Mixed Methods Research WORKSHOP
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Deakin University, Melbourne

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Curtin University
ANZAM
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.

**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
Methodology

Quantitative
Monomethod
Multimethod

Mixed Methods

Qualitative
Monomethod
Multimethod

Make methodological choice

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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
Multiple Method designs:
When more than one method or more than one worldview is used

Mixed Methods designs

Mixed method research:
use QUAL & QUAN data collection & analysis in either parallel or sequential phases.
Mixing occurs the methods stage of the study

Multimethod research:
RQs are answered by using 2 data collection procedures or research methods each of which is from the same the same QUAL or QUAN tradition

Mixed model research:
Is mixed in many or all stages of the study (RQs, methods, data collection & analysis & inference process)

Source: Adapted from Teddlie and Taskakkori (2003, p. 11)
Research choices and the research process ‘onion’

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


Last ten years research methods texts have begun to address Mixed Methods
Authorities emerging in the area
History of mixed methods research


Formative period (1950s-1980s)

Paradigm debate period (1970s-late 1990s)

Procedural development period (late 1980s-2000)

Advocacy as a separate design period (2000+)
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

<table>
<thead>
<tr>
<th>DISCIPLINE</th>
<th>QUANT</th>
<th>QUAL</th>
<th>MIXED</th>
<th>TOTAL</th>
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<tbody>
<tr>
<td></td>
<td>553</td>
<td>78</td>
<td>105</td>
<td>736</td>
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<tr>
<td></td>
<td>(75%)</td>
<td>(11%)</td>
<td>(14%)</td>
<td>(100%)</td>
</tr>
<tr>
<td>Marketing</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>International business</td>
<td>269</td>
<td>57</td>
<td>68</td>
<td>394</td>
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<tr>
<td>Strategic management</td>
<td>441</td>
<td>30</td>
<td>99</td>
<td>570</td>
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<tr>
<td>Organizational behaviour</td>
<td>197</td>
<td>17</td>
<td>17</td>
<td>231</td>
</tr>
<tr>
<td>Operations management</td>
<td>146</td>
<td>23</td>
<td>18</td>
<td>187</td>
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<tr>
<td>Entrepreneurship</td>
<td>178</td>
<td>37</td>
<td>20</td>
<td>235</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1784</td>
<td>242</td>
<td>327</td>
<td>2,353</td>
</tr>
<tr>
<td></td>
<td>(76%)</td>
<td>(10%)</td>
<td>(14%)</td>
<td>(100%)</td>
</tr>
</tbody>
</table>

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

Several authors propose pragmatism as the best paradigm for justifying MMR:

- Pragmatism supports the use of both QUAL & QUAN in the 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 reject 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

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.
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

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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-Biber (USA)
* Molina-Azorin & Cameron (2015)
* Chapter 26 History and Emergent Practices of Multimethod and Mixed Methods in Business Research

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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


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

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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

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Mixing the data

- Merge the data:
  - Qualitative data → Results → Quantitative data

- Connect the data:
  - Qualitative data → Quantitative data → Results

- Embed the data
  - Quantitative data
  - Qualitative data → Results
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 (Teddle & 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.)

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Purpose of MMR


- **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  
QUAL→quan

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.

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

### Mixed Methods Typologies

<table>
<thead>
<tr>
<th>Principal Method</th>
<th>Complementary Method: Preliminary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative</td>
<td>Qualitative Preliminary</td>
</tr>
<tr>
<td>.qual → QUAN</td>
<td>qual → QUAN</td>
</tr>
<tr>
<td>Qualitative</td>
<td>Quantitative Follow-up</td>
</tr>
<tr>
<td>QUAN → qual</td>
<td>QUAN → qual</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sequential designs</th>
<th>Concurrent designs</th>
</tr>
</thead>
<tbody>
<tr>
<td>*<strong>Sequential explanatory</strong></td>
<td><strong>Triangulation</strong></td>
</tr>
<tr>
<td>Interpretation</td>
<td>Interpretation or analysis</td>
</tr>
<tr>
<td><strong>Implementation</strong></td>
<td><strong>QUAL+QUAN</strong></td>
</tr>
<tr>
<td>QUAN→qual</td>
<td>Qual within QUAN</td>
</tr>
<tr>
<td><strong>Priority / Status</strong></td>
<td>Quan within QUAL</td>
</tr>
<tr>
<td>Usually QUAN, can be QUAL or equal</td>
<td>Either dominant</td>
</tr>
<tr>
<td>*<strong>Sequential exploratory</strong></td>
<td><strong>Nested</strong></td>
</tr>
<tr>
<td>Interpretation</td>
<td>Analysis</td>
</tr>
<tr>
<td><strong>Implementation</strong></td>
<td><strong>QUAL+QUAN</strong></td>
</tr>
<tr>
<td>QUAL→quan</td>
<td>Qual within QUAN</td>
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<td>Quan within QUAL</td>
</tr>
<tr>
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<td>Either dominant</td>
</tr>
<tr>
<td>*<strong>Sequential transformative</strong></td>
<td><strong>Transformative</strong></td>
</tr>
<tr>
<td>Interpretation</td>
<td>Usually, analysis, can be interpretation</td>
</tr>
<tr>
<td><strong>Implementation</strong></td>
<td><strong>QUAL+QUAN</strong></td>
</tr>
<tr>
<td>QUAL→QUAN QUAN→QUAL</td>
<td>QUAL+QUAN</td>
</tr>
<tr>
<td><strong>Priority / Status</strong></td>
<td>Either dominant or both equal</td>
</tr>
<tr>
<td>Either dominant or both equal</td>
<td>Either dominant or both equal</td>
</tr>
</tbody>
</table>

Types/Approaches of Mixed Method Study

- Triangulation Design
  - Convergence Model
  - Data transformation Model
  - Validating quantitative Model
  - Multilevel Model

- Embedded Design
  - Experimental Model
  - Correlational Model

- Explanatory Design
  - Follow-up explanation
  - Participant selection Model

- Exploratory Design
  - Instrument development model
  - Taxonomy development model

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
- QUAL → quan
- QUAN + QUAL
- Results
- QUAN or QUAL
- Advocacy Lens
- QUAN or QUAL
- Results
- Advocacy Lens
- QUAN or QUAL
- Results
## Mixed Method Typologies

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Mixed Method</th>
<th>Mixed Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concurrent</td>
<td>Concurrent mixed method</td>
<td>Concurrent mixed model</td>
</tr>
<tr>
<td>Sequential</td>
<td>Sequential mixed method</td>
<td>Sequential mixed model</td>
</tr>
<tr>
<td>Conversion</td>
<td>Conversion mixed method</td>
<td>Conversion mixed model</td>
</tr>
</tbody>
</table>

Tashakkori & Teddlie (2003)
Sequential Mixed Model

Exploratory using 1 method

- Purpose
- Data Collection
- Data Analysis
- Inference

Confirmatory using other method

- Purpose
- Data Collection
- Data Analysis
- Inference

Meta Inference

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Figure 3.3.2b Sequential Mixed Method design - applied

Phase I
Purpose/question
- Quantitative Data Collection
  - Learning Survey
- Quantitative Data Analysis
  - Learning Survey
- Data Presentation
  - Qualitative Focus Groups
- Inference

Phase II
Purpose
- Model Development and Field Test
  - Mixed Method Data Collection
  - Qualitative Data Analysis
  - Inference:
    - Meta-Inference Confirmatory
Conversion Mixed Method

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

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

Predominantly QUAL or QUAN – data is transformed and reanalyzed in another approach to aid final inferences
1 kind 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).
Figure 3: Explanatory Sequential Design-Study A

Source: Adapted from Creswell and Plano Clark (2007, p. 73)
Figure 4: Application of the extended MMR notation system to Study A

DS: Primary(1) sub-set
S-SIZE 1: (n=246)
INST: QT (Survey)
ANSIS: QT-1 (Descriptive) ANSIS: QT-2 (Factor analysis)

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

Interpretation based on QUAN to qual results
Figure 4: Sequential Mixed Model Design

Phase I

Purpose/question

QUAN Survey
(n=250)

Analysis:
QUAN + QUAL

qual Focus Groups
(n=12)

Inference

Phase II

Model Development & Field Test

*MM
Refer to footnote

Analysis: QT
Analysis: QL

Inference

Meta-
Inference: Confirmatory

* 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

Source: Adapted from Cameron (2009)
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
http://www.ejbrm.com/issue/current.html


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References

* BOOK CHAPTERS


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