Designing a research project

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• Design is concerned with turning research questions into projects (Robson, 2011, p. 70)

• ‘If you don’t give serious attention to the design of a research project you are likely to end up with a mess’ (Robson, 2011, 5)
Design, methodology, methods

• Design = structure or plan for tackling research questions/objectives within an appropriate conceptual and methodological framework, using appropriate methods

• Methodology = research approach, philosophical underpinnings

• Method = a specific technique for gathering data/evidence
The literature review, methodology and design

- Not just what has already been done on your topic, but how and from what theoretical or philosophical perspectives

- The limitations, gaps or controversies in these areas help to focus your own research questions and approaches

- Building a rationale for your research is not just answering ‘why this research?’ but ‘why this research in this way?’

- So background research is integral to the design process
Different types of research

- Exploratory
- Descriptive
- Explanatory
- Emancipatory/empowerment

examples from Robson (2011)

exercise - to what extent does your research have each of the four purposes above? How do the questions you have so far identified relate to these? Or would you characterise your research entirely differently?
Fixed vs flexible designs - an analogy
(Spradley, 1980, p. 26)

• ‘the petroleum engineer’

• ‘the petroleum engineer has a specific goal in mind; to find oil or gas buried far below the surface. Before the engineer even begins an investigation, a careful study will be made of the maps which show geological features of the area. Then, knowing ahead of time the kinds of features that suggest oil or gas beneath the surface, the engineer will go out to “find” something quite specific’

• ‘the explorer’

• ‘gathering information, going first in one direction then perhaps retracing that route, then starting in a new direction. On discovering the lake in the middle of a large wooded area, the explorer would take frequent compass readings, check the angle of the sun, take notes about prominent landmarks, and use feedback from each observation to modify earlier information’
## Fixed vs flexible designs

<table>
<thead>
<tr>
<th>Fixed</th>
<th>Flexible</th>
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<tr>
<td>• detailed plans for the study are made before collecting data, based on thorough knowledge of the area and the phenomena under investigation</td>
<td>• details of procedure not fixed in advance</td>
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<td>• e.g. variables, procedural details and analyses are decided in advance, with tried-and-tested measures</td>
<td>• research questions are liable to change</td>
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<td>• research question may be the next step in an established area, building on existing knowledge</td>
<td>• research area may be one in which there is little previous work</td>
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<td>• example - experimental studies; non-experimental studies; making predictions, and testing those predictions in a controlled fashion</td>
<td>• design evolves as research progresses - data collection and analysis can happen simultaneously and design change in light of data</td>
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<td>• example - ethnographic approaches; case studies; grounded theory; discovering what’s occurring in a naturalistic situation</td>
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<tr>
<td><strong>Quantitative (generally)</strong>...</td>
<td><strong>Qualitative (generally)</strong>...</td>
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<tr>
<td>--------------------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>Numbers and statistics</td>
<td>Words, language, meanings etc...</td>
</tr>
<tr>
<td>Interested in measurable variables</td>
<td>Interested in rich description of subjective experiences</td>
</tr>
<tr>
<td>Cause and effect /correlation</td>
<td>Quality and texture</td>
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<tr>
<td>Investigates a specific hypothesis</td>
<td>Starts with a broad research question</td>
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<tr>
<td>Pre-specifies variables (excludes/controls others)</td>
<td>Does not pre-determine what to look for (remains open)</td>
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<tr>
<td>Views human behaviour as explained by discoverable laws</td>
<td>Views human behaviour as e.g. socially constructed</td>
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<tr>
<td>Aims to generalise</td>
<td>Aims for depth</td>
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<tr>
<td>Uses hypothetico-deductive reasoning (using theory to make a prediction and collecting data to test it)</td>
<td>Uses inductive reasoning (using data to build theory)</td>
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<td>Values objectivity</td>
<td>Values (inter)subjectivity</td>
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‘researchers seem to be more eclectic in their actual research practice than methodologists urge them to be. [...] it seems that many of the differences between the [qualitative and quantitative] traditions are in the minds of philosophers and theorists, rather than in the practice of researchers. Undoubtedly there are situations and topics where a fixed design following traditional quantitative approach is called for, and others where a flexible design following a constructionist or other traditional approach is appropriate. But there are others where a **multi-strategy approach** incorporating both quantitative and qualitative elements better fits the bill.’ (Robson 2011, p. 46, emphasis added)
Framework for research design
(Robson, 2011)
Framework for research design

- Should be a high compatibility among the elements of the design framework - mismatches are a sign something needs changing
- Fixed designs - get as much of it right as possible before main phase of data collection (importance of pilot work)
- Flexible designs - get it right by the end of the study
  - i.e. each element is revisited multiple times during the study, and may be renegotiated
- Multi-strategy designs may have different phases, e.g. a flexible phase followed by a fixed phase
- A fixed strategy may be used iteratively in several linked studies - with elements of the design framework revised in the light of results of each study
Conceptual frameworks

• ‘A conceptual framework explains, either graphically or in narrative form, the main things to be studied - the key factors, constructs or variables - and the presumed relationships among them. Frameworks can be rudimentary or elaborate, theory-driven or commonsensical, descriptive or causal’ (Miles & Huberman, 1994, p. 18, cited in Robson, 2011)
Choosing an approach for your research question

• Get a feel for design issues by reading a range of research in different disciplines

• Fixed, flexible or multi-strategy?

• Evaluation studies:
  • outcomes → fixed
  • processes → flexible

• Action research: direct participation in the research by others likely to be involved, plus intention to initiate change
  • usually flexible
Research examples

• For each example given, identify:

- The purpose(s) (exploratory, descriptive, explanatory, emancipatory/initiating change)

- The research question(s)

- The type of strategy: fixed, flexible, or multi-strategy

- The sampling strategy - who, where, when?
Fixed designs

- **Experimental strategy:** ‘the researcher actively and deliberately introduces some form of change in the situation, circumstances or experience of participants, with a view to producing a resultant change in their behaviour’ (Robson 2011, 78)

- measuring the effects of manipulating one variable on another
- selection of samples of individuals from known populations
- allocation of samples to different experimental conditions
- introduction of planned change on one or more variables
- measurement on very small number of variables
- testing of formal hypotheses

- true experiments; quasi-experiments; single-case experiments
Fixed designs

- **Non-experimental strategy**: similar to experimental, but ‘researcher does not attempt to change the situation, circumstances of experience of the participants’ (Robson 2011, 78)
  - selection of samples of individuals from known populations
  - allocation of samples to different experimental conditions
  - measurement on relatively small number of variables
  - may or may not involve hypothesis testing

- concerns variables that cannot or should not be manipulated by researcher (personal characteristics; health status; personality; previous life events; membership of a school…)
- common in survey research
- cross-sectional, longitudinal, retrospective
Exercise

• Which of the handout questions imply use of an experimental strategy?

• A non-experimental strategy?
Flexible designs

General features

• project may start with a single idea or problem that researcher seeks to understand, rather than causal relationships among variables or comparison between groups
• conceptual/theoretical framework, research purposes and questions may be much more provisional at outset than for fixed designs
• design not specified in detail before data collection starts
• sampling doesn’t have to be decided in advance
• everything subject to revision and development as data are collected and analysed
• but this does not mean that ‘anything goes’, or that you can set out without a plan!
Flexible designs

• **Case study**: ‘a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence’ (Yin, 2009, in Robson 2011)

• case may be an individual person, a group, a setting, an organization etc.)

• usually involves multiple methods of data collection, can include quantitative

• if quantitative data play a major role, can become a multi-strategy approach

• multiple case studies can be used to systematically test and refine theory (analytic/theoretical generalization)
Flexible designs

- **Ethnographic studies**
  - focus on description and interpretation of culture and social structure of a social group
  - typically involves extended period of **participant observation**, but not excluding other methods
  - originates in cultural anthropology - several years’ immersion in field
  - requires development of insider perspective at same time as treating practices as ‘anthropologically strange’
Flexible designs

- **Grounded theory studies**

- develop a theory of the social situation being studied

- ‘grounded’ = derived from the study itself - in purist form this would mean deferring any conceptual/theoretical framing until *after* data collection (NB, actually impossible!)

- commonly uses **in-depth interviews** (not excluding other methods, inc. quantitative)

- has a particular systematic approach which makes it potentially less flexible - though researchers use it more flexibly as a set of tools
Other factors to consider

• What sampling strategies, methods of data collection and analysis you will use - research these before making a final choice on design

• What is feasible in the time and resources available

• Practicalities - in practice-based research, for example, the choice of participants and settings may be made for you

• Your expertise
References