Suggested Reference


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Benefits and Challenges of Mixing Methods

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Gavin T L Brown, PhD
gt.brown@auckland.ac.nz

Method effects
- How you collect and analyse data shapes and determines the results you get
- Every method is imperfect and so no method is immune to assumptions or imperfections
  - You're not perfect, likewise the method
- Results may be due to the method you use
  - Data may cluster because of how it is collected or interpreted not what it actually measures

Triangulation: Multiple & Mixed Methods
- I know where I am by relating to stuff I already know
  - Find location of unknown object by approaching it in different ways from known sites
- Metaphor for multiple and mixed methods research
  - Multiple approaches to examine common phenomenon
Triangulation

Method Effects in Quantitative Research
- NOT new in Quantitative Research
- Need to check or control for method effects by using multiple methods
  - Validation tools
  - Multi-trait, multi-method analysis
  - Multi-battery factor analysis
  - The common traits should stand out regardless of method used

Multi-Trait, Multi-Method Analysis

<table>
<thead>
<tr>
<th>Method 1</th>
<th>Method 2</th>
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<tbody>
<tr>
<td>Trait A</td>
<td>Trait B</td>
</tr>
<tr>
<td>Trait A</td>
<td>MonoM</td>
</tr>
<tr>
<td>Trait B</td>
<td>MonoT</td>
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</table>

MTMM Analysis: Self-Rating, Teacher-Rating, & Ability


Multi-Battery Factor Analysis


Advantages of Particular Methods

- Surveys describe what is at large sample level.
- Interviews describe why and how it is at small scale level.
- Observations allow for rich descriptions and resulting grounded theory to emerge.
- Experiments allow for controlled testing of theories
- Statistical tests of significance allow us to eliminate chance in understanding relationships between variables.
### Strengths & Weaknesses of Qualitative & Quantitative Methods

<table>
<thead>
<tr>
<th>Method</th>
<th>Population</th>
<th>Occurrence</th>
<th>Timing</th>
<th>Format</th>
<th>Ethics</th>
<th>Setting</th>
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Choose the best compromise.

### To think about

- Is your problem or interest...
  - Quantities or qualities
  - Take place in a naturally occurring or artificial setting
  - Focused on meanings or behaviours
  - Amenable to an inductive or deductive approach
  - Generalised to cultural contexts or universe of all populations
- If both then need mixing methods design
- If problem contains both then need both

### Mixing Methods

- More than using multiple methods
  - Multiple methods within quantitative reduces error and increases validity
- Mixing methods means using both qualitative and quantitative appropriately mixed depending on multi-faceted nature of problem
- Can be done within ‘scientific’ paradigm
  - but many critics of ‘positivism’ argue for purist ‘interpretive’ philosophies of knowledge and research—problem, indeed
Mixing Methods Rationale

- When you want to ask a question that has rarely been asked or has been asked with questionable results.
- When you want the strength of multiple methods for triangulation.
- When some, and only some, of your variables are easily quantifiable at this stage of inquiry.

Mixing Methods Research

- Mixing methods moderates the competition between methodological paradigms
- Simply adding a second method to a study does not make it good research
- What makes good research is having a rationale for mixing methods and a rigorous implementation technique
  - How will you get Method x to speak to the results of Method y, especially if one is Quant and the other Qual?

Philosophic Basis

- Pragmatism—cf. Charles Sanders Peirce
  - Reject dualisms
  - Natural, social, & psychological worlds important
  - Endorses fallibilism: theory is tentative
  - Instrumental evaluation of theories—must be workable, predictable, applicable
  - Pluralist and eclectic in terms of method & theory
  - Empirical, experiential, experimental—real world
  - Action preferred to philosophizing
  - Practical orientation—interested in effective practice
Pragmatism
http://en.wikipedia.org/wiki/Pragmatism#Further_reading

- Pragmatists: connection with practical consequences or real effects as vital components of both meaning and truth.
  - emphasis on the importance of practical effects in connection with theoretical ideas as they impact on the human way of life in general and the life of inquiry in particular.
  - Doubt requires justification
    - (confrontation with some specific recalcitrant matter of fact which unsettles our belief in some specific proposition).
    - Not just "I disagree with your approach or philosophy or theory."
    - Inquiry is then the rationally self-controlled process of attempting to return to a settled state of belief about the matter.
    - beliefs are dispositional which qualify as true or false depending on how helpful a disposition proves in accomplishing the believer's goals
    - But beyond relativism

Intended Advantages of Mixing Methods

- Reduce bias in the study.
- Help to understand complex issues.
- Addresses the objectivity-subjectivity continuum.
- Allows researcher to move back and forth between paradigms to fully understand situation.

Disadvantages of Mixing Methods

- Conflict of paradigms - purist perspective.
- Can you really work and write using two contrasting paradigms and be close to the truth?
- Works well if you work in a team - one qualitatively grounded, one quantitatively grounded.
- But results from one method may not align with another method
Framework for mixing methods

Low level inference

Standardisation
Universality
Distance
Abstraction

Contingency
Particularity
Being affected
Concretisation

High level inference

Theory,
Comparisons,
Cases,
Generalisations (quantitative & qualitative methods)

Ercikan & Roth, 2006

Mixing Methods Designs

Mixed Method Design Options: Status & Timing

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Johnson & Onwuegbuzie, 2004, p.22, Figure 2
Mixing Data Collection

- Sequential building on prior study
- Using qualitative approaches to confirm or further explore existing quantitative data.
- Survey or test to interview or focus group
- Using qualitative methods to develop and refine quantitative measures.
- Interviews/focus groups to fixed form surveys
- Using quantitative methods to test the generalisability of a particular finding
- Interview results to large-scale survey

Example of Mixing Methods Research


When methods don’t align

- Questionnaire and interviews—how simple
Data alignment across methods

- 26 Teachers completed questionnaires and then interviewed in open-ended, phenomenographic fashion
- 4 factor scores created for each teacher by questionnaire
- Interview results reduced to 3 point scale for same factors
- Level of agreement poor
  - 57% of ratings the same;
  - kappa coefficients=-.13, .14, .13, -.11 (around chance)
- Inference: complementary, not consistent methods
  - Don’t expect Method 1 to tell you the same thing as Method 2
  - But let different results shed light on each other

### Survey shows; interviews explain

| Table 1 |
| Conception of Assessment Statistics between Illusory and Actual Integrity of Assessment and School Accountability |

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No that’s what we need to do. Literally something like a write... it doesn’t necessarily mean what you’ve sought... it gives that teacherer, “Oh.. it is a toss, there were one assignment, and we’ve got this group that’s a little different, you know, what’s going on here? You see what’s going on here?” Then they get a chance, “This is the group that’s going to have a chance back.” Then they go and have a chance back. Then it is a toss and there was different methods of assessment, or as what happens, or as what happens in school accountability, or as what happens in school accountability, or as what happens in school accountability.


Survey shows; interviews explain

Survey shows; interviews explain


### Basis for Method Selection

- The nature of the problem and what you want to know determines method
- Real world problems need
  - Rich description of context, participants, processes, products
  - Explanations, causes, theories
  - Interaction of data and theory
  - Elimination of competing or rival hypotheses
Concluding thoughts

- Method effects result from instrument design, participant responses, and analytical processes and can cause data to say different things.
- Differences should be considered not so much as confirmatory or divergent, but rather as complementary
- Analyse data separately using methods suitable to each
- Then compare results to see if any common messages resonate from both methods

To finish

- "triangulation attempts to confirm inferences made from the findings of several research methods and approaches. However, triangulation is less a method than a troublesome metaphor". (Smith, 2006, p. 465)

Your mission should you choose to accept it …

- Not Impossible, but possible
- Think, plan, collect, think, adjust, think, focus
  - What do we want to know?
  - What do we already know?
  - What is a good way to get at what we want?
  - What did we find?
  - What does this tell us in light of what we already know?
  - What should we do next?
References