Qualitative comparative analysis - QCA
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This presentation will

- Identify the research question
- Situate QCA
- Define QCA
- Examine the core principles of QCA
- Provide an insight to current findings
- Provide an exemplar of QCA
- Offer my thoughts on the use of QCA
Question

• How does the teaching model and duration of clinical placement, within an undergraduate nursing program, affect clinical skill acquisition and patient outcome?
Case study methodology

- Address how, what and why questions – complex settings and many variables
- Focus on cases
- Multiple data sources
- Converge findings
- Generate case report
CASE

- Thematic analysis
- Document analysis
- ANOVA
- QCA
Definition

• Vink et al (2009,p266) describe QCA as a ‘...family of comparative techniques that aim to explain macro-social phenomena in a parsimonious way while working with small- to medium- size data sets’

• Origins in social science research
• Looks to compare
• Method of analysis
QCA ………

- Is Case oriented
- Provides a way to dialogue between case and theory
- Generalises beyond the cases at hand *
- Has a particular language
- Is a method for considering qualitative and quantitative data (at the same time!)

* = moderate generalisation
Functions of QCA

• Summarize data
• Overview basic assumptions of the data
• Test hypotheses and theories
  – A theory of maths
• Develop new theoretical arguments

» Schneider & Wagemann (2010)
Principles

• Set theory – Venn diagrams that depict (compare) relationships
• Conditions of interest NOT variables
• Dichotomy
• Boolean algebra
• Parsimony – Occam’s Razor
• Multiple conjectural causation
Set theory – Venn diagrams

- Set theory provides a formal language for comparing conditions
- Is reproducible
- More so than other qualitative approaches
- Venn diagram locates the cases visually – comparing even a few cases with few conditions will create many, many combinations
Conditions of interest NOT variables

- Conditions not variables
  - Variables associated with statistical methods
  - Complex causality
  - Necessary condition – must always be present for an outcome to occur
  - Sufficient condition – is always present for a particular outcome but other conditions may also lead to the same outcome
Dichotomy

- csQCA – crisp set QCA
- mvQCA – multi value QCA
- fsQCA – fuzzy set QCA
- MSDO/MDSO
Boolean algebra

- Form of algebra
- Conventions
  - [1] positive, on, white, new
  - [0] negative, off, black, old
  - [-] present or absent
  - AND [*]
  - OR [+]n
- Provides a language for minimisation
  - \( R*B*I + R*B*i \rightarrow O \)
  - \( R*B \rightarrow O \)
Parsimony

Everything should be made as simple as possible, but not simpler.

Albert Einstein

In QCA speak – ‘a short (parsimonious) explanation of a certain phenomena of interest while still providing a appropriate allowance for causal complexity’

Multiple conjectural causation

1. most often a combination of causally relevant conditions that generate the outcome
2. different combinations of outcomes may produce the same outcome
3. an outcome may result from the presence of a condition but may also occur when it is absent i.e. another condition also leads to the same outcome
Selecting conditions

- Have a theoretical orientation
- Accommodates inductive and deductive reasoning
- Require transparency
- Qualitative conditions need to be allocated a numerical value (i.e. they lend themselves to dichotomy)
- Need to be defensible
A theory of maths

• Theoretical proposition – those who like maths are more likely to be competent in solving maths problems.

• We are going to ‘compare’ the lecturing staff from the School of Nursing
Set theory - Venn diagrams

Hate maths

Love maths

Love to hate maths
Conditions

- I enjoy / do not enjoy solving maths problems
- LIKE
- I had a good / bad maths teacher at school
- TEAC
- I did / did not do maths homework
- HOME
- My parents encouraged / did not encourage me in maths
- PARE
- The answer to the following question is
- OUTC
Dichotomy

[1]
- Like maths
- Good teacher
- Did homework
- Parents encouraged
- >75%

[0]
- Do not like
- Bad teacher
- Did not do homework
- Parents did not encourage
- <75%
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TOSMANA 1.3.2
Study conditions

- Duration – of placement
- Preparation – for the work setting
- Benefit – of attending clinical placement
- Lectures – describing falls, pressure area and pneumonia
- Feedback – perception by students
- Hospital – did students have a placement in the hospital of employ?
- Clinical experiences – of patients with falls, pressure area and pneumonia
- Outcomes – care / interventions for falls, pressure area and pneumonia
# Life Impact

## Truth Table

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*Life Impact* | The University of Adelaide
TOSMANA 1.3.2 Version – Visualiser - Venn diagram
And the findings........

- Are considered within the case study context
- QCA provides a piece of the puzzle!
QCA is not ……………

• Directed to proving with statistical certainty a phenomenon
• Aligned to any permanent causality
• Always neat – contradictory configurations need to be resolved
• Straightforward especially minimisation
However QCA……..

• Encourages the consideration of complexity and causality
• Demands engagement of the researcher and the data
• May encourage important theoretical developments
• Is a timely addition to the research of difficult questions in education and nursing
Critique

- QCA will be ‘awkward’ for qualitative or quantitative purists
- ‘the skill and indeed the risk, in identifying the most suitable form of QCA analysis is in the researcher’s capacity to argue for the identification of the initial set of conditions’
My experience of QCA

- New language
- Little description of use outside of social science
- Software is ‘clunky’
- Contradictory configurations to be resolved
- Will be valuable to final case report
Thank you
References

- Rihoux B (2006) Qualitative comparative analysis (QCA) and related systematic comparative methods: Recent advances and remaining challenges for social science research International Sociology 21, 5, 679-706.


• Schneider C, Wagemann C (2010) Standards of good practice in qualitative comparative analysis (QCA) and fuzzy-sets Comparative Sociology 9,3, 397-418.


• Wagemann C, Schneider C (2010) Qualitative comparative analysis (QCA) and fuzzy-sets: Agenda for a research approach and a data analysis technique Comparative Sociology 9, 3, 376-396.