
Topic ► Qualitative 9 Data Analysis

LEARNING OUTCOMES

By the end of this topic, you should be able to:

1. Define what is qualitative data analysis;
2. Compare approaches in analysing qualitative data;
3. Describe the stages involved in qualitative data analysis; and
4. Develop categories in the qualitative data analysis.

► INTRODUCTION

The Leadership Behaviour of a Principal as Perceived by Teachers in a School

The following are probable qualitative data collection methods that could be used to investigate the above topic:

- field notes from observations of staff meetings
- focus groups interview transcripts
- copies of diary entries teachers have been asked to complete each day
- researcher memos and reflections
- audio recordings

The above is an example of a qualitative study investigating the leadership behaviour of a principal. Note the range of techniques employed to study the principal. At the end of study you will have large piles of field notes, audio

recordings, documents (minutes of staff meetings), dairy entries and reflections sitting on your desk waiting to be analysed. How do you go about making some sense of qualitative? Qualitative data is mostly in the form of words and narratives, while some may include visual images, audio and video recordings.

Quantitative data is usually a mass of *numbers* that is processed, summarised and presented in the form of tables, charts and graphs. Data may be cross tabulated while the means and standard deviations are calculated to establish significant differences; and correlations coefficients used to determine relationships. Based on these initial findings, more advanced statistical procedures such as multivariate analysis may be performed to seek patterns and relationships in the data if the research question demands it.

What about qualitative data? How is qualitative data analysed? Qualitative data is a mass of *words* obtained from recordings of interviews, fieldnotes of observations, and analysis of documents as well as reflective notes of the researcher. This mass of information have to be organised, summarised, described and interpreted. Any statistical package will not tell you which of the many statistical tests to use to analyse numerical data. Similarly, there are many different ways of analysing qualitative data as there are qualitative researchers doing it. However, there is more agreement in the analysis of quantitative data and there is less agreement on how to analyse qualitative data. Different researchers have proposed different ways of analysing qualitative data. Fortunately, there are some common procedures in the analysis of qualitative data.

Generally, since numbers are not used, the qualitative researcher looks for categories or themes from the raw data to describe and explain phenomena. He/she analyses the relationships and patterns between the categories or themes that have been identified. These categories or themes may be derived using two approaches:

- Deductively – whereby at the very beginning or half-way through you identify the categories or themes and ‘fit’ the data into the categories and themes.
- Inductively – whereby the categories or themes are allowed to ‘emerge’ from the data gradually. This has been termed as ‘grounded theory’ [*We will discuss this later in the chapter*].

9.1 STAGES IN QUALITATIVE DATA ANALYSIS

The stages in the analysis of qualitative data are shown in Figure 9.1. It usually begins with familiarisation of the data, transcription, organisation, coding, analysis (grounded theory or framework analysis) and reporting (though the order may vary).

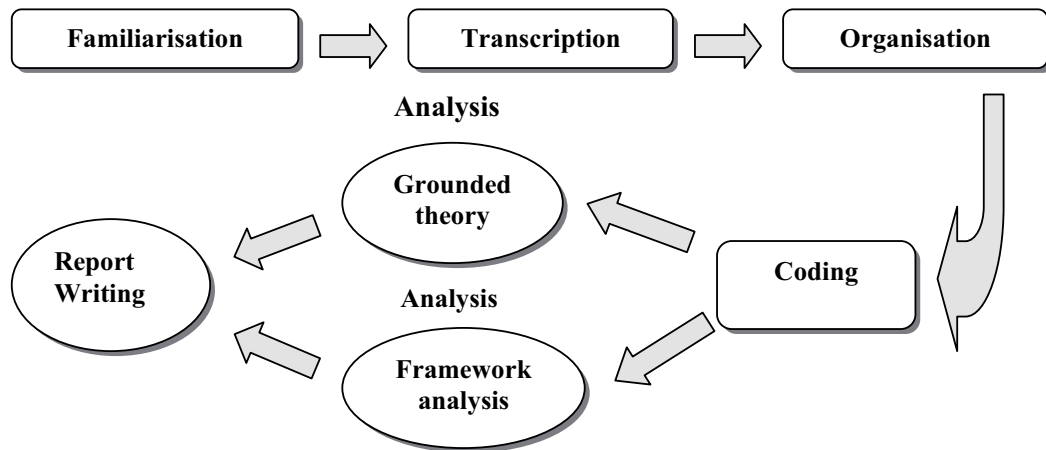


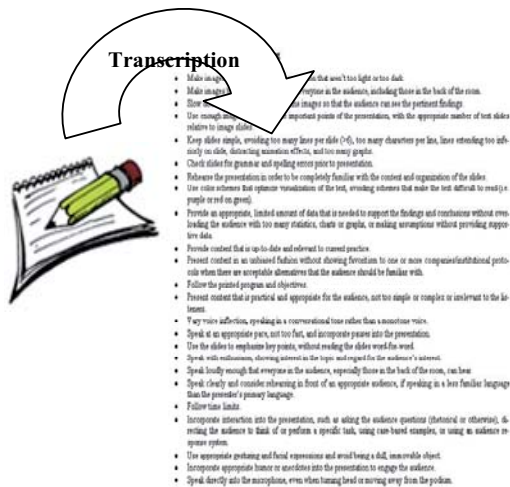
Figure 9.1: Stages in qualitative data analysis

(a) **Familiarisation**

The first step of data analysis is familiarisation in which you listen to tapes and watch video material, reading and re-reading the field notes, making memos and summaries before formal analysis begins. This is especially important when, besides you, others were also involved in data collection. You have got to be familiar with the field notes they made (perhaps trying to decipher their handwriting!).

(b) **Transcription**

Almost all qualitative research studies involve some degree of transcription. What is transcription? Transcription is the process of converting audio or video-recorded data obtained from interviews and focus groups as well as handwritten fieldnotes into verbatim form (i.e. written or printed) for easy reading. Why do you have to do this? If you were to analyse direct from an audio or video recording, there is the likelihood that you will include those sections that seem relevant or interesting to you and ignore others. With a transcript of everything that you observed and recorded (audio, video or fieldnotes), you get the whole picture of what happened and the chances of your analysis being biased is minimised.



You should not forget to include **non-verbal cues** in the transcript such as silence (which may indicate embarrassment or emotional distress), pause for thought (such as ‘well...er...I suppose...’) laughter, gestures (which may add meaning to the spoken word) and so forth. If someone else is transcribing your material, make sure to tell him or her how much of this non-verbal information to include. If you have never transcribed material, it is a useful to do a little yourself [*Try doing Activity 9.1*].



ACTIVITY 9.1

Find a member of your family, or a friend or colleague and interview the person for about 10 minutes concerning ‘What are the characteristics of a good teacher?’. Try to probe what it is that makes good teacher. Tape record the interview, then transcribe into a word processor in your own time, including as much non-verbal material as you can.

1. How long did the transcription take you, compared with the original interview?
2. Highlight the non-verbal communication you were able to include. What does it tell you, in addition to the words you have recorded?
3. Look at the questions you asked, and any comments you made. Had you at any point led the respondent in any way, or missed important clues given by the respondent.
4. Listen to the tape again, with the transcript in front of you. Did you change any of the words from the tape? Did you transcribe everything accurately?

(c) Organisation

After transcription, it is necessary to organise your data into sections that is easy to retrieve. What does this mean? Say for example, in your study you interviewed 10 teachers (30 minutes each) on their opinion about the leadership style of their principal. It is advisable that you give each teacher a pseudonym (e.g. Elvis, Jagger, Dina ...*not their real name*) or referred to

by a code number (e.g. T1, T2.....T10). You need to keep a file that links the pseudonym or code number to the original informants which be kept confidential and destroyed after completion of the research. Names and other identifiable material should be removed from the transcripts.

The narrative data you obtained from the 10 teachers needs to be numbered depending on your unit of analysis. In other words, you have to determine whether you intend to analyse at the word level, sentence level of paragraph level and they have to be numbered accordingly. Make sure that the unit of text you use can be traced back to its original context.

You have at your disposal TWO approaches to analysis the data.

- (i) If you are interested in conducting an exploratory study and are more concerned with theory generation, than the **grounded theory approach** should be your choice of analysis.
- (ii) If you are interested in finding answers to pre-determined questions (a priori questions) than **framework analysis** would be the logical option.



SELF-CHECK 9.1

What do you mean by *familiarisation*, *transcription* and *organisation* in the analysis of qualitative data?

(d) Coding

Coding is the process of examining the raw qualitative data in the transcripts and extracting sections of text units (words, phrases, sentences or paragraphs) and assigning different codes. This is done by marking sections of the transcript and giving a numerical reference, symbol, descriptive words or category words. Most of the text (or transcript) will be marked and given different codes which will be later refined or combined to form themes or categories. To help you with the practicalities of coding, you could:

- (i) *Cut and Paste* – you can literally cut your transcripts into smaller unit of analysis which could be individual words, phrases, sentences or paragraphs. You could paste these text units on to cards which you could sort and re-sort easily. Keep in mind that each text unit needs to be traceable to its original context. Sometimes, a text unit may have to be sorted into two different categories or theme. So you will need to

make several copies of a text unit to be sorted into two or more categories.

- (ii) *Colour code* – you could also use highlighting pens to highlight text units or coloured pens to underline units of text. There could be a problem when there are hundreds of text units and you will need hundreds of colours which could pose a problem differentiating the colours. The advantage of using coloured pens or highlighters is that you do not need to cut up the transcripts. Colour coding would be the choice if you do not have too many categories or text units.
- (iii) *Combination* – perhaps a preferred technique would be to use a combination of cut and paste and colour coding.

(e) **Analysis (Grounded Theory Approach)**

Based on the research questions and your objective for conducting the study, you determine the approach of analysing the data. If you are interested in generating theory and not sure what to expect, the grounded theory approach would be a logical choice. The *grounded theory approach* offers a rigorous approach in generating theory from qualitative data. It is particularly well suited for exploratory studies where little is known.

Grounded theory evolved from the work of sociologists Glaser and Strauss (1967). Grounded theory is a method and approach in doing qualitative research. It is an inductive method of qualitative research in which theory is systematically generated from data. However, many studies in education, business, management and in the health field (especially in nursing), have adopted grounded theory as a procedure for conceptualising and analysing data without taking on the whole methodology. The appeal of grounded theory analysis is that it allows for the theory to ‘*emerge*’ from the data through a process of rigorous analysis (see Figure 9.1). The word ‘theory’ is used to mean the relationships that exist among concepts that comes from the data and helps us understand our social world more clearly (Strauss and Corbin, 1998).

The main feature of the grounded theory procedure is the use of the *constant comparison technique*. Using this technique, categories or concepts that emerge from one stage of analysis are compared with categories or concepts that emerge from the previous stage (see Figure 9.2). The researcher continues with this technique until what is called ‘*theoretical saturation*’ is reached or no new significant categories or concepts emerge. The grounded theory procedure is cyclical involving frequent revisiting of data in the light of emergence of new categories or concepts as data analysis

progresses. The theory that develops is best seen as provisional until proven by the data and validation from others.

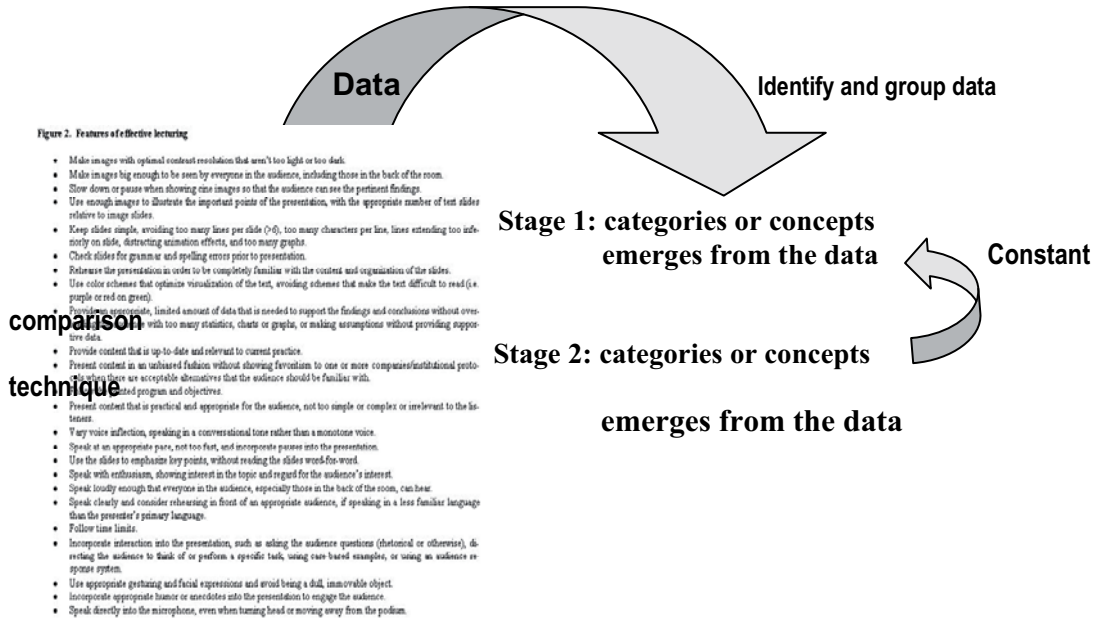


Figure 9.2: The Grounded Theory Approach in Qualitative Data Analysis

Strauss and Corbin (1998) suggest what is called open coding. *Open coding* is where you 'sweep' through the data and marking the text. It is a good idea to leave a column at the side of your data so you can write your codes next to the segments you are coding. Let's assume you are interested in how a group of teachers view the behaviour of their principal in staff meetings. Refer to an extract of an interview with a teacher and the key phrases extracted as show in the right margin.

<p>R: How long have you been a teacher in this school? T: For about 10 years. R: Your principle, how would you describe him? T: Quite a <u>hot-tempered guy</u>. R: What do you mean hot-tempered? T: Well, in the last staff meeting, I objected to his idea of cutting down the number of fieldtrips for students. He argued that that it was too much of a responsibility for the school. Also, it was getting more and more expensive for the school. R: What happened than? T: Before I could say anything, he <u>lost his cool</u> and <u>came for me</u>. He <u>refused to listen</u> to what I had to say....he <u>just went on and on</u>. R: What do you think? T: Personally, I think it was <u>not fair</u> of him to <u>scold me</u>. After all this is a democracy and he should at least listen to what I had to say. It was very unpleasant and many of my colleagues were very disturbed over the incident. R: How do the others feel? T: Many of us prefer to keep quite and suffer in silence. You know, he is quite close with the higher-ups. Anyone who questions his decisions <u>are ridiculed</u> You know he determines whether we get promoted or not. You know, it's the usual thing! R: How often does this happen? T: Almost always.....all meetings becomes <u>a one man show</u> ...it's all ...talk....talk.</p>	<p><u>Extraction of key phrases</u></p> <p><i>hot-tempered</i></p> <p><i>lost his cool</i> <i>refused to listen</i> <i>just went on and on</i></p> <p><i>not fair</i> <i>scold</i></p> <p><i>ridiculed</i> <i>for</i> <i>questioning</i></p>
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You have uncovered eight descriptions of behaviour and the following codes are assigned.

- B1 – hot tempered;
- B2 – lost his cool
- B3 – **refused to listen**
- B4 – just went on and on
- B6 – scolds
- B7 – ridiculed for questioning
- B8 – **one man show**

Next you may want to recode the eight descriptions into one or two categories or themes. In other words, the category or theme emerges from the data. You may have to assign a name for the category or theme. In this example, B3 and B8 could be recoded to A1 and assigned the category or theme “self-centred”. You go on doing this until you have exhausted the data in terms of developing any new codes.

(f) **Analysis (Framework Analysis Approach)**

Another approach to qualitative data analysis is called *framework analysis* (Ritchie & Spencer, 1994). In contrast to the grounded theory procedure, framework analysis was explicitly developed for applied research. In

applied research, the findings and recommendations of research need to be obtained with a short period to be adopted. The general approach of framework analysis shares many of the common features with the grounded theory approach discussed earlier. This approach to qualitative data analysis allows the researcher to set the categories and themes from the beginning of the study. However, this approach also allows for categories and themes that may emerge during data analysis which the researcher had not stated at the beginning of the study.

Once the categories to themes have been pre-determined, specific pieces of data are identified which correspond to the different themes or categories. For a change, let us take an example from medicine. You may want to know, for instance, about how people who had had a heart attack conceptualise the causes of the attack. From existing literature, you may know that these can be divided into physical causes, psychological causes, ideas of luck, genetic inheritance and so forth. You interview people who have had a heart attack and from the interview transcript you search the data for material that could be coded under these headings.

Using the headings, you can create charts of your data so that you can easily read across the whole dataset. Charts can be either *thematic* for each theme or category across all respondents (cases) or by case for each respondent across all themes:

(i) **Thematic Chart**

THEME	Case 2	Case 3
<i>Psychological cause</i>	<i>'The stress at office is too much. Got to work late''</i>	<i>'Business was bad. Had to close shop'</i>

(ii) **Case Chart**

	Theme 1 Genetic inheritance	Theme 2 Physical cause
CASE 1	<i>'My younger brother and father died of a heart attack'</i>	<i>'I hardly do any exercise. I too busy to do any exercise'</i>

In the chart boxes, you could put line and page references to relevant passages in the interview transcript. You might also want to include some text; e.g. key words or quotations as a reminder of what is being referred to (see the charts above). For example, under the theme Psychological Causes,

Case 2 talked about 'stress in the workplace' while Case 3 talked about 'business failure'.



SELF-CHECK 9.2

What is the difference between the *grounded theory approach* and the *framework analysis approach* in the analysis of qualitative data?

9.2 WRITING THE QUALITATIVE RESEARCH REPORT

The writing qualitative research reports are as follows:

(a) **Introducing your Study**

- (i) Begin with something interesting, e.g. a quote or story, to capture the reader's interest.
- (ii) Introduce your question or curiosity. What is it that you want to know or understand? How did you get interested in the topic?
- (iii) Tell why there's a need for the study. Cite relevant literature that calls for the need for the research in this area, or demonstrates the lack of attention to the topic. In your own words, describe how you think this study will be useful.
- (iv) Describe the intended audience for your research (e.g., the public, family therapists).

(b) **Research Method**

- (i) Identify and generally describe your research method (e.g. ethnographic field study, single case study), and your research procedures (e.g. long interviews, observation, etc).
- (ii) Cite the major authors who have described your research method.
- (iii) Explain how you will select your subjects and gained entry into the research context (if relevant).
- (iv) Describe the procedures you took to protect the rights of your subjects (e.g. informed consent, human subject's approval, debriefing, etc).
- (v) Describe the kind of relationship you had with the subjects. Will you be neutral, collaborative or objective?

- (vi) Describe the kind of data you collected (e.g. field notes from memory, audio tapes, video tapes, transcripts of conversations, examination of existing documents, etc).
- (vii) Describe the procedures used in data collection. If interviews were used, list your question(s) or attach as an appendix. Describe any equipment used.
- (viii) Describe the procedures you used to keep track of the research process. E.g. your audit trail.
 - Process notes: Day to day activities, methodological notes, or decision making procedures.
 - Materials relating to intentions and reactions: personal notes about motivations, experiences with informants, etc.
 - Instrument development information: revisions of interview questions, etc.
- (ix) Describe your data analysis procedures (coding, sorting, etc.)
 - Data reduction: Write-ups of field notes, transcription procedures and conventions, computer programs used, etc.
 - Data reconstruction: development of categories, findings, conclusions, connections to existing literature, integration of concepts.
- (x) Describe how you ensure "reliability" and "validity." For mention whether you used triangulation, member checking, peer debriefing, or auditing.
- (xi) Summarise and reference all of the relevant literature that you have reviewed.
- (xii) Describe how you reviewed the literature and how it has influenced the way you approached the research.
- (xiii) Discuss how your previous experience with your topic has influenced the way you have conceptualized this research.
- (xiv) Summarise relevant personal and professional experiences, if you have not done so in the Introduction.

Analysing qualitative data is not a simple or quick task. Done properly, it is systematic and rigorous, and therefore labour-intensive and time-consuming. The major element of qualitative analysis is to find, build, clarify, illustrate and explain an argument or issue. The analysis should take the form of a research

essay containing certain expected elements: How you introduce them and sequence the elements must be logical and help readers to “get it”.

An adequate research report not only explains but also persuades. Being persuasive is very much an issue of good clear writing. The way you write should help readers to “see for themselves” what you claim to find in and make of the data. The evidence is the data you collected and from which you choose carefully an excerpt or excerpts to illustrate “points” in your report. It must be the right and sufficient data to illustrate clearly and logically what is being claimed. Also, the relevant evidence must be presented within a description that displays in narrative form “the point” being made. Successful qualitative analysis tells a good, absorbing, and understandable *story*. It story makes sense because you have made an effort to do so and you have communicated this to your reader.

The bottom line is *credibility*. It refers to the accuracy of your description as show in your report. It should be remembered that words are all you have to describe phenomenon unlike quantitative research which uses number to describe phenomenon. If you want to convince your reader that the findings you obtained are credible (or accurate) you need to state precisely the parameters of the study. What is meant by parameters? Parameters involve who was studied, where and when, and methods used. If you are able to state these aspects clearly, you enhance the credibility of the study.

SUMMARY

- Qualitative data is a mass of words obtained from recordings of interviews, fieldnotes of observations, and analysis of documents as well as reflective notes of the researcher.
- Familiarisation is when you listen to tapes and watch video material, reading and re-reading the field notes, making memos and summaries before formal analysis begins.
- Transcription is the process of converting audio or video-recorded data obtained from interviews and focus groups as well as handwritten fieldnotes into verbatim form.
- After transcription, it is necessary to organise your data into sections that is easy to retrieve.

- Coding is the process of examining the raw qualitative data in the transcripts and extracting sections of text units (words, phrases, sentences or paragraphs) and assigning different codes.
- Grounded theory is a method and approach in doing qualitative research. It is an inductive method of qualitative research in which theory is systematically generated from data.
- The Framework analysis approach allows the researcher to set the categories and themes from the beginning of the study.

KEY TERMS

Case chart	Grounded theory approach
Coding	Organisation
Familiarisation	Qualitative data
Framework analysis approach	Thematic chart



DISCUSSION

1. When would you use the grounded theory approach instead of the framework analysis approach when analysing qualitative data?
2. What are some of the elements you should include when writing a qualitative research report?
3. Conduct a 20 minute observation of a classroom (primary or secondary) and jot down in a notebook whatever you see. Analyse the data using either the grounded theory approach or the framework analysis approach.



READINGS

Internet Resources

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