**Podcast to accompany ‘Handling data’ (Chapter 14) of Wilson’s edited book *School-based Research***

Do not underestimate the sheer quantity of data that you will rapidly gather during your research project. It is easy to find that you have collected so much data that you are not certain how to analyse it or write it up. It is best not to leave thinking about how you will make sense of the data until after the data has been collected. It should be part of your research plan informed by your reading and thinking about what to look for in your data. In most studies it is appropriate to start to analyse your data as you collect it. Sequential studies will have this built into the design and a subsequent part of the study might depend on it. Even if you are collecting data concurrently, at the same time, preliminary analysis will allow you to start to gain insights and identify puzzles which might lead you to collect further data or discuss with participants and/or colleagues before the study is complete.

Be systematic in making sense of what you have collected. You will be involved in four main stages of data handling. Firstly, data reduction. This involves the selection referred to in the previous chapter as you focus in on data which offers useful insights to your research questions. Secondly, data analysis. This involves looking for patterns in the data and drawing out themes, so interpreting the data. Thirdly, data synthesis. This relates in part to the ideas of triangulation, discussed in the previous chapter’s podcast, as you draw out key findings from within and across data sources in answer to the research questions. Fourthly, data display. In reporting your study, you will need to summarise the evidence that backs up the claims you make and makes clear the patterns, themes, relationships between factors and any puzzles to share with a reader.

To avoid being overwhelmed by the sheer amount of data that you have collected, don’t lose sight of why you are doing the research and what you are trying to find out. This is the role of having research questions and the data planning grid, discussed in Chapter 11. Chapter 14 offers ways of thinking about and representing what you have collected and suggests using diagrams, sketches of things, people and happenings to show different ideas, identify the relationships between evidence and form clusters or groupings of evidence.

 The chapter is divided into ‘working mainly with numbers’ and ‘working mainly with words’.

When working with numbers (or quantitative data) you may be simply summarising by generating descriptive statistics of the data you have collected, for example, its range and/or standard deviation. This might see you dividing the data up in different ways, for example by gender or age or other data item characteristic, and exploring whether any patterns emerge. You may want to go further and use statistical methods that are appropriate to reduce the data, look for patterns and/or identity relationships between variables. You need to check that, when working in small-scale studies, that these are appropriate to use. This will require you to reflect on whether you are indeed sampling any definable population or rather whether you are just summarising data from within a particular context. If you are working with small samples, you could still apply these tests, for example t or X2 tests, but ensure that you don’t claim any statistical significance of the results and reflect on the tentativeness of any patterns. You might simply want to summarise the data using tables or one of the many choices of chart/graph applicable to numerical data. When you are choosing the most appropriate to include when reporting your study, ensure that you choose the form that most clearly represents what you want to show and that it makes sense. Pie charts are only useful for example if you can subdivide a sample and account for all sections of it. Also, when sharing your summaries of data ensure that all aspects of the chart or graph are fully labelled. In particular include the number of responses that the data in that table/chart refers to. A range of forms of summarising and displaying numerical data are included in Chapter 14.

The best way of moving from raw qualitative data, such as interview transcripts or journal entries, to meaningful understanding is through becoming immersed in the data. In other words, you need to spend time reading and re-reading your data to try to look for themes that run through it. What you look for will in part be informed by what you read prior to collecting the data and in part by what strikes you as relevant to your research questions. You then need to interpret the implications of these themes for your research project. Ian Dey (1993) refers to the metaphor of making an omelette to help explain the process of qualitative data analysis. To make an omelette you need to break the eggs (a metaphor for the process of classifying), then you need to mix them (so the connecting) and then, after heating (perhaps akin to synthesis) a new product, the omelette is made. Obviously this metaphor, as all, has its limitations.

There are two main approaches to qualitative data analysis which can be used separately or combined. These are called ‘deductive’ and ‘inductive’.

A **deductive** approach to data analysis refers to when a researcher has a clear picture of what they are looking for in the data. This is often because they have derived a clear set of categories or relationships from previously published work, or their own previous work, that they want to apply to the particular setting they are now studying. If you are using this approach you will need to look for evidence that confirms these prior categories or supports this framework, looking to exemplify, clarify and illuminate the themes of interest. You also need to remember to pay attention to new categories and evidence that appears not to fit in with the original conceptual model.

An **inductive** approach to data analysis applies to when a researcher extracts themes, factors and relationships from the data they immerse themselves in. If you are not sure about what you are looking for, perhaps because there was little literature available relevant to your research focus and/or your context, then you need to go in open-minded and explore the data. You need to find what themes come out of the data developing categories as you go, linked to concrete ‘bits’ of data. This will allow your participants’ voices to be heard. If you are truly open to what you find you may need to adapt your research design and collect further data.

As indicated earlier, even deductive approaches tend to be open to an inductive component as they accommodate data which surprises the researcher looking for matches with a previous framework of ideas.

As with numerical data, chapter 8 includes a range of ways of representing qualitative data, including the analysis of visual data.

**In summary, the key ideas in this chapter are that you should present your findings in ways that capture the key ideas at a glance. Using figures such as diagrams, tables, graphs, charts or maps are useful ways to show and emphasize information when reporting your study. They can be used to compile data in an orderly way or to amplify a point and are a useful tool to help your readers understand complex data. Figures that are supportive, rather than essential, to your developing lines of argument can be appended, rather than being included in the body of the report, so that the continuity of your writing is not broken up. Remember to avoid including tables and figures without referring to them in the text and make sure that you discuss the information represented in the diagrams, tables, graphs, charts and maps. Remember also to produce tables and figures that can stand alone, so that the text should be readable without figures, and vice versa.**

**Reference:**

Dey, I. (1993) *Qualitative data analysis: a user friendly guide for social scientists*. London: Routledge.

**This podcast lasts 8 minutes 28 secs.**