ST3004: Research Methods

Research Design
Strategies - Grounded Theory

- **Grounded theory** is a research method that involves forming a theory based on the gathered data as opposed to gathering data after forming a theory.

- It allows an understanding of the phenomenon to emerge through data analysis and a literature search that is performed mainly after data have been collected.

- In other words, it kind of turns the whole research process around.

- Grounded theory is called 'grounded' because the theory is grounded in the data.
Strategies - Ethnography

- Inductive

- Comes from the field of anthropology.

- Interested in the characteristics of a community at large

- Often involves looking at how the culture and beliefs of a community affect the behaviours and thoughts of individuals within that community.

- The purpose is to describe and explain the social world the research subjects inhabit in the way in which they would describe and explain it.
Ethnography

- Observations, interviews and documents can all be a good source of information for ethnographic researchers.

- The biggest challenge that faces those who do ethnographic research is the balance between getting close to their subjects and maintaining distance.
Archival research

- Makes use of administrative records and documents as the principal source of data.

- Can refer to recent as well as historical documents.

- Allows research questions which focus upon the past and changes over time to be answered, be they exploratory, descriptive or explanatory.

- However, your ability to answer such questions will inevitably be constrained by the nature of the administrative records and documents.
**Choices - Quantitative vs Qualitative**

- **Quantitative** - any data collection technique (such as a questionnaire) or data analysis procedure (such as graphs or statistics) that generates or uses numerical data.

- **Qualitative** - any data collection technique (such as an interview) or data analysis procedure (such as categorising data) that generates or use non-numerical data.

- The way in which you choose to combine quantitative and qualitative techniques and procedures is your ‘research choice’.
Quantitative

- Meanings derived from **numbers**

- Collection results in numerical and standardised data

- Analysis conducted through the use of diagrams and statistics
Qualitative

- Meanings expressed through **non-numerical data**

- Qualitative therefore usually refers to words, but can refer to other data such as pictures and video clips.

- Collection results in non-standardised data requiring classification into categories

- Analysis conducted through the use of conceptualisation
Choices – mono vs multiples methods

- **Mono method** - a single data collection technique and corresponding analysis procedures.

- **Multiple methods** more than one data collection technique and analysis procedures to answer your research question.
Mono-Method

- A single *quantitative* data collection technique, such as a survey, with *quantitative* data analysis procedures
  OR

- a single *qualitative* data collection technique, such as in-depth interviews, with *qualitative* data analysis procedures
Multiple Methods – Multi-method

- Combinations where more than one data collection technique is used with associated analysis techniques,

- **Multi-method** means restricted within *either* quantitative or qualitative:
  - **Multi-method quantitative study**: Collect *quantitative* data using both questionnaires *and* structured observation analysing these data using statistical (*quantitative*) procedures.
  - **Multi-method qualitative study**: In-depth interviews *and* diary accounts and analyse these data using non-numerical (*qualitative*) procedures.
Multiple Methods – Mixed Methods

- Mixed Methods means both quantitative and qualitative data collection techniques and analysis procedures are used in a research design.

- Different methods can be used for different purposes in a study.
  - E.g. interviews (qualitative) at an exploratory stage, in order to get a feel for the key issues before using a questionnaire to collect (quantitative) descriptive or explanatory data.
Multiple Methods – Mixed Methods

Two types of Mixed Methods:

1. **Mixed method research**
   - uses quantitative and qualitative data collection techniques and analysis procedures either at the same time (parallel) or one after the other (sequential) but does not combine them.
   - This means that, although mixed method research uses both quantitative and qualitative world views at the research methods stage, quantitative data are analysed quantitatively and qualitative data are analysed qualitatively.
   - In addition, often either quantitative or qualitative techniques and procedures predominate.
Multiple Methods – Mixed Methods

2. Mixed-model Research

- combines quantitative and qualitative data collection techniques and analysis procedures

- This means that you may take quantitative data and qualitise it, that is, convert it into narrative that can be analysed qualitatively.

- Alternatively, you may quantitise your qualitative data, converting it into numerical codes so that it can be analysed statistically.
Choices: Mono- vs Multiple Methods

- Mono method
  - Multi-method (quantitative studies)
  - Multi-method (qualitative studies)
- Multiple methods
  - Mixed-methods (research)
  - Mixed-model research
How to choose?

- It is vital to have clear research question and objectives for your study and ensure that the methods you use will enable you to meet them. *(What data do I need to answer my research question?)*

- It is a great temptation to think about data collection techniques and analysis procedures to be employed before you have clarified the objectives.

- There is inevitably a relationship between the data collection technique you choose and the results you obtain.
Choices - Time Horizons

- Cross-sectional - A snapshot in Time

- Longitudinal - A representation of events over a period of time
Cross-sectional studies

- The researcher collects data at a particular point in time (one period of data collection)

- These studies are easier and more convenient to carry out.

- E.g. What IT skills are possessed by managers in one organisation at a given point in time?
Longitudinal Studies

- The main strength of longitudinal research is the capacity that it has to study change and development.

- Trend Studies – patterns & rates of change.

- Panel Studies – Same people are studied – researcher can not only see patterns but can investigate the reasons for them (UK – Seven Up)

- Follow-up Studies – to determine the subsequent state(s) of subjects with a specific condition or those who have received a specific intervention
Reliability

Will your research findings be **reliable**?

1. Will the measures yield the same results on other occasions?
2. Will similar observations be reached by other observers?

- Reliability refers to the repeatability of findings.

- If the study were to be done a second time, would it yield the same results? If so, the data are reliable.

- If more than one person is observing behaviour or some event, all observers should agree on what is being recorded in order to claim that the data are reliable.

- There will need to be transparency in how sense was made from the raw data?
Reliability

Reliability also applies to individual measures.

E.g.

- When people take a vocabulary test twice, their scores on the two occasions should be very similar.
- An inventory measuring self-esteem should give the same result if given twice to the same person within a short period of time.
- IQ tests should not give different results over time (as intelligence is assumed to be a stable characteristic).
Threats to Reliability

1. **Subject or participant error** (levels of morale on a Monday morning)

2. **Subject or participant bias** (interviewees often want to please – the importance of anonymity)

3. **Observer error** (mitigated by structured data-collection instruments)

4. **Observer bias**
Validity

- Are your research findings valid?

- Are the findings really about what they appear to be about?

- Is the relationship between two variables a causal relationship?
Validity

- **Internal validity** - the instruments or procedures used in the research measured what they were supposed to measure.

Example: As part of a stress experiment, people are shown photos of war atrocities. After the study, they are asked how the pictures made them feel, and they respond that the pictures were very upsetting. In this study, the photos have good internal validity as stress producers.
Validity

- **External validity (or generalisability)** - the results can be generalized beyond the immediate study.

  Example: In order to have external validity, the claim that spaced study (studying in several sessions ahead of time) is better than cramming for exams should apply to more than one subject (e.g., to math as well as history). It should also apply to people beyond the sample in the study.
Validity

- Different methods vary with regard to these two aspects of validity.

- Experiments, because they tend to be structured and controlled, are often high on internal validity. However, their strength with regard to structure and control, may result in low external validity. The results may be so limited as to prevent generalizing to other situations.

- In contrast, observational research may have high external validity (generalisability) because it has taken place in the real world. However, the presence of so many uncontrolled variables may lead to low internal validity in that we can't be sure which variables are affecting the observed behaviours.
Threats to Validity

- **History** – The occurrence of events that could alter the outcome.

- **Maturation** – Changes that occur in the subjects during the course of the study that might effect the results of the study.

- **Testing** – The possible effects of a pre-test on the results of a post-test.

- **Instrumentation** – The effects of an inconsistent use of a measurement instrument (e.g. 3 different interviewers).

- **Mortality** – Loss of subjects due to initial unavailability or subsequent withdrawal.

- **Selection** – Groups in a study may contain different characteristics which may effect the results.
Research for your Business Plan?

- What kinds of things do you need to find out?
  - What are the high growth area in the economy at the moment?
  - What are the keys to a successful business plan?
  - What are the critical success factors in starting a new business?
  - Will I be able to get the skills I need in Ireland?
  - What is my market potential?
  - Is it better to lease or buy plant/equipment or outsource manufacturing?
Group Exercise

Now that you have your business idea what research findings do you need to demonstrate that the idea is worth investing in?

Make a list.

How many of these findings already exist? (Lit Review)

What do you need to research to fill the gaps?