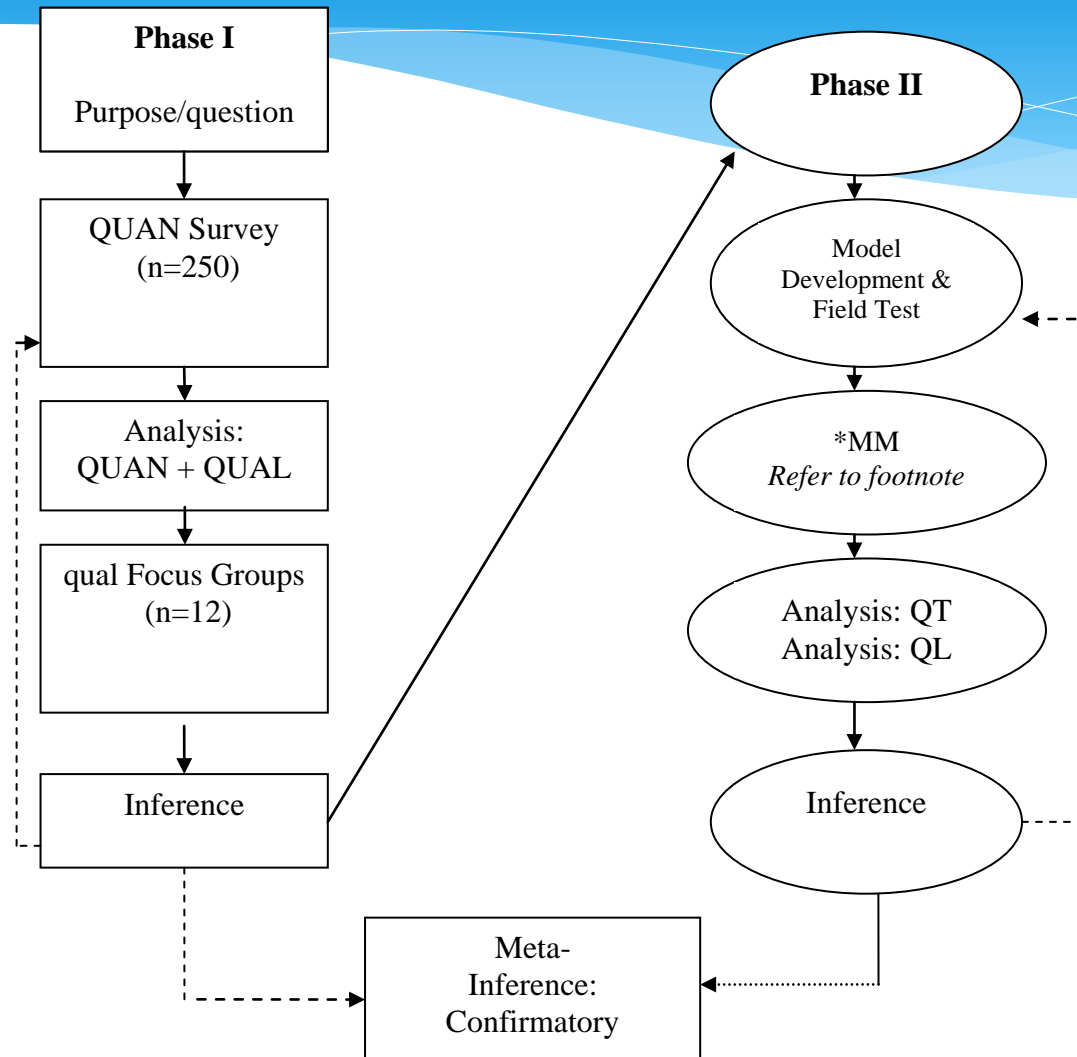
DS: Primary(1) sub-set
*S-SIZE 2: (n=6)

INST: QL (Focus group Qs)

ANSIS: QL (Open coding)

**FG1 (n=7); FG2 (n=8), FG3 (n=6); FG4 (n=8); FG5 (n=9); FG6 (n=7)*

Figure 4: Sequential Mixed Model Design



*** MM**

Program participants (n=19) Pre-program survey with Analysis: QT + QL

Post program survey with Analysis: QT + QL

Program trainers (n=3) Post program evaluation with Analysis: QL

Opportunities Traps/Risks

- * Bi-skilled in both QUANT & QUAL methods, data collection, analysis & software applications
- * Tri-skilled- QUANT, QUAL & MMR
- * Work in diverse research teams & across disciplines
- * Superficial treatment of mixed methods instead of true integrative designs
- * Resource and expertise intensive
- * Answer criticism from purists
- * Politics of publishing

Contentious Issues

- * Paradigmatic issues
- * Data integration attempts can be problematic - integration rules
- * Need for basic definitions and new set of language
- * Logistics-researcher has to be competent in both QUAN & QUAL and extensive resources required &
- * Superficial claims to the use of mixed methods

- * *Rigorously defend methodological choices*
- * *Explicitly document methodological congruence*

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