📄 Learning Statement A↓

Following the collection of data, social scientists need to transition our data from information into meaningful knowledge. The techniques that we use will depend on the nature of the data collected, and what story we intend to tell with this knowledge.

📄 Module Learning Questions A↓

1. What is the difference between generalisation and exceptionalism? What different stories do they allow a researcher to tell?
2. What is the process of analysing qualitative data?
3. What the process of analysing quantitative data?
4. How do we combine different knowledge to tell one story?

📁 Theory

📁 Action

Introduction to Data Analysis A⁺

Core terms

Data: Items or units of information collected through social research (always a plural word - you cannot have ONE 'data')

Data Collection: Gathering data from the sample so that the research questions can be answered (covered in Module 4)

Data Analysis: the management, analysis, and interpretation of the data (Module 5).

Qualitative data: information made up of words, pictures, objects, and meanings - used to describe and interpret social phenomena

Quantitative data: information made up of numbers - used to count social phenomena

Data Analysis

Data analysis is the stage of reseearch that incorporates several elements

1. Raw data have to be managed
   - Recordings of interviews need to be transcribed (a transcription is a "script" of the interview)
   - Questionnaire results must be entered into spreadsheets
   - Data need to be checked for any obvious flaws
2. Depending on the type of data and the intended endpoint of the research, different methods are used.
   - Quantiatative data go through the process of statistical analysis
   - Qualitative data are 'coded' and interpreted through a variety of different techniques that focus on themes, words and meanings
3. Data analysis is fundamentally about data reduction: reducing the large body of information that the researcher has gathered so that they can make sense of it. Unless the data is reduced, it is more or less impossible to interpret the material (imagine reading out every person's response to every question on a questionnaire everytime you wanted to talk about your research findings)
   - Quantitative data are reduced using tables, graaphs, or statistical scores (such as the average)
   - Qualitative data are recduced by grouping textual material or pictures into categories like themes

In this module, you will be exposed to both quantitative and qualitative data analysis techniques. Both need to be used in your Social Challenges Report.

Computational Thinking

All data analysis involves Computational Thinking (this doesn't mean you are a computer - rather your brain is the original, and most powerful, computer). There are 4 techniques foundational to computational thinking:

Computational Thinking

Decomposition

Pattern Recognition

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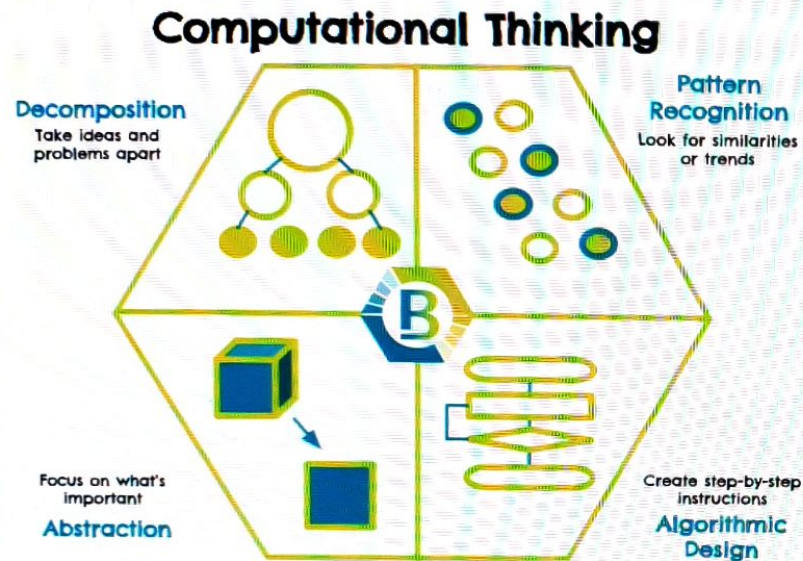3. Data analysis is fundamentally about data reduction: reducing the large body of information that the researcher has gathered so that they can make sense of it. Unless the data is reduced, it is more or less impossible to interpret the mater
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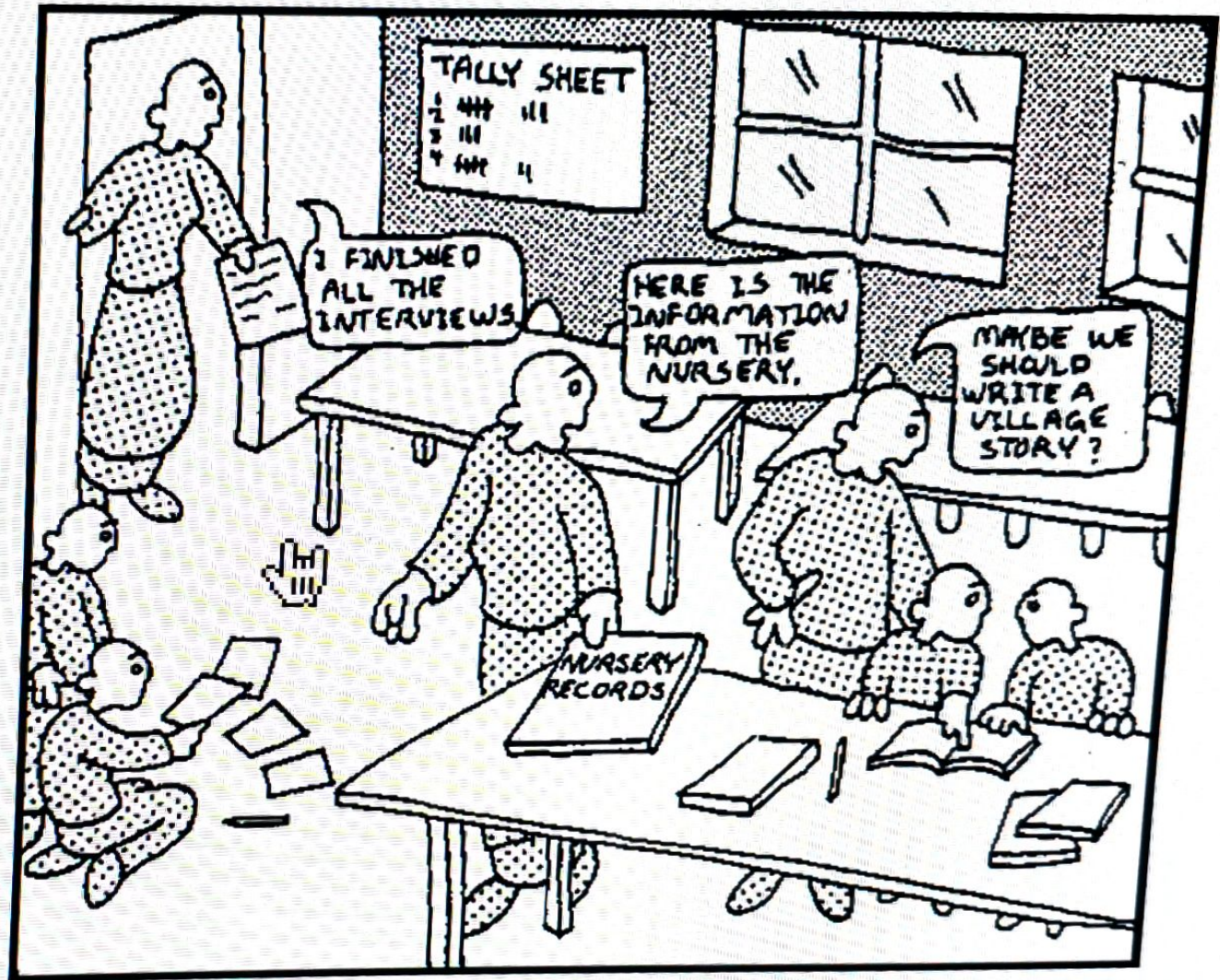

You can explore each of these through this useful web-resource reated by the BBC: https://www.bbc.co.uk/bitesize/guides/zp92mp3/revision/1
Pattern Recognition is the thought process that is particularly active during data analysis: as we look for the similarities and differences in our data.

- https://sites.google.com/isabc.ca/computationalthinking/pattern-recognition
- https://medium.com/tech-based-teaching/thinking-in-patterns-a-brief-intro-to-pattern-recognition-4c33258acad

Introduction to Analysing Qualitative Data A↓

Qualitative Data Analysis is a research procedure that:

    a. deals with data presented in textual, verbal and other formats
    b. contains little quantitative measurement, standardisation and statistical techniques
    c. aims to transform and interpret qualitative data in a rigorous and scholarly manner

In qualitative analysis. data are also seen as 'representations of human acts and utterances' and documents are also seen as data. (Sarant

Suggested Reading:

You would only need to read one of these chapters

Sarantakos, S. (2013) So   Research, (4th edition) New York, NY : Palgrave Macmillan, https://west-sydney-primo.hosted.exlibrisgroup

- Chapter 15: Qualitative Data Analysis (this can be accessed as an ebook through the library using the link above).

Bryman, A. (2012) Social Research Methods, (4th edutioin) Oxford: Oxford University Press,

- Chapter 24 Qualitative Data Analysis (**PDF of CHAPTER** A↓)

Video

An Introduction to Qualitative Data Analysis - Video 1

- Barbour, R., 2017. *Qualitative Data Analysis,* SAGE Video. [Streaming Video] London: SAGE Publications Ltd. Available at: <http://www.

Some of the Main Types of Qualitative Analysis A↓

1. Content analysis

'Content analysis' is used in qualitative research to provide an objective, systematic and quantified description of the data. Using this method, the researcher works through textual data identifying, coding and counting the presence of certain words, phrases, themes, characters or sentences. Coding categories can emerge directly from the text or can be predetermined, based on observation or background reading, for example. This method can include conceptual analysis (a concept is chosen for examination and the number of occurrences recorded) and relational analysis (the relationship between concepts is examined).

'Quantitative content analysis' of the visual is a procedure that is used to quantify visual images (and text) using reliable and previously defined categories that are exhaustive and mutually exclusive. It is a systematic method that is simple to administer, provides descriptions and enables comparisons to be made. Researchers can consider image priority (frequency, size or duration), bias in image placement or historical, social or cultural changes, for example. This type of content analysis is used to test a hypothesis.

'Inductive content analysis' of the visual, instead of testing a hypothesis and having predefined categories, uses an inductive approach to develop categories, identify themes and develop theory from the visual images.

2. Thematic analysis

'Thematic analysis' enables the researcher to work through textual data to identify specific themes (clusters of linked categories that convey similar meanings). To do this, categories are coded, counted, altered and modified in light of new data. Thematic analysis is a method favoured by students studying at beginner or intermediate level because the techniques are easily understood, flexible and not dependent on a specific epistemology or theoretical perspective. When conducting thematic analysis, you can look for:

- Repetition: Topics that recur again and again
- Indigenous typologies or categories: local expressions
- Metaphors and analogies: the ways that participants represent their thoughts in terms of metaphors/analogies
- Transitions: how topics shifts within and between data
- Similarities and differences: how interviewees discuss topics in different or similar ways to each other/over time
- Linguistic connectors: examining the use of 'because' or 'since'- causal connectors between ideas
- Missing data: reflecting on what is not in the data
- Theory-related material using social scientific concepts as a springboard for themes

3. Discourse analysis

'Discourse analysis' is a general term that is used to describe a number of different approaches to studying and analysing the uses of language. This can be written, vocal or sign language, for example. Different approaches include 'semiotics' (focusing on how signs and symbols create meaning), 'deconstruction' (exposing contradictions and binary opposites in texts through taking apart the structure of language) and 'narrative analysis' (focusing on how people construct and use stories to interpret the world).

4. Conversation analysis

'Conversation analysis' is the study of social interaction within conversation. The focus is on the construction of reality, rather than the discovery of reality. Researchers are interested in understanding how participants interact with each other, how they contribute during interactions and how they make sense of the contribution that others make during the interaction. The analysis is based on audio or visual recordings of interactions.

5. Narrative analysis

An approach to the elicitation and analysis of data that is sensitive to the sense of temporal sequence that people, as tellers of stories about their lives and experiences, detect in their lives and surrounding episodes and inject into their accounts. However, the approach is not exclusive to a on life histories. The focus shifts from 'what actually happened?' to 'how do people make sense of what happened?'

Coding - classifying material into themes, issues, topics, concepts, propositions A↓
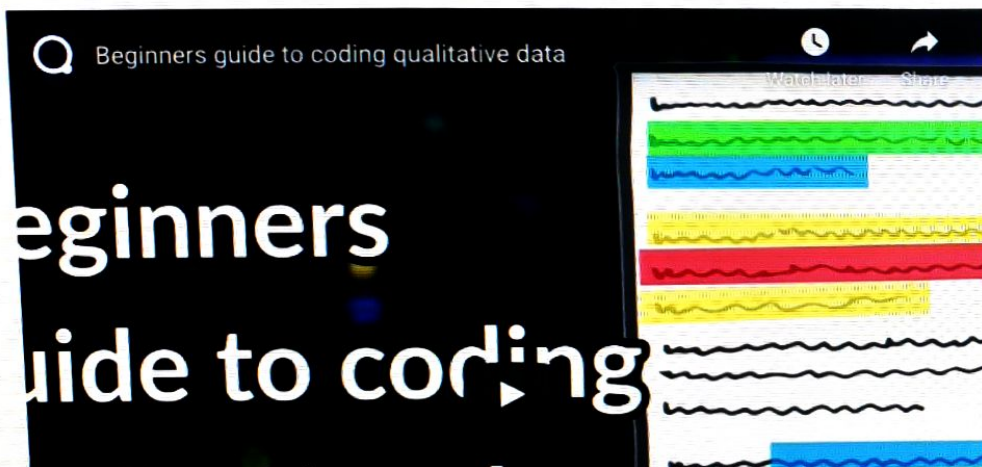
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'Coding' is the process of marking parts or passages of text (or visual images) that cover the same issue, topic, theme or concept. These are marked with a name, number or colour that is associated with a longer explanation of what the code means. There are different stages or levels of coding. These can include first-stage or first-level coding (main headings/parent code/descriptive codes) and second-stage or second-level coding (subheadings/child code/analytic codes), for example.

Coding cannot be done overnight. Many researchers re-read their notes many times before they can begin to grasp the major themes. Some of this coding may begin while the data is still being collected, as particular issues are raised consistently across interviews or during observations. This early coding assists the researcher to focus on essential features of the project as they develop.

Stages of Coding

1. Identify main themes/issues that arose in the interview •maybe use your questions as guide, as they will like mirror these
2. When you each start coding you will naturally create more 'branches', but are there sub-themes/issues that you can see/identify already.
3. As you work through your data, you code the words and phrases by 'highlighting' in different colours, or use symbols or 'cut and paste' directly into a coding t
4. Words/phrases can be coded multiple times (under different codes)

Video

Beginners guide to coding qualitative data