Qualitative and Quantitative research: a comparison and combination

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375th Anniversary of Utrecht University
It's alive: current debates in methods and statistics
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Contents

- Comparison qualitative and quantitative research
  - Differences and similarities
  - Examples of both types of research
- Combining qualitative and quantitative research
  - Philosophical and methodological challenges
  - Examining mixed methods research
- Current views on education
  - Adjustments in education
- Conclusion

Prototype quantitative and qualitative 'life'

Quantitative research
- Positivistic
- Variable oriented
- Probabilistic relationships
- Causality, prediction
- Detached
- Large, random samples
- Pre-structured
- Cognitive competences

Qualitative research
- Interpretive
- Case oriented
- Themes and subthemes
- Meaning of behaviour
- Naturalistic
- Small, purposive samples
- Emergent
- Creative competences

'It's life, Jim, but not as we know it'

Shades of grey

RESEARCH DESIGN

- Research objectives
- Sampling
- Data collection
- Data analysis
- Results
- Conclusion and discussion

Shades of grey I

RESEARCH OBJECTIVES

- Use of literature: gap logic, practical problems
- Qualitative research
  - Meaning, *emic perspective*, participants' view
  - *Sensitizing concepts*, operational definition bottom up
  - Emphasis on exploration, inductive approach
- Quantitative research
  - Correlations, *etic perspective*, variables
  - *Definitive concepts*, operational definition top down
  - Emphasis on testing, deductive approach

Shades of grey II

SAMPLING AND DATA COLLECTION

- Qualitative research
  - Purposive (a-priori, theory driven), relatively small
  - Semi-structured, open
  - Textual, audio-visual data
- Quantitative research
  - Random sampling, relatively large
  - Structured, closed
  - Numerical data

Shades of grey III

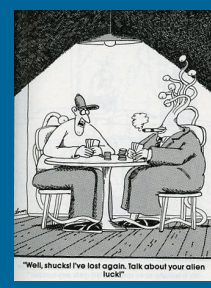
DATA-ANALYSIS

- Systematic and transparent
- Aimed at data reduction
- Computer-assisted
- Qualitative research
  - Building a frame of analysis
  - Cyclical process: data collection ↔ data analysis
- Quantitative research
  - Using an a-priori determined frame of analysis
  - Linear process: data collection → data analysis

Shades of grey IV

RESULTS AND CONCLUSION

- Answering research questions
- Quality criteria: validity and reliability
- Qualitative research
  - Results = data and interpretations
  - Textual
- Quantitative research
  - Results = analysed data
  - Numerical



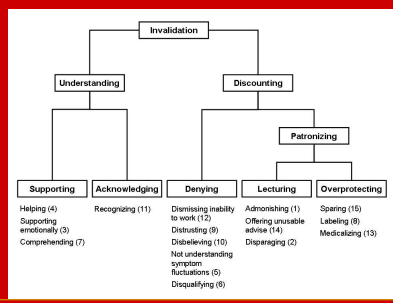
So, the types of research are not that different after all.

They share many characteristics, but differ in the knowledge that can be gained with both methods and in the methods that are used.

Let's discuss some examples

Example 1: Development of measuring instrument

Lack of understanding in patients with fibromyalgia



Kool, M.B., van Middendorp, H., Boeije, H.R. & Geenen, R. (2009). Understanding the lack of understanding Invalidation from the perspective of the patient with fibromyalgia. Arthritis & Rheumatism, Vol. 61, 1650-1656.

Example 2: Triangulation

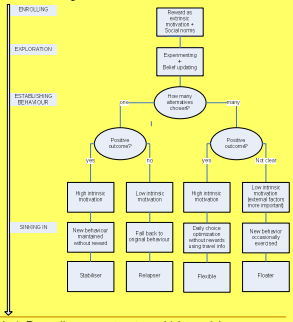
Measuring study motivation in psychology students

•Survey findings	•Interview findings
Start of studies (wave 1)	
• Students had a multitude of motivations to study, which could not be captured clearly in two dimensions	• Everything was new, and students were uncertain about their choice to study psychology and to go to university
• Factor loadings for study motivation were low; the factor model did not fit the data well	• Here and now is most important; feelings about the relevance of studying psychology and expectations about their professional future lure in the background
• Items that asked students about their opinion about studying psychology performed relatively poorly	
End of first year (wave 2)	
• The concept of study motivation had changed over the year. The factor pattern had become clearer, while factor loadings had generally become higher	• Students had a clear image of what studying psychology means and what has their interest
• Specific internal motivations (fun and interesting) and external motivations (because I want to be seen as a good student) had become more important as indicators of study motivation and factor loadings than in wave 1	• They had a clearer image of their future plans (in their studying and professionally)
	• Students took part in activities geared towards their study objectives

Lugtig, P., Boeije, H. & Lensvelt-Mulders, G. (in press). Change? What change? An exploration of the use of mixed methods research to understand longitudinal measurement variance. Methodology.

Example 3: Complementary use

Commuter behaviour and peak avoidance

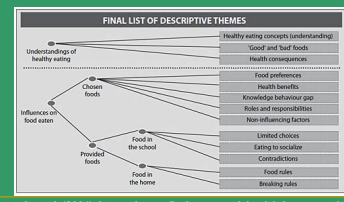


Boeije, H., Ben-Elia, E. & Ettema, D. (in preparation). Rewarding commuters to avoid the peak hour: a mixed methods study into behavioural change.

Example 4: Intervention evaluation

Health promotion in children

- Qualitative studies provide insights in children's views
  - Health is considered the parents' responsibility
  - Taste is more important than health
  - Fruit and vegetables are not the same type of food



Example of thematic analysis

Thomas, J., et al. (2004). Integrating qualitative research in trials in systematic reviews. British Medical Journal, 328: 1010-2.

Example 4: Intervention evaluation

Health promotion in children

- Quantitative studies determine effectiveness of interventions
  - Meta-analysis
  - Distinguish interventions follow implications or not

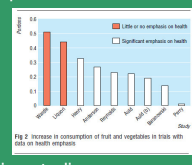


Fig 2 Increase in consumption of fruit and vegetables in trials with data on health emphasis

- Combining qualitative and quantitative studies
  - Interventions that follow recommendations more effective
  - Gaps in research: recommendations yet to test

Mixed methods research: combining quantitative and qualitative methods

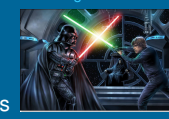
Mixed Methods: definition

Research in which the investigator collects and analyzes data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study or a program of inquiry.
(Tashakkori & Creswell, 2007)

Issues in Mixed Methods

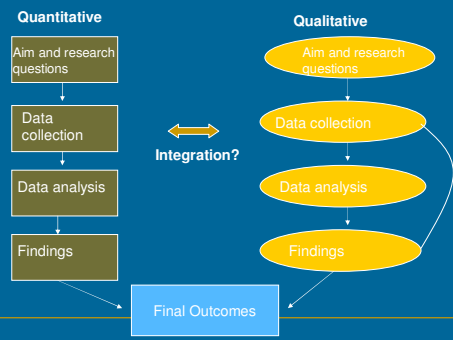
- Philosophical issues
  - Paradigm-method fit
  - Best paradigm
  - What paradigm for mixed methods

Paradigm war

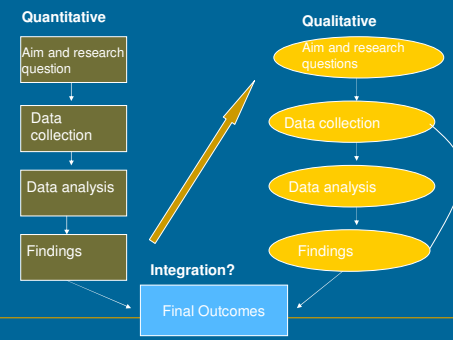


- Methodological issues
  - When to use mixed methods research?
  - Which research questions fit which design?
  - When to integrate qn and ql?
  - What evaluation criteria should be used?

Mixed methods: concurrent design



Mixed methods: Sequential design



Research programme

Qualitative synthesis and mixed methods research

Objectives

To examine qualitative, quantitative and mixed methods studies in order to compare them, appraise their quality and to explore the possibilities for integrating them.

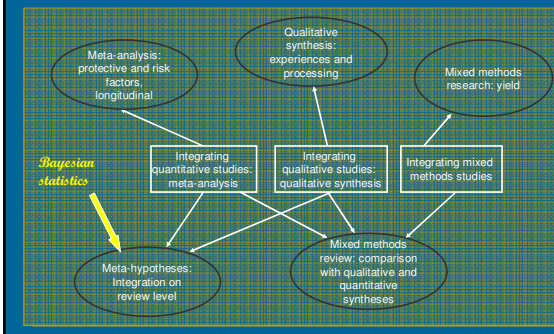
Project

Children and trauma

Projectteam

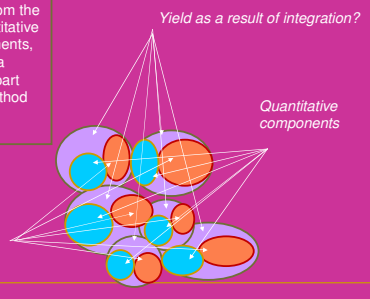
- Hennie Boeije
- Floryt van Wesel
- Eva Alisic
- Meike Slagt
- Silvia Rietdijk
- Sarah Drost

Synthesis project children and trauma



Mixed methods research: yield

Yield then is the surplus value that originates from the integration of the quantitative and qualitative components, since this is what sets a mixed method study apart from a set of single method studies undertaken independently.



Mixed methods research: yield

- Selection criteria:
  - Trauma among children < 18
  - Outcomes include children's experience of traumatic event, processing of traumatic event, or factors influencing recovery process
  - Focus on children's perspective
  - Mixed methods article
  - Peer-reviewed journal article
  - Published January 1980-April 2010
- 10 studies included
  - War and refugees (4), parental loss or illness (3), traumatic injury (2), natural disaster (2)

Slagt, M., Boeije, H.R., Van Wesel, F. (submitted Journal of Mixed Methods Research). A description and analysis of integration within mixed methods research: the case of children and trauma.

Mixed methods research: yield

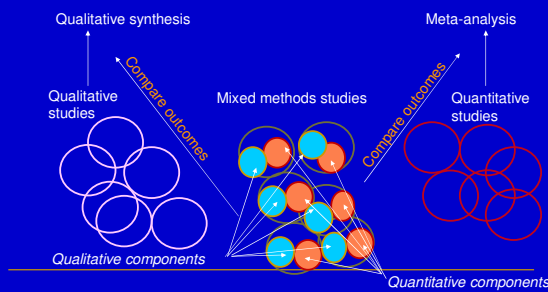
Study	Research objectives	Called MM	Rationale	Sequence & Dominance	Integration exploited Yes	Yes, but more possible	No
1	Complementary	In abstract	None	quan + QUAL		√	
2		No	None	QUAN + QUAL			√
3		Yes	Strong	QUAN + QUAL			√
4		No	None	QUAN + qual			√
5	Intervention evaluation	No	None	QUAN + QUAL			√
6		No	Weak	QUAN => qual		√	
7		No	None	QUAN + QUAL		√	
8	Triangulation	No	Strong	QUAN => QUAL	√		
9		Yes	Sufficient	quan => QUAL	√		
10	Instrument development	Yes	Strong	qual => QUAN		√	

Mixed methods research: yield

- Integration achieved
  - Strong rationale
  - Triangulation objective
- No integration
  - Complementary objective
  - Simultaneous design

Recommendation: Clarifying the research objectives and the rationale for using mixed methods contributes to achieving its added value

Qualitative synthesis, meta-analysis and mixed methods studies



Qualitative synthesis, meta-analysis and mixed methods studies

- With mixed methods different areas are explored
  - Comparison qualitative synthesis
    - Substantial overlap; some new areas covered
  - Comparison quantitative synthesis
    - Large difference; hardly any overlap in variables studied
- Identity of mixed methods
  - Definition (what is mixed methods and quality of components)
  - Yield (more than sum of its components)

Recommendation: Mixed methods studies should be included in systematic reviews to prevent omission of valuable information.

Boelje, H., Slagt, M.I., Van Wesel, F. (under review Research Synthesis Methods). Comparing mixed methods studies with qualitative synthesis and meta-analysis for its use in systematic research synthesis.

Education and teaching

Bachelor curriculum six studies FSBS	
Ba1	Methods and Statistics 1 Broad overview of research approaches, including quantitative and qualitative research Methods and Statistics 2 Same format for all studies with an optional focus
Ba2	Methods and Statistics 3 More specified choices for each study Quantitative, Qualitative, Combination
Ba3	Thesis

References

- Alise, M.A. & Teddlie, C. (20101). A continuation of the paradigm wars. Prevalence raters of methodological approaches across the social/behavioral sciences. Journal of Mixed Methods Research, 4(2): 103-126.
- Bryman, A. (2007). Barriers to integrating quantitative and qualitative research. Journal of Mixed Methods Research, 1(1): 8-22.
- Creswell, J.W. & Plano Clark, V. (2007). Designing and conducting mixed method research. Thousand Oaks: Sage.
- Morgan, D.L. (2007). Paradigms lost and pragmatism regained. Methodological implications of combining qualitative and quantitative methods. Journal of Mixed Methods Research, 1(1): 48-76.
- O'Cathain, A., Murphy, E. & Nicholl, J. (2007). Integration and publications as indicators of "yield" from mixed methods studies. Journal of Mixed Methods Research, 1: 147-163.
- Tashakkori, A. & Creswell, J.W. (2007). The new era of mixed methods. Journal of mixed methods research, 9(1): 3-7.

More information can be found on www.hennieboeije.nl

☑ The end

☐ Thank you for your attention