CPT898

Foundations of Social Science Research

Week 9

Case Studies / Validity and Reliability

Overview of Lecture

- A brief recap of the role of design in developing research
- Case studies
- Validity, Reliability, Generalisation

What is Research Design?

- The research design provides a framework for the collection and analysis of data.
- A choice of research design reflects decisions about the priority being given to a range of dimensions of the research process. These include the importance attached to:
  - Expressing causal connections between the variables
  - Generalising to a larger group of individuals
  - Having a temporal appreciation of social phenomena and their interconnections
  - Understanding behaviour and the meaning of that behaviour in its specific social context

(Bryman, 2012:46)

- The ability to answer most research questions is dependent on using the correct research design.

Principal types of Research Design

- Cross sectional
- Longitudinal
- Experiments, RCTs, Natural experiments,.
- Case studies
- Comparative?

Case Studies

Case Studies

- Case studies are concerned with “the detailed and intensive analysis of a single case”

  (Bryman, 2012:66)

- Focus is on the specific, complexity and the situational

- Case study research is holistic?
  - Aim is to understand entity as a unit, as a functioning whole

    (Vershcuren, 2003)

- The unit of analysis is: a bounded entity, such as a place, object, set of relationships, event, etc.

- Can be single or multiple cases

- In brief, the case study method allows investigators to retain the holistic and meaningful characteristic of real-life-events-such as individual life cycles, small group behaviour, organisational and managerial processes, neighbourhood change, school performance, international relations and the maturation of industries. (Yin, 2009:4)

Defining features:

- Investigates a bounded whole
- Considerable degree of open-endedness
  - - Topic chosen in broad terms and remains fluid
- Researching directly a ‘real-life’ whole
- Utilise many methods
  - contested
- The outcome is complex, often narrated presenting raw data

(Morgan, 2014)

Rationale for single case

- Typical case
  - The objective is to capture the circumstances and conditions of an everyday or commonplace situation
- Extreme (unique)case
  - To shed light on the normal, taken for granted
- Critical case
  - Chosen on the grounds that it will allow a better understanding of the circumstances in which a hypothesis will and will not hold
- Revelatory case
  - When an opportunity arises to observe and analyse a phenomenon not normally accessible

(Bryman, 2012: 70, citing Yin, 2009)

A contested design?

- Many social scientist still deeply believe that case studies are only appropriate for the explanatory phase of an investigation, that surveys and histories are appropriate for the exploratory phase and that experiments are the only way of doing explanatory or casual inquiries (Yin, 2009: 6).

- Yin (2009) considered an expert on case studies, claims that case studies are especially good at addressing explanatory research questions like ‘how?’ and ‘why’?. I can see no justification for this at all. …All such claims do is let poor researchers off the hook of having to consider decent designs for their questions. A case study is simply about collecting data for a description of one case (Gorard, 2013:96).

Comparing designs

- In comparison to Statistical Analysis
  - n=1 is not generalisable
- In comparison to experiments
  - ‘real-life’ situations complex with multiple interacting factors = lack of control makes causal inference (i.e. internal validity) problematic
- Use of qualitative methods (esp. observation) subjective compared to statistical evidence and laboratory results

Purpose of case?

- To reveal a social phenomenon in its full complexity and specificity?
- To generalise?
- To identify casual relations?

Generalisation

- Statistical generalisation
- Analytic generalisation

Causation *in vivo*

- Some writers argue that through case study research we can actually see casual relationships occurring in particular instances. Thus Glaser and Strauss (1967) claim that ‘in fieldwork…general relations are often discovered *in vivo*; that is, the fieldworker literally sees them occur’ (p40).

- The argument is that since actions, institutions and societies are human products …they can be understood by human beings in a direct way that is not possible when it comes to physical objects….Understanding consists of ‘imagining what it would be like to be somebody else.

Hammersley et al, 2000: 235-6

An example: causation?

“Little is known about the lives of the men who work in the car plants. The concern of this book is to help make good this deficiency. It attempts to portray how the men who worked for Ford in Liverpool in the 1960s experienced working on the line, how they made sense of their lives and of the wider forces operating in society. The portrait is painted in their words and the dynamism of the story is taken from their actions. For I have been concerned not to write about these men as if they were the mechanical products of economic and technological forces. I have attempted to show how such forces limit and constrain people’s lives, yet how in the very constraint they reveal the seeds for an alternative.”

Beynon, H. (1973:14) Working for Ford.

Causation from best Inference

- Statistical research (i.e., quantitative cross-sectional and longitudinal studies) include many comparable, numerically expressed observations on a small number of aspects of an object.

- “Case studies provide multiple observations of many different forms on very many different aspects and elements of the whole”

(Morgan, 2014: 295)

As such:

- Case study research produces the possibility of multiple interpretations of this detail, but few of them will be consistent with all

- Internal validity – claims to causality has to be created by multiple evidential coherence

Choosing a case

- One or many cases?
  - Is there a theoretical justification for more than one?
  - Do you have the resources?
  - Can you get access?

- If choosing multiple cases need to be clearer about theoretical considerations from the start

  - Benefit is can compare, but risk that will only see things looking for difference / similarities and attend less to uniqueness of case

‘Perceptions of Risk’ Study

- Decision informed by existing research
  - different workgroups perceive risk differently
  - size of firm important in implementing H&S
  - dry and wet a key division in sector for number of reasons

- Identified 4 Companies
  - 2 Large multinationals — Dry and Wet Cargoes
  - 2 Small nationally based — Dry and Wet Cargoes

Familiarisation

- Useful to get a general overview of organisation
- The aim is to get a general understanding of how the organisation works, the key processes and when and where one might want to collect data
    - Walk round different departments
    - Meet key personnel
    - Factories, warehouses, offices, etc., follow work flow
        - i.e. visit main areas of work
        - Identify best times for data collection, e.g. when are coffee breaks etc.?
    - Identify external partners / stakeholders

‘Perceptions of Risk’ study… continued

- Gave an introductory presentation to managers on the research and intended aims
- Interviewed 3 senior managers to get an overview of company
    - History of company
    - Size
    - Number of ships and seafarers
    - Different departments and functions
    - Walked around and met key individuals
    - Company approach to safety management
    - Key factors influencing safety, including relationship to external actors
- Examined documents relating to company Safety Management System and followed up with further interviews
    - Organogram show lines of authority
    - Negotiated access to other relevant documents, including accident data
- Negotiated access to ships and personnel and set up site visits

Collecting Data

- Be open and reflexive but systematic, keep good research diary
  - Need to record musings and reflections as well as observations & elicited data

- Engage in analysis from start, not separate from data collection

  - It is legitimate to alter and even add to data collection methods during a study…because investigators are trying to understand each case individually and in as much depth as feasible… this flexibility is not a license to be unsystematic" (Eisenhadrt, 1989:539)

- Mixed methods?
  - How can you understand how things work, get a deep insight into the activities / processes and culture?
    - Documents / Interviews / Observation /Attend meetings / Participate in activities / Informal conversations

Combining Data: Saying & Doing

- *So when you're cleaning, do you use chemicals?*
- Yes, Aquatap
- *Is that dangerous?*
- It is corrosive Nick
- *So do you use gloves or goggles or anything when your doing this?*
- Yes use gloves, use gloves, sometimes burns your hands, so it is better just gloves.

(Fitter, Company B, S2)

The Challenge of Multiple Groups / Locations / Times

The Exit

- When to stop collecting data?
  - Data saturation
  - Check findings with participants
  - Compare with existing empirical data

- Exiting the field
  - Relationships
  - Commitments

Writing up

- Within case analysis
  - What categories
  - How organised
  - Initially descriptive
  - Need to analyse systematically and be reflexive to avoid being influenced by particular data
  - Challenge of combining multiple sources and forms of data

- Cross case comparisons?

Case Studies: Summary

- Case studies as a design are contested
- Case studies can be single or multiple
- Focus on a single entity
- Provide intensive in-depth theoretical insight into the case
- Tend to be inductive used to develop theories that may be generalisable, but cannot generalise from case.

Overall Summary

- Key elements of research design relate to: causality, temporality, generalisability, depth
- Four main design are: experiment, cross sectional, longitudinal and case study
- Studies may use one or more designs
- The choice of research design and methods relates to the need to answer the research question

Research Design Summary

Research Design	Aim	Example Question	Data Collection
Cross-Sectional 'survey'	Assess prevalence or average and/or how this varies by group	*What is the average income? Are there gender differences?*	To gather information from a large representative sample (**most common use of surveys**)
Repeated cross-sectional surveys	Assess trends / social changes	*Have smoking rates declined among Welsh school-children?*	Compare information from large representative samples over time (e.g. 1985, 1995, 2005)
Longitudinal study (or 'cohort' study)	Examine individual changes over time & 'predictive' variables	*How do individuals change? What predicts high income?*	To collect different data at different points in time from the same individuals ('cohort')
Experimental study / RCT	Measure effect of a policy or intervention	*Do free breakfasts at school improve child learning & health?*	To measure characteristics before and after (e.g. IQ tests, BMI, mental health score, etc.)
Case Studies	Provide in-depth understanding, concerned with complexity and specificity	*How is health and safety managed in organisation x?*	To gather detailed information sufficient to elucidate in a holistic manner the unique features of the case

Further Reading

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- Hakim, C. (2000) Research Design: successful designs for social and economic research (2nd Edition). Routledge.

RCT examples

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- Campbell, M., Fitzpatrick, A., Kinmonth, A., Sandercock, P., Spiegelhalter, D., And Tyrer, P. (2000) Framework for design and evaluation of complex interventions to improve health’. British Medical Journal, 321: 694-6 (16 Sept)

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Validity, Reliability & Generalisation

Reliability

- Consistent results, time after time. (Like a reliable car)
- Are the different measures used, say in a questionnaire consistent?
- Inter-observer consistency – are concepts applied consistently? E.g. content analysis, coding open questions…
- Related to Measurement Validity

Validity

- Concerned with the integrity of the results generated from a piece of research
- Measurement Validity or Construct validity
  - Does the measure map onto the underlying theoretical concepts, i.e. do IQ tests really measure intelligence?
    - Measure also needs to be reliable to be valid.
- Internal Validity – how confident can we be that conclusions genuinely reflect causal relations, i.e. can we be sure x causes y?
- External Validity - can the results be generalised (importance of sampling strategy)
- Ecological Validity – do the findings apply to everyday life?

Generalisability

- “See External Validity, Internal Validity”

- External:
  Does it speak for the whole population?
  Typical case?
  Generalise something from result

- Internal:
  is there anything in the methodology which could undermine the results?

Reflections

- If a measure is not stable over time (Reliable) it cannot be valid
- If it lacks internal reliability then it is measuring two or more different things
- If lacks external validity only applicable to this case

Activity

- How would you characterise the following two research designs in terms of validity and reliability?
    - Experimental designs
    - Case Studies

Alternative Criteria

Trustworthiness (Lincoln and Guba, 1985 – see Bryman p392)

- Credibility (internal reliability)

  How believable are the findings - respondent validation

- Transferability (external validity)

  Do findings apply to other contexts

- Dependability (Reliability)

  Are findings applicable at other times - auditing approach

- Confirmability (Objectivity)

  Have researchers allowed bias into research?

Reading

- Bryman, A. (2012) *Social Research Methods.* Oxford: OUP (chs 3 & 17)
- Bryman, A. (1988) *Quantity and Quality in Social Research*. Abingdon: Routledge
- Gobo, G. (2008) Re-conceptualizing generalization: Old issues in a NEW Frame, in Alasuutari, Bickman and Brannen (2008) (edited) *The Sage Handbook of Social Research Methods*.
- Lincoln, Y.S. and Guba, E. (1985) *Naturalistic Inquiry*. Beverley Hills, CA: Sage
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