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| **Topic 10b: Analysing Qualitative Data** |

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| **Introduction**  |

The key areas of learning in this topic are:

* It is distinguished from quantitative data analysis, as any kind of analysis that produces findings or concepts and hypotheses that are not arrived by statistical.
* Data from qualitative approach can be derived from different research strategies such as grounded theory, case study, ethnography, or descriptive approach.
* Data are not gathered from hypotheses or theories but from the sites and participants in the selected environment.
* Data are analysed to reach a central phenomenon and to the development of a theory.
* There is no strong emphasis towards statistical approach but there is a need for triangulation for internal validity and reliability.
	1. **Qualitative data**

Glaser (1992) defined qualitative analysis as ‘any kind of analysis that produces findings or concepts and hypotheses, as in grounded theory, that are not arrived at by statistical methods’.

Grounded theory is a research design, a method that has been used to reach a theory or conclusion through the process of observation of behavioural changes of a participant (e.g. a drug addict) over a period of time. It is very much an inductive approach. The research started without any preconceived ideas of what theories might be developed from the data. This grounded theory was developed by two sociologists – Barney Glaser and Anselm Strauss (1967). It stressed the fact that the theory is based on actual field data from participants but not from discovering the concepts of variables and hypotheses (as seen in quantitative approach).

Qualitative data analysis is very much exploratory in nature. The likelihood is that you have gathered a huge amount of data, then you may face with the problem with what to include and what to discard from your data. In order to avoid this kind of situation, you need to have a clear ‘plan’ of the steps that need to be addressed to analyse your data in an effective manner. Unfortunately there is no definitive series of steps applicable to qualitative data analysis. This implies that there are many approaches in qualitative research e.g. in case study/multiple case study, grounded theory, ethnography and narrative research.

One key ingredient is you need to transcribe the qualitative data derived from an interview or a field note taken from observational research into a computer. Essentially this is the first stage in the analytical process and requires a great deal of time and patience before moving on to the next step in your analysis.

Before you move on to do your data analysis, you need to have a clear idea as to your research approach. Have you decided to adopt an inductive or deductive approach to analysing your qualitative findings? If you decide to use the inductive analysis then you have to develop categories of your data/findings that emerge from field notes, documents and interviews. These are categories that arise after the gathering of data but not from those imposed before the collection of data.

If you decide to follow a deductive approach in your qualitative analysis, then you will start with a predetermined set of categories. Then try to see relationships in them to reach your conclusion which is the theory you are attempting to reach in your research study.

* 1. **Steps in Qualitative Analysis**

1. Transcribing your data

This is immensely a time consuming process. You have to make sure that you transcribe exactly your respondents’ answers. This must be in the ***verbatim*** answers from your respondents. Be careful not to make any changes to the wording because it may lose the clarity of the answer. After having fully transcribed your data you are ready to begin to organise your data.

Next, if you have carried out observational research, then the first stage in your qualitative analysis is likely to be markedly different from that of data arising from interviews. In the first place, there is no verbal data, but observational data. Your analysis of the observational data will be trying to reducing the data until you are familiar with them. Each phase of data analysis requires data reduction to bring meaning and insight to the words and acts of the participants in the study (Marshall and Rossman, 1995:113).

Patton (1990: 374-375) makes a distinction between data collection methods (i.e. observations and interviews) when considering qualitative analysis. Analytical considerations when analysing data from observation can be summarised as follows:

* Critical/major elements: Present the data by critical incidents or major events – not necessary in the order of occurrence but in the order of importance.
* Various settings: Describe various places, sites, settings or locations (doing case studies of each) before doing cross-setting pattern analysis.
* People: If individuals or groups are the primary unit of analysis then case studies of people or groups may be the focus for case studies.
* Processes: The data may be organized to describe important processes. e.g. control, recruitment, decision-making, socialization, communication.
* Issues: The observations may be pulled together to illuminate key issues, often the equivalent of the primary evaluation questions, such as how participants changed.

Whether analysing observational or interview data, essentially this first step is all about organizing your data into a manageable form and keep into a software package to facilitate analysis later on. (Note: data could be obtained through questionnaires. The more research methods/instruments are used helps to improve the quality of the data as seen in qualitative research triangulation plays an important role to improve the credibility of the data.)

It is imperative that before you start analyse your data, you must become ‘familiar’ with your data. That means you have to really read your data for the next step of the analytical process.

2. Reading and Generating Categories, Themes and Patterns

Reading through and understanding your data is an imperative aspect of qualitative analysis in order to enable you to find the key parts/areas and identify common patterns or themes. This aspect will lead you to the next important development of the qualitative analysis process i.e. the coding.

3. Approaches to coding your data

A code is a key word, theme or category within your transcript or notes. The idea of coding is to rearrange the data into categories in order to develop theoretical concepts (Strauss, 1987:29).

Coding enables you to identify categories and subcategories.

There are two types of coding of data – emergent coding (inductive) and a prior coding (deductive). Emergent coding implies that your categories are developed from your data, whereas a prior coding implies that your categories are determined before your analysis. The important development of coding is to breakdown your raw data into something more manageable and meaningful. There are, however, three types of coding:

* open coding – labelling and categorizing your data.
* axial coding - basing on relating categories with subcategories.
* selective coding – basing on identifying a core category that represents the main theme of the research i.e. the focal category to have been generated from the data.

The purpose of coding procedures can be summarised as follows:

* build rather than test theory;
* provide researchers with analytic tools for handling masses of raw data;
* help analysts to consider alternative meanings of phenomenon;
* be systematic and creative simultaneously; and
* identify, develop and relate the concepts that are the building blocks of theory.

(Strauss and Corbin, 1990: 13)

4. Interpreting your Findings

We have seen the stages in the qualitative analysis process – transcribing the collected data,

finding of themes and patterns and coding of data. This aspect is the engagement in interpretation of the findings. What does it involve?

A major part of the interpretation of your data is looking for connections between categories that you have identified within each transcript. The types of questions that you might ask yourself concerning each category include:

* Is there a relationship between categories?
* How important are these relationships?
* Is this consistent with previous research?
* Why are there differences or similarities between categories?

These are questions that are challenging and rewarding to your research study. Able to explain especially an insight aspect of your findings can be extremely important and useful in your research topic.

* 1. **Quantifying Qualitative Data: Content Analysis**

If you decide to quantify your qualitative data, the approach you are likely to adopt is undertaking frequency counts. Simply counting the number of times that a word, phrase or theme is raised by a research participant, is an example of quantifying qualitative data. Another method is content analysis.

‘Content analysis is a way of systematically converting text to numerical variables for quantitative data analysis’ (Collis and Hussey, 2003:250). Content analysis usually involves the following steps:

1. Identify the unit of analysis – recording unit, sentence or paragraph.
2. Choose categories that are relevant to the issues being studied. They must be reliable, so that if someone else repeated the analysis they would find the same information (increased reliability).
3. Once you have chosen your categories, read through the material, and apply these codes to units of text.
4. Tabulate the material. Present the categories and list the assertions under them.

Content analysis can be applied to examine patterns in your data. It is used as word frequency counts. The advantage of content analysis is the ability to explore what is said (e.g. context) and not said (e.g. form) in successive stages of the interview (Merton and Kendall, 1949:541).

A major potential limitation is that frequency counts may include words that are used out of context or worlds that have multiple meanings (e.g. an institution can refer to a university, or a private or public sector organisation). A respondent’s level of English may also mean that certain words and phrases are used more frequently as a result of ‘limited’ English language capability.

Advantages of content analysis:

* It is relatively straightforward.
* It is an unobtrusive method of data collection;
* It can provide interesting insights into how language is used to convey meaning.
* Finally it is useful for looking at frequencies of words and their change infrequncy over tome. It can be used for analysing historical trends, e.g. mention of the Internet in marketing magazines over the last ten years.

***Which Qualitative Approach Should I use to analyse my Data?***

There is no one best approach to qualitative data analysis. The approach largely depends on the nature of your research topic and your research objectives. For example, if your main purpose is to compare your findings to those of an earlier study, then this may well dictate how you analyse your raw data. You are likely to engage in deductive approach to your analysis. Your analysis may not necessarily need to be a straightforward choice between inductive and deductive methods. When coding your data, you may wish to have a predetermined set of codes (a deductive approach) but also to develop new codes and subsequent categories as you proceed in your analysis (an inductive approach). In short, the approach that you adopt often comes down to personal preference. Nevertheless, some approaches to qualitative analysis, such as grounded theory, are more challenging than others. As we have established, grounded theory is particularly challenging because of the time involved, and it generally commands an excellent grasp of the literature.

**An Overview of Qualitative Research**

There is no clear distinction between qualitative research from quantitative research.

However three distinct differences between the two have been highlighted:

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| Quantitative data | Qualitative data |
| 1. Based on meanings derived from numbers
 | 1. Based on meanings expressed through  words |
| 1. Collection results in numerical and standardised data
 | 1. Collection results in non-standardised data requiring classification into categories
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| 1. Analysis conducted through the use of diagrams and statistics
 | 3. Analysis conducted through the use of  conceptualisation |

The nature of qualitative data has implications for both its collection and its analysis. To be able to capture the richness and fullness associated with qualitative data they cannot be collected in a standardised way, like that of quantitative data. During analysis, the non-standardised and complex nature of the data collected need to be classified into categories before they can be meaningfully analysed. It may be possible to make use of diagrams and statistics at this stage, such as the frequency of occurrence of certain categories of data and the way to analyse the qualitative data collected is done through the creation of a conceptual framework (research model). This is usually formulated before or during the data collection.

The analysis of qualitative data involves a demanding process and should not be seen as an ‘easy option’.

Marshall and Rossman (1999) have advised that data analysis should be considered:

1. at the time the researcher is formulating a proposal to undertake qualitative research and
2. the act of analysing qualitative data should occur at the same time as the data are collected and continue to do so after the data are collected.

Tesch (1990) has grouped the many strategies to analyse qualitative data into 4 main categories:

1. understanding the characteristics of language;
2. discovering regularities;
3. comprehending the meaning of text or action;
4. reflection.

These categories indicate a number of broad ways of differentiating approaches to qualitative analysis. The first two categories are associated with analytic strategies that require greater structure and set procedures to follow, in comparison with the second two categories. In fact the first two categories are associated with deductive approach where data categories and codes to analyse data are derived from theory and predetermined analytical framework. On the other hand, the second two categories are associated with inductive approach without predetermined categories and codes to direct the analysis of the data collected. The distinction between the two approaches in qualitative analysis of data is shown diagrammatical as follows:

 Less structured More structured

 Interpretivist Procedural

 Inductive Deductive

These different approaches to qualitative analysis indicate different analytic strategies are used to analyse the qualitative data. However there are common features in those approaches that are highly or fairly highly structured and procedural. E.g. one common feature is categorising of data collected into meaningful parts. This rearranging and analysing of data systematically and rigorously is actually transforming the nature of the data collected in order to allow the researcher to:

1. comphrehend and manage them;
2. integrate related data drawn from different transcript and notes;
3. identify key themes or patterns from them for further exploration;
4. develop and/or test hypotheses based on these apparent patterns or relationships;
5. draw and verify conclusions.

The general activities involved in qualitative analysis are:

* categorisation
* ‘unitising’ data;
* recognising relationships and developing the categories you are using to facilitate this;
* developing and testing hypotheses to reach conclusions.
* Categorisation

The first activity is the classification of the data into meaningful categories. These categories are in fact the codes or labels to rearrange the data. They provide an emergent structure that is relevant to the research project to organise and analyse the data further. The identification of these categories can be guided by the research question and objectives of the research project. The categories must form a well-structured, analytical framework for the analysis to be done. Dey (1993;96-97) states that ‘categories must have two aspects, an internal aspect – they must be meaningful in relation to the data – and an external aspect - they must be meaningful in relation to the other categories’. As the analysis develops, a more hierarchical approach to the categorisation of the data appears.

* ‘Unitising’ data

The next activity of the analytical process is to put the relevant data into the appropriate

category or categories. This is referred to as forming ‘units’ of data. A unit of data can

be a number of words, a sentence, a number of sentences, a complete paragraph, or some

other chunk of textual data that fits the category. This is actually a selective process

which has the effect of reducing and rearranging the data gathered into a more

manageable and comprehensive form. One way to bring about the reduction and

rearrangement of the data is to use analytical techniques such as matrices, charts, graphs

and networks. Using these analytical techniques may enable the researcher to recognise

emergent patterns in the data gathered that will provide the researcher with an indication

about how to further the data collection.

* Recognising relationships and developing categories

Generating categories and reorganising the data according to the categories is actually engaging in analysing the data gathered. This analysis will continue as the researcher look for themes and patterns or relationships in the rearranged data. This may even lead the researcher to alter the categories or relationships as he searches for meaning in his data set. He may decide to subdivide or integrate categories as ways to refining or focusing. In qualitative analysis the idea is to come out with a more hierarchical structure by categorising and coding of the data gathered to reach an explanation for the research question and objectives that form the focus of the research study.

* Developing and testing hypotheses

As the researcher is seeking to come out with patterns within the data gathered and recognising relationships between the categories he will be able to develop hypotheses in order to test them.

According to Silverman, a hypothesis is a ‘testable proposition’. The appearance of an apparent relationship or connection between categories will need to be tested if the researcher wants to reach a conclusion that there is actual relationship between the categories.

It is important to test the hypothesis that emerges inductively from the data. Looking for new explanations and seeking to explain why negative cases occur, so that the researcher can move towards the development of valid and well-grounded conclusions.

**The Interactive Nature of the Process**

The course of events outlined above demonstrate that data collection, data analysis and the development and verification of relationships and conclusions are very much an interrelated and interactive set of processes. Analysis occurs during the collection of data as well as after it. This analysis helps to shape the direction of data collection, especially where the inductive, grounded approach is being followed.

Furthermore the interactive nature of data collection and analysis allow you to recognise important themes, patterns and relationship are present in the cases where the data are collected. It can also guide you to adjust future data collection .

The concurrent process of data collection and data analysis has implications for the way in which you will need to manage your time and organise you data and related documentation. It will be necessary arrange interviews or observation with enough time between them to allow yourself sufficient time to write up or type a transcript, or set of notes and to analyse this before proceeding to your next data collection session.