

CHAPTER 15

Processing Data

In this chapter you will learn about:

- Methods for processing data in quantitative studies
- How to edit data and prepare data for coding
- How to code data
- How to code qualitative data in quantitative studies
- Methods for processing data in qualitative studies
- Analysing data in qualitative and quantitative studies
- The role of computers in data analysis
- The role of statistics in research

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If you were actually doing a research study, you would by now have reached a stage where you have either extracted or collected the required information. The next step is what to do with this information. How do you find the answers to your research questions? How do you make sense of the information collected? How do you prove or disprove your hypothesis if you had one? How should the information be analysed to achieve the objectives of your study? To answer these questions you need to subject your data to a number of procedures that constitute the core of data processing ([Figure 15.1](#)).

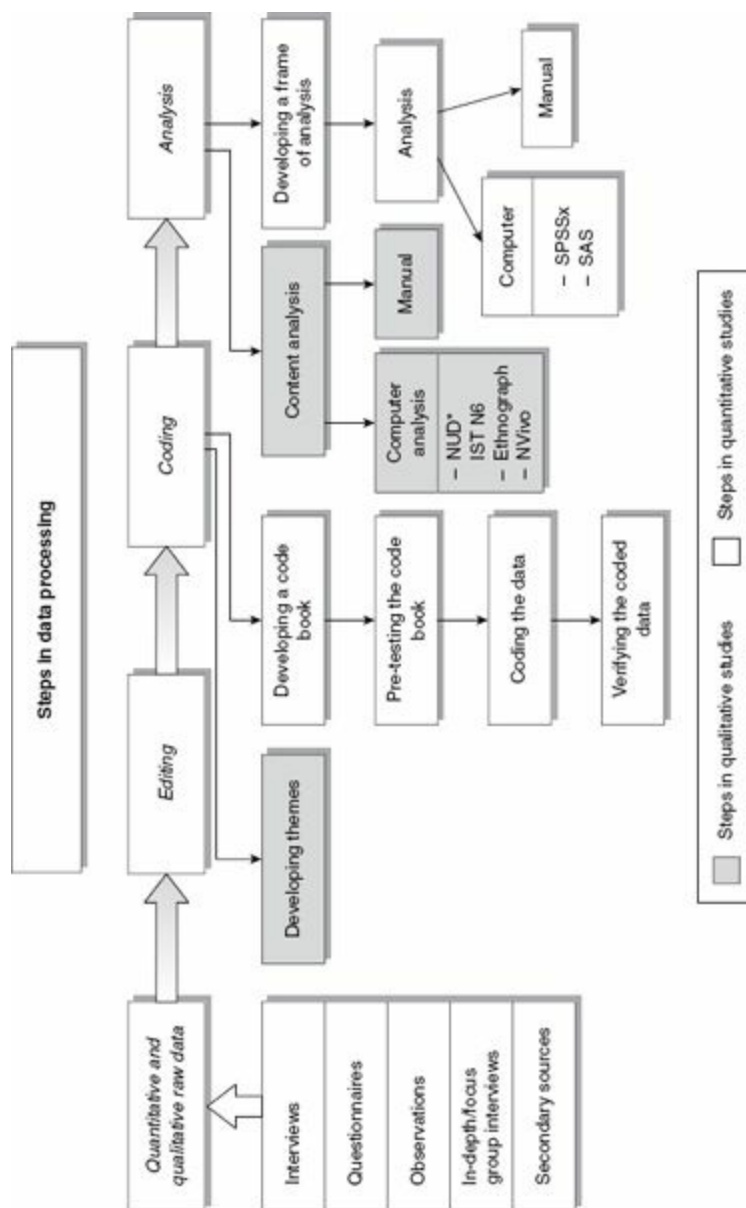


FIGURE 15.1 *Steps in data processing*

These procedures are the same whether your study is quantitative or qualitative, but what you do within each procedure is different. For both types of study you need to visualise how you are going to present your findings to your readership in light of its background and the purpose of the study. You need to decide what type of analysis would be appropriate for the readers of your report. It is in light of the purpose of your study and your impression about the level of understanding of your readership that you decide the type of analysis you should undertake. For example, there is no point in doing a sophisticated statistical analysis if your readers are not familiar with statistical procedures. In quantitative research the main emphasis in data analysis is to decide how you are going to analyse information obtained in response to each question that you asked of your respondents. In qualitative research the focus is on what should be the basis of analysis of the information obtained; that is, is it contents, discourse, narrative or event analysis? Because of the different techniques used in processing data in quantitative and qualitative research, this chapter is divided into two parts. Part One deals with data processing in quantitative studies and Part Two with qualitative.

Part one: Data processing in quantitative studies

Editing

Irrespective of the method of data collection, the information collected is called *raw data* or simply *data*. The first step in processing your data is to ensure that the data is 'clean' – that is, free from inconsistencies and incompleteness. This process of 'cleaning' is called **editing**.

Editing consists of scrutinising the completed research instruments to identify and minimise, as far as possible, errors, incompleteness, misclassification and gaps in the information obtained from the respondents. Sometimes even the best investigators can:

- forget to ask a question;
- forget to record a response;
- wrongly classify a response;
- write only half a response;
- write illegibly.

In the case of a questionnaire, similar problems can crop up. These problems to a great extent can be reduced simply by (1) checking the contents for completeness, and (2) checking the responses for internal consistency.

The way you check the contents for completeness depends upon the way the data has been collected. In the case of an interview, just checking the interview schedule for the above problems may improve the quality of the data. It is good practice for an interviewer to take a few moments to peruse responses for possible incompleteness and inconsistencies. In the case of a questionnaire, again, just by carefully checking the responses some of the problems may be reduced. There are several ways of minimising such problems:

- **By inference** – Certain questions in a research instrument may be related to one another and it might be possible to find out the answer to one question from the answer to another. Of course, you must be careful about making such inferences or you may introduce new errors into the data.
- **By recall** – If the data is collected by means of interviews, sometimes it might be possible for the interviewer to recall a respondent's answers. Again, you must be extremely careful.
- **By going back to the respondent** – If the data has been collected by means of interviews or the questionnaires contain some identifying information, it is possible to visit or phone a respondent to confirm or ascertain an answer. This is, of course, expensive and time consuming.

There are two ways of editing the data:

1. examine all the answers to one question or variable at a time;
2. examine all the responses given to all the questions by one respondent at a time.

The author prefers the second method as it provides a total picture of the responses, which also helps you to assess their internal consistency.

Coding

Having ‘cleaned’ the data, the next step is to code it. The method of **coding** is largely dictated by two considerations:

1. the way a variable has been measured (measurement scale) in your research instrument (e.g. if a response to a question is descriptive, categorical or quantitative);
2. the way you want to communicate the findings about a variable to your readers.

For coding, the first level of distinction is whether a set of data is qualitative or quantitative in nature. For qualitative data a further distinction is whether the information is descriptive in nature (e.g. a description of a service to a community, a case history) or is generated through discrete qualitative categories. For example, the following information about a respondent is in discrete qualitative categories: income – above average, average, below average; gender – male, female; religion – Christian, Hindu, Muslim, Buddhist, etc.; or attitude towards an issue – strongly favourable, favourable, uncertain, unfavourable, strongly unfavourable. Each of these variables is measured either on a **nominal scale** or an **ordinal scale**. Some of them could also have been measured on a **ratio scale** or an **interval scale**. For example, income can be measured in dollars (ratio scale), or an attitude towards an issue can be measured on an interval or a ratio scale. The way you proceed with the coding depends upon the measurement scale used in the measurement of a variable and whether a question is open-ended or closed.

In addition, the types of statistical procedures that can be applied to a set of information to a large extent depend upon the measurement scale on which a variable was measured in the research instrument. For example, you can find out different statistical descriptors such as mean, mode and median if income is measured on a ratio scale, but not if it is measured on an ordinal or a nominal scale. It is extremely important to understand that the way you are able to analyse a set of information is dependent upon the measurement scale used in the research instrument for measuring a variable. It is therefore important to visualise – particularly at the planning stage when constructing the research instrument – the way you are going to communicate your findings.

How you can analyse information obtained in response to a question depends upon how a question was asked, and how a respondent answered it. In other words, it depends upon the measurement scale on which a response can be measured/classified. If you study answers given by your respondents in reply to a question, you will realise that almost all responses can be classified into one of the following three categories:

1. quantitative responses;
2. categorical responses (which may be quantitative or qualitative);
3. descriptive responses (which are invariably qualitative – keep in mind that this is qualitative data collected as part of quantitative research and not the qualitative research).

For the purpose of analysis, quantitative and categorical responses need to be dealt with differently from descriptive ones. Both quantitative and categorical information go through a process that is primarily aimed at transforming the information into numerical values, called *codes*, so that the information can be easily analysed, either manually or by computers. On the other hand, descriptive information first goes through a process called *content analysis*, whereby you identify the main themes that emerge from the descriptions given by respondents in answer to questions. Having

identified the main themes, there are three ways that you can deal with them: (1) you can examine verbatim responses and integrate them with the text of your report to either support or contradict your argument; (2) you can assign a code to each theme and count how frequently each has occurred; and (3) you can combine both methods to communicate your findings. This is your choice, and it is based on your impression of the preference of your readers.

For coding quantitative and qualitative data in quantitative studies you need to go through the following steps:

Step I developing a code book;

Step II pre-testing the code book;

Step III coding the data;

Step IV verifying the coded data.

Step I: Developing a code book

A **code book** provides a set of rules for assigning numerical values to answers obtained from respondents. Let us take an example. [Figure 15.2](#) lists some questions taken from a questionnaire used in a survey conducted by the author to ascertain the impact of occupational redeployment on an individual. The questions selected should be sufficient to serve as a prototype for developing a code book, as they cover the various issues involved in the process.

1 Please indicate:

(a) Your current age in completed years: _____

(c) Your marital status: (Please tick)

Currently married _____

Living in a de facto relationship _____

Separated _____

Divorced _____

Never married _____

2 (b) If tertiary/university, please specify the level achieved and area of study.
(Please specify all postgraduate qualifications.)

Level of achievement	Area of study: e.g. engineering, accounting
Associate diploma	
Diploma	
Bachelor	
Graduate diploma	
Masters	
PhD	

11 What, in your opinion, are the main differences between your jobs prior to and after redeployment?

12 We would like to know your perception of the two jobs *before* and *after* redeployment with respect to the following aspects of your job. Please rate them on a five-point scale using the following guide:
5 = extremely satisfied, 4 = very satisfied, 3 = satisfied, 2 = dissatisfied, 1 = extremely dissatisfied

Before redeployment					Areas	After redeployment				
1	2	3	4	5		1	2	3	4	5
					Job status					
					Job satisfaction					
					Motivation to work					
					Interest in the job					
					Self-esteem					
					Professional competence					
					Peer interaction					
					Morale					
					Work environment					
					Social interaction					

FIGURE 15.2 Example of questions from a survey

There are two formats for data entry: ‘fixed’ and ‘free’. In this chapter we will be using the fixed format to illustrate how to develop a code book. The fixed format stipulates that a piece of information obtained from a respondent is entered in a specific column. Each column has a number and the ‘Col. no.’ in the code book refers to the column in which a specific type of information is to be entered. The information about an individual is thus entered in a row(s) comprising these columns.

For a beginner it is important to understand the structure of a code book (Table 15.1), which is based on the responses given to the questions listed in Figure 15.2.

In Table 15.1, *column 1* refers to the columns in which a particular piece of information is to be entered. Allocation of columns in a fixed format is extremely important because, when you write a program, you need to specify the column in which a particular piece of information is entered so that the computer can perform the required procedures.

Column 2 identifies the question number in the research instrument for which the information is being coded. This is primarily to identify coding with the question number in the instrument.

Column 3 refers to the name of the variable. Each variable in a program is given a unique name so that the program can carry out the requested statistical procedures. Usually there are restrictions on the way you can name a variable (e.g. the number of characters you can use to name a variable and whether you use the alphabet or numerals). You need to check your program for this. It is advisable to

name a variable in such a way that you can easily recognise it from its name.

Column 4 lists the responses to the various questions. Developing a response pattern for the questions is the most important, difficult and time-consuming part of developing a code book. The degree of difficulty in developing a response pattern differs with the types of questions in your research instrument (open ended or closed). If a question is closed, the response pattern has already been developed as part of the instrument construction and all you need to do at this stage is to assign a numerical value to each response category. In terms of analysis, this is one of the main advantages of closed questions. If a closed question includes 'other' as one of the response categories, to accommodate any response that you may not have listed when developing the instrument, you should analyse the responses and assign them to non-overlapping categories in the same way as you would do for open-ended questions. Add these to the already developed response categories and assign each a numerical value.

If the number of responses to a question is less than nine, you need only one column to code the responses, and if it is more than nine but less than 99, you need two columns (column 1 in the code book). But if a question asks respondents to give more than one response, the number of columns assigned should be in accordance with the number of responses to be coded. If there are, say, eight possible responses to a particular question and a respondent is asked to give three responses, you need three columns to code the responses to the question. Let us assume there are 12 possible responses to a question. To code each response you need two columns and, therefore, to code three responses you need six columns.

The coding of open-ended questions is more difficult. Coding of open-ended questions requires the response categories to be developed first through a process called content analysis. One of the easier ways of analysing open-ended questions is to select a number of interview schedules/questionnaires randomly from the total completed interview schedules or questionnaires received. Then select an open-ended question from one of these schedules or questionnaires and write down the response(s) on a sheet of paper. If the person has given more than one response, write them separately on the same sheet. Similarly, from the same questionnaire/schedule select another open-ended question and write down the responses given on a separate sheet. In the same way you can select other open-ended questions and write down the response(s). Remember that the response to each question should be written on a separate sheet. Now select another questionnaire/interview schedule and go through the same process, adding response(s) given for the same question on the sheet for that question. Continue the process until you feel that the responses are being repeated and you are getting no or very few new ones – that is, when you have reached a saturation point.

TABLE 15.1 *An example of a code book*

Col. no. 1	Q. no. 2	Variable name 3	Response pattern 4	Code 5
1-3	S. no.	ID	Actual serial number	Code actual
4	Record no.	RNO	First record	1
			Second record	2
			Third record	3
5	1(a)	Age	20-24	1
			25-29	2
			30-34	3
			35-39	4
			40-44	5
			45-49	6
			No response	9
6	1(c)	MS	Currently married	1
			Living in a de facto relationship	2
			Separated	3
			Divorced	4
			Never married	5
			No response	9
	2(b)	TEDU	Assoc. Dip.	1
			Diploma	2
			Bachelors	3
			Grad. Dip.	4
			Masters	5
			PhD	6
			Not applicable	8
			No response	9
7		TEDU1	Same as in TEDU	Code
8		TEDU2	Same as in TEDU	as in
9		TEDU3	Same as in TEDU	TEDU
		STUDY	Behavioural Sciences	1
			Business	2
			Economics/Commerce	3
			Communication	4
			Engineering	5
			Geography	6
			History	7
			Graphics	8
			Librarianship	9
			Nursing	10
			Performing Arts	11
			Secretarial	12
			Social Work	13
			Psychology	14
			Education	15
			Chartered Acct.	16
			Zoology	17
			Anthropology	18
			Social Sciences	19
			Public/Health Admin.	20
			English	21
			Audio-visual Aids Education	22

			Not applicable	88
			No response	99
10-11	2(b)	STUDY 1	Same as in STUDY	Code as in STUDY
12-13		STUDY 2	Same as in STUDY	
14-15	11	STUDY 3	Same as in STUDY	
		DIFWK	Lack of job satisfaction	
			- current job	01
			- previous job	02
			Less responsibility	
			- current job	03
			- previous job	04
			Low morale	
			- current job	05
			- previous job	06
			Lack of recognition of hard work	
			-current job	07
			- previous job	08
			Skills irrelevant	
			- current job	09
			- previous job	10
			Repetitious nature	
			-current job	11
			-previous job	12
			Job more segmented	
			-current job	13
			-previous job	14
			Reduction in occup. status	15
			Greater involvement in total process	
			- current job	16
			- previous job	17
			More restricted duties	
			- current job	18
		- previous job	19	
		Less flexibility		
		- current job	20	
		- previous job	21	
		More people contact		
		- current job	22	
		- previous job	23	
		Less people contact		
		- current job	24	
		- previous job	25	
		More responsibility		
		- current job	26	
		- previous job	27	
		Better work environment		
		- current job	28	

- previous job	29
Better work morale	
- current job	30
- previous job	31
Working in a team	
- current job	32
- previous job	33
Work as an individual	
- current job	34
- previous job	35
Lack of job security	
- current job	36
- previous job	37
Current job full-time	38
Better career prospects	
- current job	39
- previous job	40
No commonality	41
Different working conditions	42
Change in occup. status (not specified)	43
High occup. level	
- current job	44
- previous job	45
More job security in present job	46
More professional environment in	
- current job	47
- previous job	48
Different skills to learn in current job	49
Higher workload	
- current job	50
- previous job	51
Less supervision in	
- current job	52
- previous job	53
Current job more relevant to my training	54
Current job more rewarding	55
Better morale in current job	56
Greater variety of duties in	
- current job	57
- previous job	58
Current job more rewarding	59
Better morale in	
- current job	60
Less variety of tasks	

			in current job	61
			Fewer skills required in	
			- current job	62
			- previous job	63
			Change in job title	64
			Previous job very demanding	65
			Opportunity to use initiative	
			in previous job	66
			Current job does not	
			require initiative	67
			Different skills required	
			in current job	68
			No career prospects	
			- current job	69
			- previous job	70
			More professional environment	
			in current job	71
			Different skills to learn in current job	72
			Different working conditions	73
			Change in occup. status	
			(change not specified)	74
			Change in job resp. (change	
			not specified)	75
			Current job is more	
			structured	76
			Now part of the team	77
			No change	78
			Irrelevant response	79
			Other	80
			Not applicable	88
			No response	99
16-17	11	DIFWK1	Same as in DIFWK	code as
18-19		DIFWK2	Same as in DIFWK	in
20-21		DIFWK3	Same as in DIFWK	DIFWK
22-23		DIFWK4		
24-25		DIFWK5		
			Extremely dissatisfied	1
			Dissatisfied	2
	12	BEAFTER	Satisfied	3
			Very satisfied	4
			Extremely satisfied	5
			Same as in BEAFTER	
	26	JOBSTA	Same as in BEAFTER	Code as
	27	JOBSTB	Same as in BEAFTER	in
				BEAFTER
	28	JOBSATA	Same as in BEAFTER	Code as in
	29	JOBSATB	Same as in BEAFTER	BEAFTER
			and so on	

Now, one by one, examine the responses to each question to ascertain the similarities and differences. If two or more responses are similar in meaning though not necessarily in language, try to combine them under one category. Give a name to the category that is descriptive of the responses. Remember, when you code the data you code categories, *not* responses per se. It is advisable to write down the different responses under each category in the code book so that, while coding, you know the type of responses you have grouped under a category. In developing these categories there are three important considerations:

1. The categories should be *mutually* exclusive. Develop non-overlapping categories. A response should not be able to be placed within two categories.
2. The categories should be *exhaustive*; that is, almost every response should be able to be placed within one of the categories. If too many responses cannot be so categorised, it is an indication of ineffective categorisation. In such a situation you should examine your categories again.
3. The use of the 'other' category, effectively a 'waste basket' for those odd responses that cannot be put into any category, must be kept to the absolute minimum because, as mentioned, it reflects the failure of the classification system. This category should not include more than 5 per cent of the total responses and should not contain any more responses than any other category.

Column 5 lists the actual codes of the code book that you decide to assign to a response. You can assign any numerical value to any response so long as you do not repeat it for another response within the same question. Two responses to questions are commonly repeated: ‘not applicable’ and ‘no response’. You should select a number that can be used for these responses for all or most questions. For example, responses such as ‘not applicable’ and ‘no response’ could be given a code of 8 and 9 respectively, even though the responses to a question may be limited to only 2 or 3. In other words, suppose you want to code the gender of a respondent and you have decided to code female = 1 and male = 2. For ‘no response’, instead of assigning a code of 3, assign a code of 9. This suggestion helps in remembering codes, which will help to increase your speed in coding.

To explain how to code, let us take the questions listed in the example in [Figure 15.2](#). We will take each question one by one to detail the process.

Question 1(a)

Your current age in completed years: _____

This is an open-ended quantitative question. In questions like this it is important to determine the range of responses – the respondent with the lowest and the respondent with the highest age. To do this, go through a number of questionnaires/interview schedules. Once the range is established, divide it into a number of categories. The categories developed are dependent upon a number of considerations such as the purpose of analysis, the way you want to communicate the findings of your study and whether the findings are going to be compared with those of another study. Let us assume that the range in the study is 23 to 49 years and assume that you develop the following categories to suit your purpose: 20–24, 25–29, 30–34, 35–39, 40–44 and 45–49. If your range is correct you should need no other categories. Let us assume that you decide to code 20–24 = 1, 25–29 = 2, 30–34 = 3, and so on. To accommodate ‘no response’ you decide to assign a code of 9. Let us assume you decided to code the responses to this question in column 5 of the code sheet.

Question 1(c)

Your marital status: (Please tick)

Currently married _____

Living in a de facto relationship _____

Separated _____

Divorced _____

Never married _____

This is a closed categorical question. That is, the response pattern is already provided. In these situations you just need to assign a numerical value to each category. For example, you may decide to code ‘currently married’ = 1, ‘living in a de facto relationship’ = 2, ‘separated’ = 3, ‘divorced’ = 4 and ‘never married’ = 5. You may add ‘no response’ as another category and assign it with a code of 9. The response to this question is coded in column 6 of the code sheet.

Question 2(b)

If tertiary/university, please specify the level achieved and the area of study. (Please specify all postgraduate qualifications.)

In this question a respondent is asked to indicate the area in which s/he has achieved a tertiary qualification. The question asks for two aspects: (1) level of achievement, which is categorical; and (2) area of study, which is open ended. Also, a person may have more than one qualification which makes it a multiple response question. In such questions both aspects of the question are to be coded. In this case, this means the level of achievement (e.g. associate diploma, diploma) and the area of study (e.g. engineering, accounting). When coding multiple responses, decide on the maximum possible number of responses to be coded. Let us assume you code a maximum number of three levels of tertiary education. (This would depend upon the maximum number of levels of achievement identified by the study population.) Firstly, code the levels of achievement TEDU (TEDU: T = tertiary and EDU = education; the naming of the variable – ‘level of achievement’ – in this manner is done for easy identification) and then the area of Study, STUDY (the variable name given to the ‘area of study’ = STUDY). In the above example, let us assume that you decided to code three levels of achievement. To distinguish them from each other we call the first level TEDU1, the second TEDU2 and the third TEDU3, and decide to code them in columns, 7, 8 and 9 respectively. Similarly, the names given to the three areas of STUDY1, STUDY2, STUDY3 and we decide to code them in columns 10–11, 12–13 and 14–15. The codes (01 to 23) assigned to different qualifications are listed in the code book. If a respondent has only one qualification, the question of second and third qualification is not applicable and you need to decide a code for ‘not applicable’. Assume you assigned a code of 88. ‘No response’ would then be assigned a code of 99 for this question.

Question 11

What, in your opinion, are the main differences between your jobs prior to and after redeployment?

This is an open-ended question. To code this you need to go through the process of content analysis as explained earlier. Within the scope of this chapter it is not possible to explain the details, but response categories that have been listed are based upon the responses given by 109 respondents to the survey on occupational redeployment. In coding questions like this, on the one hand you need to keep the variation in the respondents’ answers and, on the other, you want to break them up into meaningful categories to identify the commonalities. Because this question is asking respondents to identify the differences between their jobs before and after redeployment, for easy identification let us assume this variable was named DIFWK (DIF = difference and WK = work). Responses to this question are listed in [Figure 15.3](#). These responses have been selected at random from the questionnaires returned.

A close examination of these responses reveals that a number of themes are common, for example: ‘learning new skills in the new job’; ‘challenging tasks are missing from the new position’; ‘more

secure in the present job'; 'more interaction in the present job'; 'less responsibility'; 'more variety'; 'no difference'; 'more satisfying'. There are many similar themes that hold for both the before and after jobs. Therefore, we developed these themes for 'current job' and 'previous job'.

One of the main differences between qualitative and quantitative research is the way responses are used in the report. In qualitative research the responses are normally used either verbatim or are organised under certain themes and the actual responses are provided to substantiate them.

In quantitative research the responses are examined, common themes are identified, the themes are named (or categories are developed) and the responses given by respondents are classified under these themes. The data then can also be analysed to determine the frequency of the themes if so desired. It is also possible to analyse the themes in relation to some other characteristics such as age, education and income of the study population.

Respondent 3
Hours now FT: totally different skills required; deal with public; busier, more structured day and duties; now a part of the team instead of an independent worker.'

Respondent 20
'That I am happy and made to feel as though I am a valuable part of a team.'

Respondent 41
'This one is great, other one was lousy due to mismanagement, poor morale and feelings that dedication and hard work counted for nothing. Department of ... is well managed and morale is good and the graphic design work is fun and I am supported by my supervisors and subordinates.'

Respondent 48

<i>Before</i>	<i>After</i>
<i>15 hours per week</i>	<i>24 hours per week</i>
<i>Monday to Friday</i>	<i>Very satisfactory</i>
<i>On the go the whole time</i>	<i>Dealing with the public</i>
<i>No sitting</i>	<i>Dealing with severe psychiatric</i>
<i>Dealings with the public</i>	<i>patients can be very stressful'</i>

Respondent 52
'No difference.'

Respondent 54
'My substantive position has been the same before and after the redeployment, but before the redeployment I was acting as Project Manager (level 5) and after being redeployed I was assigned to programming duties (level e).'

Respondent 63
'This position has more day-to-day administration (it includes corporate services, finance, PR, IT, etc).'

Respondent 69
'Had to find my own job.'

Respondent 72
'The job I was doing I looked after the needs of a workshop where in this job I process files and deliver them.'

Respondent 78
'Challenging tasks are missing from the new position now that I am familiar with it. Many routine activities (that I have been glad to learn in terms of career development) but that I am becoming bored with. My previous job was much more difficult and interesting than this one.'

Respondent 79
'I am more secure in my present job and it is better paid as I work longer hours now. I only worked 6 1/2 hours as a tea attendant.'

Respondent 81
'My previous job required me to be involved in the whole area of government/community and non-government requiring assistance in relation to settlement needs of migrants. My current position does not provide job satisfaction, particularly in relation to the offenders that I currently deal with.'

Respondent 97
'Less responsibility, more specific job, restricted job.'

Respondent 105
'More variety, more flexibility, more responsibility in the present job, but less confidence, more caution and some resentment.'

FIGURE 15.3 *Some selected responses to the open-ended question (no. 11) in Figure 15.2*

The code book lists the themes developed on the basis of responses given. As you can see, many categories may result. The author's advice is not to worry about this as categories can always be combined later if required. The reverse is impossible unless you go back to the raw data.

Let us assume you want to code up to five responses to this question and that you have decided to name these five variables as DIFWK1 DIFWK2, DIFWK3, DIFWK4 and DIFWK5. Let us also assume that

you have coded them in columns 16–17, 18–19, 20–21, 22–23 and 24–25 respectively.

Question 12

We would like to know your level of satisfaction with the two jobs *before* and *after* redeployment with respect to the following aspects of your job. Please rate them on a five-point scale using the following guide:

5 = extremely satisfied, 4 = very satisfied, 3 = satisfied, 2 = dissatisfied, 1 = extremely dissatisfied

This is a highly structured question asking respondents to compare on a five-point ordinal scale their level of satisfaction with various areas of their job before and after redeployment. As we are gauging the level of satisfaction before and after redeployment, respondents are expected to give two responses to each area. In this example let us assume you have used the name JOBSTA for job status after redeployment (JOB = job, ST = status and A = after redeployment) and JOBSTB for before redeployment (JOB = job, ST = status and B = before redeployment). Similarly, for the second area, job satisfaction, you have decided that the variable name, JOBSATA (JOB = job, SAT = satisfaction and A = after), will stand for the level of job satisfaction after redeployment and JOBSATB will stand for the level before redeployment. Other variable names have been similarly assigned. In this example the variable, JOBSTA, is entered in column 26, JOBSTA in column 27, and so on.

Step II: Pre-testing the code book

Once a code book is designed, it is important to pre-test it for any problems before you code your data. A **pre-test** involves selecting a few questionnaires/interview schedules and actually coding the responses to ascertain any problems in coding. It is possible that you may not have provided for some responses and therefore will be unable to code them. Change your code book, if you need to, in light of the pre-test.

Step III: Coding the data

Once your code book is finalised, the next step is to code the raw data. There are three ways of doing this:

1. coding on the questionnaires/interview schedule itself, if space for coding was provided at the time of constructing the research instrument;
2. coding on separate code sheets that are available for purchase;
3. coding directly into the computer using a program such as SPSSx, SAS.

To explain the process of coding let us take the same questions that were used in developing the code book. We select three questionnaires at random from a total of 109 respondents ([Figures 15.4](#),

15.5, 15.6). Using the code book as a guide, we code the information from these sheets onto the coding sheet (Figure 15.7). Let us examine the coding process by taking respondent 3 (Figure 15.4).

Respondent 3

The total number of respondents is more than 99 and this is the third questionnaire, so 003 was given as the identification number which is coded in columns 1–3 (Figure 15.7). Because it is the first record for this respondent, 1 was coded in column 4. This respondent is 49 years of age and falls in the category 45–49, which was coded as 6. As the information on age is entered in column 5, 6 was coded in this column of the code sheet. The marital status of this person is ‘divorced’, hence 4 was coded in column 6. This person has a Bachelors degree in librarianship. The code chosen for a Bachelors degree is 3, which was entered in column 7. Three tertiary qualifications have been provided for, and as this person does not have any other qualifications, TEDU2 TEDU3 are not applicable, and therefore a code of 8 is entered in columns 8 and 9. This person’s Bachelors degree is in librarianship for which code 09 was assigned and entered in columns 10–11. Since there is only one qualification, STUDY2 and STUDY3 are not applicable; therefore, a code of 88 was entered in columns 12–13 and 14–15. This person has given a number of responses to question no. 11 (DIFWK), which asks respondents to list the main differences between their jobs before and after redeployment. In coding such questions much caution is required.

Examine the responses named DIFWK1, DIFWK2, DIFWK3, DIFWK4, DIFWK5, to identify the codes that can be assigned. A code of 22 (now deal with public) was assigned to one of the responses, which we enter in columns 16–17. The second difference, DIFWK2, was assigned a code of 69 (totally different skill required), which is coded in columns 18–19.

DIFWK3 was assigned a code of 77 (current job more structure) and coded in columns 20–21. Similarly, the fourth (DIFWK4) and the fifth (DIFWK5) difference in the jobs before and after redeployment are coded as 78 (now part of the team instead of independent worker) and 38 (hours – now full time), which are entered in columns 22–23 and 24–25 respectively. Question 12 is extremely simple to code. Each area of a job has two columns, one for before and the other for after. Job status (JOBST) is divided into two variables, JOBSTA for a respondent’s level of satisfaction after redeployment and JOBSTB for his/her level before redeployment. JOBSTA is entered in column 26 and JOBSTB in column 27. For JOBSTA the code, 5 (as marked by the respondent), is entered in column 26 and the code for JOBSTB, 4, is entered in column 27. Other areas of the job before and after redeployment are similarly coded.

The other two examples are coded in the same manner. The coded data is shown in Figure 15.7. In the process of coding you might find some responses that do not fit your predetermined categories. If so, assign them a code and add these to your code book.

RESPONDENT = 3

1 Please indicate:

(a) Your current age in completed years: 49

(c) Your marital status: (Please tick)

Currently married _____

Living in a de facto relationship _____

Separated _____

Divorced

Never married _____

2 (b) If tertiary/university, please specify the level achieved and area of study. (Please specify all postgraduate qualifications.)

Level of achievement	Area of study: e.g. engineering, accounting
Associate diploma	
Diploma	
Bachelor	Librarianship
Graduate diploma	
Masters	
PhD	

11 What, in your opinion, are the main differences between your jobs prior to and after redeployment?

'Hours-now F.T'; 'Totally different skills required'; 'Now deal with public';

'Busier, more structured day and duties'; 'Now part of the team instead of independent worker'

12 We would like to know your perception of the two jobs before and after redeployment with respect to the following aspects of your job. Please rate them on a five-point scale, using the following guide:

5 = extremely satisfied, 4 = very satisfied, 3 = satisfied, 2 = dissatisfied, 1 = extremely dissatisfied

Before redeployment					Areas	After redeployment				
1	2	3	4	5		1	2	3	4	5
			✓		Job status					✓
			✓		Job satisfaction					✓
			✓		Motivation to work					✓
			✓		Interest in the job					✓
			✓		Self-esteem					✓
			✓		Professional competence				✓	
			✓		Peer interaction					✓
			✓		Morale				✓	
			✓		Work environment				✓	
				✓	Social interaction			✓		

FIGURE 15.4 Some questions from a survey – respondent 3

RESPONDENT = 59

1 Please indicate:

- (a) Your current age in completed years: 45
- (c) Your marital status: (Please tick)
 - Currently married
 - Living in a de facto relationship _____
 - Separated _____
 - Divorced _____
 - Never married _____

2 (b) If tertiary/university, please specify the level achieved and area of study.
(Please specify all postgraduate qualifications.)

Level of achievement	Area of study: e.g. engineering, accounting
Associate diploma	
Diploma	
Bachelor	Behavioural Sciences
Graduate diploma	
Masters	
PhD	

11 What, in your opinion, are the main differences between your jobs prior to and after redeployment?

'Less Responsibility', 'More specific jobs'

'Restricted scope'

12 We would like to know your perception of the two jobs *before* and *after* redeployment with respect to the following aspects of your job. Please rate them on a five-point scale using the following guide:

5 = extremely satisfied, 4 = very satisfied, 3 = satisfied, 2 = dissatisfied, 1 = extremely dissatisfied

Before redeployment					Areas	After redeployment				
1	2	3	4	5		1	2	3	4	5
			✓		Job status		✓			
			✓		Job satisfaction			✓		
			✓		Motivation to work		✓			
				✓	Interest in the job			✓		
				✓	Self-esteem			✓		
				✓	Professional competence			✓		
				✓	peer interaction				✓	
				✓	Morale		✓			
				✓	Work environment			✓		
			✓		Social interaction				✓	

FIGURE 15.5 Some questions from a survey – respondent 59

RESPONDENT = 81

1 Please indicate:

(a) Your current age in completed years: 42

(c) Your marital status: (Please tick)

Currently married

Living in a de facto relationship _____

Separated _____

Divorced _____

Never married

2 (b) If tertiary/university, please specify the level achieved and area of study.

(Please specify all postgraduate qualifications.)

Level of achievement	Area of study: e.g. engineering, accounting
Associate diploma	
Diploma	
Bachelor	Social work
Graduate diploma	
Masters	
PhD	

11 What, in your opinion, are the main differences between your jobs prior to and after redeployment?

My previous job required me to be involved in the whole area of government/community and non-government requiring assistance in relation to settlement needs of migrants. My current position does not provide job satisfaction particularly in relation to the offenders that I currently deal with.

12 We would like to know your perception of the two jobs before and after redeployment with respect to the following aspects of your job. Please rate them on a five-point scale using the following guide:

5 = extremely satisfied, 4 = very satisfied, 3 = satisfied, 2 = dissatisfied, 1 = extremely dissatisfied

Before redeployment					Areas	After redeployment				
1	2	3	4	5		1	2	3	4	5
		✓			Job status		✓			
			✓		Job satisfaction		✓			
				✓	Motivation to work			✓		
			✓		Interest in the job		✓			
			✓		Self-esteem		✓			
		✓			Professional competence		✓			
		✓			Peer interaction			✓		
			✓		Morale		✓			
			✓		Work environment		✓			
		✓			Social interaction		✓			

FIGURE 15.6 Some questions from a survey – respondent 81

Program		Programmer		Date																																								
Identification number																																												
Statement Number	Record no.	Age	Achievement level	Mental status	Study area	Difference in work	Level of satisfaction	Fortran S																																				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40					
0	0	3	1	6	4	3	6	8	0	9	8	6	8	8	2	2	6	9	7	7	7	8	3	8	5	4	5	4	5	4	5	4	5	4	5	4	5	4	5	4				
0	5	9	1	6	1	3	8	8	0	1	8	8	8	8	0	5	1	9	7	7	8	8	8	8	2	4	3	4	2	4	3	5	3	5	3	5	3	5	3	5	3	5		
0	8	1	5	1	2	8	8	1	7	3	8	8	8	8	1	7	0	1	8	8	8	8	8	8	2	3	2	4	3	5	2	4	3	5	2	4	3	5	2	4	3	5	2	4

FIGURE 15.7 An example of coded data on a code sheet

Step IV: Verifying the coded data

Once the data is coded, select a few research instruments at random and record the responses to identify any discrepancies in coding. Continue to verify coding until you are sure that there are no discrepancies. If there are discrepancies, re-examine the coding.

Developing a frame of analysis

Although a framework of analysis needs to evolve continuously while writing your report, it is desirable to broadly develop it before analysing the data. A **frame of analysis** should specify:

- which variables you are planning to analyse;
- how they should be analysed;
- what cross-tabulations you need to work out;

- which variables you need to combine to construct your major concepts or to develop indices (in formulating a research problem concepts are changed to variables – at this stage change them back to concepts);
- which variables are to be subjected to which statistical procedures.

To illustrate, let us take the example from the survey used in this chapter.

Frequency distributions

A **frequency distribution** groups respondents into the subcategories into which a variable can be divided. Unless you are not planning to use answers to some of the questions, you should have a frequency distribution for all the variables. Each variable can be specified either separately or collectively in the frame of analysis. To illustrate, they are identified here separately by the names used in the code book. For example, frame of analysis should include frequency distribution for the following variables:

- AGE
- MS;
- TEDU (TEDU1, TEDU2, TEDU3 – multiple responses, to be collectively analysed);
- STUDY (STUDY1, STUDY2, STUDY3 – multiple responses, to be collectively analysed);
- DIFWK (DIFWK1, DIFWK2, DIFWK3, DIFWK4, DIFWK5 – multiple responses, to be collectively analysed);
- JOBSTA, JOBSTB;
- JOBSATA, JOBSATB;
- MOTIVA, MOTIVB.
- etc.

Cross-tabulations

Cross-tabulations analyse two variables, usually independent and dependent or attribute and dependent, to determine if there is a relationship between them. The subcategories of both the variables are cross-tabulated to ascertain if a relationship exists between them. Usually, the absolute number of respondents, and the row and column percentages, give you a reasonably good idea as to the possible association.

In the study we cited as an example in this chapter, one of the main variables to be explained is the level of satisfaction with the ‘before’ and ‘after’ jobs after redeployment. We developed two indices of satisfaction:

1. satisfaction with the job before redeployment (SATINDB);
2. satisfaction with the job after redeployment (SATINDA);

Differences in the level of satisfaction can be affected by a number of personal attributes such as the age, education, training and marital status of the respondents. Cross-tabulations help to identify which attributes affect the levels of satisfaction. Theoretically, it is possible to correlate any variables, but it is advisable to be selective or an enormous number of tables will result. Normally

only those variables that you think have an effect on the dependent variable should be correlated. The following cross-tabulations are an example of the basis of a frame of analysis. You can specify as many variables as you want.

SATINDA and SATINDB

- AGE;
- MS;
- TEDU;
- STUDY;
- DIFWK.

These determine whether job satisfaction before and after redeployment is affected by age, marital status, education, and so on.

- SATINDA by SATINDB
- This ascertains whether there is a relationship between job satisfaction before and after redeployment.

Reconstructing the main concepts

There may be places in a research instrument where you look for answers through a number of questions about different aspects of the same issue, for example the level of satisfaction with jobs before and after redeployment (SATINDB and SATINDA). In the questionnaire there were 10 aspects of a job about which respondents were asked to identify their level of satisfaction before and after redeployment. The level of satisfaction may vary from aspect to aspect. Though it is important to know respondents' reactions to each aspect, it is equally important to gauge an overall index of their satisfaction. You must therefore ascertain, before you actually analyse data, how you will combine responses to different questions.

In this example the respondents indicated their level of satisfaction by selecting one of the five response categories. A satisfaction index was developed by assigning a numerical value – the greater the magnitude of the response category, the higher the numerical score – to the response given by a respondent. The numerical value corresponding to the category ticked was added to determine the satisfaction index. The satisfaction index score for a respondent varies between 10 and 50. The interpretation of the score is dependent upon the way the numerical values are assigned. In this example the higher the score, the higher the level of satisfaction.

Statistical procedures

In this section you should list the statistical procedures that you want to subject your data to. You should identify the procedures followed by the list of variables that will be subjected to those procedures. For example,

Regression analysis:

- SATINDA and SATINDB

Multiple regression analysis:

Analysis of variance (ANOVA):

Similarly, it may be necessary to think about and specify the different variables to be subjected to the various statistical procedures. There are a number of user-friendly programs such as SPSSx and SAS that you can easily learn.

Analysing quantitative data manually

Coded data can be analysed manually or with the help of a computer. If the number of respondents is reasonably small, there are not many variables to analyse, and you are neither familiar with a relevant computer program nor wish to learn one, you can manually analyse the data. However, manual analysis is useful only for calculating frequencies and for simple cross-tabulations. If you have not entered data into a computer but want to carry out statistical tests, they will have to be calculated manually, which may become extremely difficult and time consuming. However, the use of statistics depends upon your expertise and desire/need to communicate the findings in a certain way.

Be aware that manual analysis is extremely time consuming. The easiest way to analyse data manually is to code it directly onto large graph paper in columns in the same way as you would enter it into a computer. On the graph paper you do not need to worry about the column number. Detailed headings can be used or question numbers can be written on each column to code information about the question ([Figure 15.8](#)).

To analyse data manually (frequency distributions), count various codes in a column and then decode them. For example, age from [Figure 15.8](#), 5 = 1, 6 = 2. This shows that out of the three respondents, one was between 40 and 44 years of age and the other two were between 45 and 49. Similarly, responses for each variable can be analysed. For cross-tabulations two columns must be read simultaneously to analyse responses in relation to each other.

If you want to analyse data using a computer, you should be familiar with the appropriate program. You should know how to create a data file, how to use the procedures involved, what statistical tests to apply and how to interpret them. Obviously in this area knowledge of computers and statistics plays an important role.

ID	Age	MS	Education			Study area			Difference in work					Status		Satisfaction	
			1	2	3	1	2	3	1	2	3	4	5	Before	After	Before	After
03	6	4	3	8	8	09	88	88	22	69	77	78	38	5	4	5	4
59	6	1	3	8	8	01	88	88	03	18	77	88	88	2	4	3	4
81	5	1	2	8	8	13	88	88	17	01	88	88	88	2	3	2	4

FIGURE 15.8 Manual analysis using graph paper

Part two: Data processing in qualitative studies

How you process and analyse data in a qualitative study depends upon how you plan to communicate the findings. Broadly, there are three ways in which you can write about your findings in qualitative research: (1) developing a narrative to describe a situation, episode, event or instance; (2) identifying the main themes that emerge from your field notes or transcription of your in-depth interviews and writing about them, quoting extensively in verbatim format; and (3) in addition to (2) above, also quantify the main themes in order to provide their prevalence and thus significance.

Editing, as understood for quantitative studies, is inappropriate for qualitative research. However, it is possible that you may be able to go through your notes to identify if something does not make sense. In such an event, you may be able to recall the context and correct the contents, but be careful in doing so as inability to recall precisely may introduce inaccuracies (**recall error**) in your description. Another way of ensuring whether you are truly reflecting the situation is to transcribe the interviews or observational notes and share them with the respondents or research participants for confirmation and approval. Validation of the information by a respondent is an important aspect of ensuring the accuracy of data collected through unstructured interviews.

For writing in a narrative format there is no analysis per se, however, you need to think through the sequence in which you need or want to narrate. For the other two ways of writing about the findings, you need to go through content analysis, as mentioned earlier. Content analysis means analysing the contents of interviews or observational field notes in order to identify the main themes that emerge from the responses given by your respondents or the observation notes made by you. This process involves a number of steps:

Step 1 Identify the main themes. You need to go carefully through descriptive responses given by your respondents to each question in order to understand the *meaning* they communicate. From these responses you develop broad themes that reflect these meanings. You will notice that people use different words and language to express themselves. It is important for you to select the wording of your themes in a way that accurately represents the meaning of the responses categorised under a theme. These themes become the basis for analysing the text of unstructured interviews. Similarly, you need to go through your field notes to identify the main themes.

Step 2 Assign codes to the main themes. Whether or not you assign a code to a main theme is dependent upon whether or not you want to count the number of times a theme has occurred in an interview. If you decide to count these themes you should, at random, select a few responses to an open-ended question or from your observational or discussion notes and identify the main themes. You continue to identify these themes from the same question till you have reached saturation point. Write these themes and assign a code to each of them, using numbers or keywords, otherwise just identify the main themes.

Step 3 Classify responses under the main themes. Having identified the themes, the next step is to go through the transcripts of all your interviews or your notes and classify the responses or contents of the notes under the different themes. You can also use a computer program such as Ethnograph, NUD*IST N6, NVivo, XSight for undertaking this thematic analysis. You will benefit by learning one of these programs if your data is suitable for such analysis.

Step 4 Integrate themes and responses into the text of your report. Having identified responses that fall within different themes, the next step is to integrate them into the text of your report. How you integrate them into your report is mainly your choice. Some people, while discussing the main themes that emerged from their study, use verbatim responses to keep the ‘feel’ of the responses. There are others who count how frequently a theme has occurred, and then provide a sample of the responses. It entirely depends upon the way you want to communicate the findings to your readers.

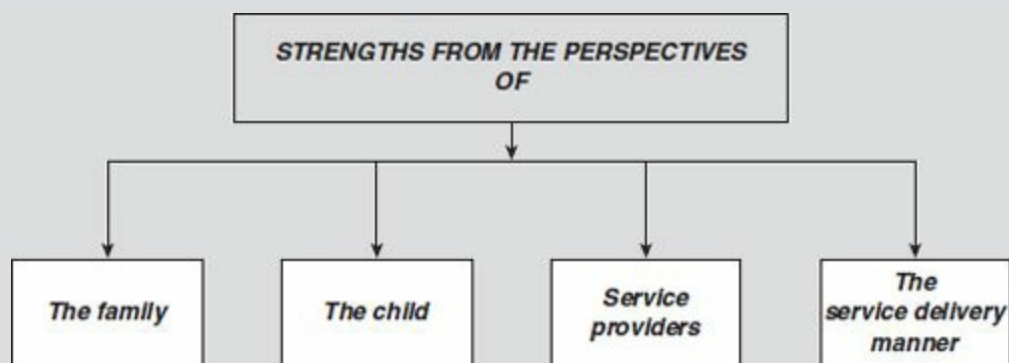
Content analysis in qualitative research – an example

The above four-step process was applied to a study recently carried out by the author to develop an operational service model, based upon the principle of family engagement. The information was predominantly gathered through in-depth and focus group discussions with clients, service providers and service managers. After informal talks with a number of stakeholders, a list of possible issues was developed to form the basis of discussions in these in-depth interviews and group discussions. The list was merely a guiding framework and was open to inclusion of any new issue that emerged during the discussions. Out of the several issues that were identified to examine various aspects of the model, here the author has taken only one to show the process of identifying themes that emerged during the discussions. Note that these themes have not been quantified. They are substantiated as verbatim, which is one of the main differences between qualitative and quantitative research. The following example shows perceived strengths of the Family Engagement Model (FEM) as identified by the stakeholders during in-depth interviews and focus groups. Information provided in [Figure 15.8](#) provides an example of the outcome of this process.

Example: Developing themes through content analysis

Perceived strengths of the model

The framework developed for the perceived strengths of the model is based upon the analysis of the information gathered, which suggested that the various themes that emerged during the data collection stage reflecting strengths of the model can be classified under four perspectives. The following diagram shows the framework that emerged from the analysis.



Different perspectives classifying perceived strengths of the model.

Perceived strengths from the perspective of the family

This section details the perceived strengths of the model from the perspective of the family. Keep in mind that the sequential order of the perceived strengths is random and does not reflect any order or preference. Also, the naming of these themes is that of the author, which to the best of his knowledge captured the ‘meanings’ of the intention of the research participants.

Empowerment of families

Almost everyone expressed the opinion that one of the main strengths of the model is that it empowers families and clients to deal with their own problems. The model provides an opportunity to families to express their feelings about issues of concern to them and, to some extent, to take control of their situations themselves. It seems that in ‘preparing a plan for a child under this model, the family of the child will play an extremely important role in deciding about the future of the child, which is the greatest strength of the model’. One of the respondents expressed his/her opinion as follows:

Oh, the Family Engagement model actually gives the power back to the family but with the bottom line in place, like the Department’s bottom lines, they have to meet them. Oh ... the old model would have been black and white; kids remain in Mum’s care, he (the father) would have supervised contacts with kids and it all would have been set up ... the Family Engagement model was about pulling them in the whole family then coming up with the solutions as long as they reach the Department’s bottom line. They actually have to come up and nominate what they were willing to do ... He (father) returned home, which was much better ... If they have relapse we bring them back in and we talk about it, get them back on track, make sure they were engaging with the services ... In the old method, kids just would have been removed and kids would have gone into the Department’s care ... It is more empowering to the family, and it is much easier to work with the family at that level than you are standing over and telling them that you have to do this and this, and holding it against them that if you do not do, well, the kids are out. It is much, much better for the families. You’ve got more opportunity to work with the family at that level, rather than being on the outside dictating.

Another participant said:

I think this model empowers the family a lot more ... you are having meetings all the time. You give them the bottom line, and they develop their own strategy ... I think it empowers the family when they come back ... because they are developing their plan, they are using their own network and resources ... I think it is empowering.

Yet, according to another respondent: ‘It allows them to feel that they can make some decisions ... They are able to work with the Department and that their voices or views are as valid as the

Department's.'

Building of capacity of families

Another advantage that came out of the discussions is that the process adopted as a part of the FEM makes clients aware of community resources which, in turn, help them to build their capacity to deal with a situation effectively and independently. As one participant pointed out:

They know that, ok, if something goes wrong in this aspect of their life, they know they can go there for support, they do not need to be calling us ... they may have resolved their own issues ... that is really empowering.

Another participant said: 'Under this model, a family has taken a much stronger role in bringing about change as compared to the case conference approach.'

Acknowledgement of positives in families

One of the strengths of the approach is that it acknowledges the strengths of families. The model is primarily based upon designing interventions based on the strengths and positives of a situation rather than on the negatives. 'In the old model the strengths were not acknowledged to a large degree and certainly not of the parents.' During one of the focus groups, a participant expressed the views that:

The Family Engagement model starts with the strengths of the family, so bringing the family in at an earlier stage, and trying to get them to help make decisions about what is going to happen to children who are in crisis ... so ... it is involving more people, their extended family, and getting them to come up with a plan.

In another focus group, a respondent said:

It is only because you actually do work with that strength-based approach and you acknowledge it. It is a huge part of what happens. You can actually say to somebody that you are doing so well, it is great to see the change in you, and even though you personally have nothing to do with those changes, you say, well done ... it is so good to see you looking so well ... You get to a point in a process where you are no longer seen as an outsider, you are no longer seen as a prescriptive organisation, but you are seen as a supportive organisation which is actually assisting that person in the process ... This Department has not been good in acknowledging change, we have not been.

Collaborative decision making and solutions

Another strength pointed out by many is that solutions pertaining to a child are now developed in close collaboration with the family, extended family and other appropriate stakeholders, which makes them (decisions and solutions) more acceptable and workable. In one of the focus group interviews a participant expressed this strength of the model as follows:

They come up with answers, they got it. You are up front with the family. It gives the family a very clear idea what exactly is expected of them ... this is what they have done, what are the concerns of the Department ... So by having family support meetings, you are telling the family this is what we feel is happening with the child and these are the things that cannot happen to your children, what we intend to do about it in the future to be able to have them back or to improve their environment ... it is straight in front of them, not behind their back ... Previously I know of a case where a family was not involved in any of the discussions and they did not understand why their children were removed from them.

Many participants felt very positive about this collaborative approach. They felt that, 'having a family support meeting clearly tells them what has happened, what are the intentions of the Department, and how the Department is going to work with them'. Another participant in one of the focus group discussions added:

There are differences between how the meetings are held but, I guess, oh, sometimes to get the family to develop, and remind them of the bottom line, rather than us saying, 'This is what I want to happen.' I mean, obviously in the

discussion of the general situation, you make things clear, but you let the family take the responsibility to develop their own plan.

A respondent in an in-depth interview expressed the opinion that, now, 'We are identifying the members of the extended family. Once upon-a-time we just had parents; now you have to go around and search and get them all together to make a decision'. Yet another respondent, talking about the strengths of the model, said, 'Now we approach very differently.' According to him/her:

We inform you, we advise you, that the children are at risk ... whatever with the children, we want to sit down and work with you. Throughout this process we want to work with you, and also, plans have been set up. We want you to be a part of that.

It appears that, under this model, decisions are made not by a single individual, but by all those involved. According to one respondent, 'You are sharing responsibility with other agencies and family members; it is not only your decision, it is the decision of everybody.'

Keeps families intact

Some respondents also felt, that in certain cases, 'The children may not even be taken from the family so quickly.' It seems there is a greater attempt to keep the children in the family. One participant said: 'I am actually working with quite a few kids where they are trying to keep the family together.' Another participant added that, 'The apprehension rate has come down substantially.'

Perceived strengths from the perspective of the child

A greater focus on children

Many family workers as well as team leaders felt that the whole approach is a lot more focused on children. The approach is child centred and, at every step, concerns for children form the core of an intervention: 'It is a lot more child-focused as well. Rather than focusing on the parents, it is focusing on how we are going to make this child safe, and how we are going to achieve that.'

Returns children to their parents quicker

Some respondents felt that the new approach helped children to get back to their parents quicker. In one of the focus group discussions, one participant said:

I think it gets the children back to their parents quicker because at the meeting it identifies strong people in the family that can support the parents to keep their kids. So what I found in the office is that some of the kids get back to their parents quicker than through the Case Conference. The Case Conference is every year ... what the families have to jump through by the end of the twelve months at the next meeting ... here it is none of that. It is a strong person, how you are going to support the Mum to keep getting the kids back ... what you do need ... sometimes the kids go back, just like that.

Prevention of removal of children

Some respondents felt that the model actually prevented kids from being removed from their families. According to one participant, 'that is the big advantage of this model; to prevent kids from being removed'.

Perceived strengths from the perspective of service providers

Greater job satisfaction

Almost every service provider said that their work after the introduction of the model had become ‘much more satisfying’ because ‘it is enabling workers and clients’.

Easier for the workers to work under the model

Many respondents felt that ‘initially it is more work for a worker but, in the long run, it is less work because of the shared responsibility’. According to one participant:

As a case worker, I remember the days when I had to really work so hard to meet so many people and do so many things individually and all the responsibility was on my shoulders ... but now there is a shared responsibility ... you have to do the ground work but when it is done the long term engagement is easier because there are more people involved and they in part make the decisions.

Decline in hostility towards the Department

Another advantage that some respondents pointed out was a decline in hostility among families towards the Department. It was pointed out that though it depended upon the circumstances, there was a feeling that, on the whole, hostility among clients towards the Department had declined. They also felt that though, in the beginning, there might have been hostility, working under the new model, in most situations, made that hostility disappear. In some situations, an increase in hostility was possibly attributable to a situation such as the apprehension of a child. Most respondents were of the opinion that, as compared to the Case Management model, they had experienced far less hostility towards them while working under the new approach.

Increased trust in the staff by clients

Another advantage some workers saw in the new approach was that they felt that clients had started trusting them a lot more. A participant in one of the focus groups described his/her feelings as follows:

They call us now, I do not have to go and look for them. They are calling me now and asking what is this? ... which means they are taking an interest. They are not sitting back and saying, oh well, they are going to tell us or not tell us.

Better rapport with families

Because of the increased number of contacts, it appears that staff were able to build more congenial and trusting relationships with families. In a focus group, one of the respondents said, ‘I think the relationship is more respectful and trustful’. Another respondent said:

Family relationships are a little bit better, and a family also understands that a DCD worker is not someone who goes to homes and removes their children ... how horrible people we are, but, by interacting with them they actually understand that we are people at work, and that we are not going to do these things, that is the old way of doing. We are not going to remove a child without saying anything. We have communication with them.

Develops better understanding by workers of the family dynamics

‘One of the strengths that I have seen is that it allows the social worker to feel the family dynamics, to think about the dynamics and it allows the families to participate in whatever they want to’, said a participant of a focus group.

Fewer aggressive clients

Another obvious difference between the two models, according to some respondents, was fewer

aggressive clients. One respondent said,

There are far less aggressive clients here as compared to other places. I think it is partly because of the approach. Here you very rarely see people who get agitated, it is much more controlled, and it is a calmer atmosphere.

Develops a sense of ownership of a case

One of the advantages of the FEM as pointed out by various respondents was that under the model, 'you feel the case belongs to you; you "own" a child'. Because of this, according to some participants, there was a greater affiliation between the family worker and the child.

Greater community interaction

Another advantage pointed out by family workers was that the model resulted in their having a greater interaction with community agencies and, consequently, had more knowledge of their community and the services available in it. This was primarily because of restructuring under the Family Engagement model whereby family workers were allocated particular geographical areas, called, 'patch': 'You also develop really nice working relations with those people. You are working together collaboratively towards the goals, and I think, that is really a great benefit', said one participant. There was 'a lot more linking with other agencies' under the model. Not only was the interaction between community agencies increased but, it appears, clients had also started making more use of community agencies.

Greater knowledge about community members

Another benefit of working under the FEM and within a 'patch' was that family workers got to know a lot more community members. According to one respondent, 'The relationship with people in your community is much stronger and widespread.' Another respondent said:

After a certain time you get to know who lives on what street, family links between people, especially, when you are working with Aboriginal families. Family links are so important, and knowing who is dealing with whom ... knowing who is in the area, what resources you have, makes your job a lot more effective.

Greater control over personal values by workers

Another advantage identified by some respondents was that, with the new model, 'case workers own values and morals cannot be imposed'.

Perceived strengths from the perspective of the service delivery manner

An open, honest and transparent process

The whole process is open to all stakeholders. 'All the cards are on the table', said one participant, and another expressed the opinion that: 'The case worker may be honest, but, I guess, the process, how it was done, was not.' One respondent said that one of the good things about this model was that 'everyone knows what is going on'. According to a respondent:

Another good thing about these family meetings is that there is the parents, there is the family. The parents might have been telling us one thing or a part of the story and Jaime, another part of the story, not telling Uncle Jimmy ... so it is good in a way that everyone knows what is going on. The whole information is there for everyone that is there. So they cannot push it to us and push it to the family. That is another good thing: they all get the same information, and we get and give the same information to them ... and it is amazing the plan they want to come up with ... it is based upon the information given to them.

Another respondent in a focus group said:

And you are actually fighting the parents about the guardianship of the child: at the end of the day that is what you are doing, and, I think, just to have the transparent working relationship within the Family Engagement model actually makes that process a lot easier because everything is out in the open and when it comes up in the court, they are not going to be surprised.

Greater informality in meetings

Family meetings under the FEM are far less formal: ‘The family members and others are encouraged to say whatever they want to. They can interrupt and stop the chairperson any time, if they disagree. They can even come back later.’ ‘What is important is that the minutes are written up, and the family gets a copy of the minutes so that they can go back home and read the minutes. They can come back to us.’

More frequent review of cases

Many people felt that the model provided an opportunity to review cases more frequently which helped them to achieve goals more quickly and, if an intervention was not working, it helped them to change the intervention. As one participant pointed out, ‘Changes in the plan to reflect the changes in the family dynamics are undertaken frequently.’ Hence, under the model, ‘The plan for a child is continually being reviewed.’ There seemed to be a lot more flexibility in terms of changing a plan under the model.

Increased honesty, transparency and accountability

Some respondents also felt that, because of the transparency and accountability of the process, simply working within the parameters of the model had helped to keep workers honest and accountable. According to one participant, ‘From a practice viewpoint, it allows the social worker to be honest, accountable and to be transparent.’

A fairer approach

Many respondents felt that the FEM was fairer, as it was open, participatory and empowered a family.

Goals set for clients are more attainable and workable

According to one of the participants of a focus group: ‘I think the plan of Family Engagement meetings is more attainable and more workable ... what they are actually capable of doing. We are not setting what they are not going to achieve, so they are not going to fail.’ In addition, it seems, because families were involved in developing a plan, they had a feeling of ownership, and hence they attained the tasks set out in it. Another participant was of the opinion that: ‘If you are a part of the solution, then you actually have an investment in making the change.’

Equality in relation to expression of opinion

Some respondents felt that the model provided freedom of expression to parties. All involved were free to express their opinions, and they were encouraged to share their views. As long as the bottom line was met, their opinions were taken into consideration in developing a strategy.

A less chaotic process

As one participant observed: ‘It is far less chaotic, just the perception of what was going on.

They [referring to workers in the CMM] felt a bit chaotic because work was coming in all the time and they were holding on to cases. Here it is more organised', one participant observed. With the old structure, 'case workers were very stressed; they were not operating particularly well'.

A less stressful approach

Many participants felt that the new approach was less stressful because of its many benefits. It was less stressful for them, and for families, as well as children. In one of the focus groups, a participant expressed his/her feeling in the following words:

You do not feel that I hate to go to this home ... how are they going to react, what are they going to say to me, or how should I leave or how should I protect myself? You do not have to have those stresses now; it is a calmer situation, it is a happier situation and that is good for the kids, not only for us, but for the kids ... it is actually the kids who also benefit from the approach.

Fewer conflicts with families

Many respondents felt that ongoing conflicts with families were far fewer after the introduction of the new model.

Equality regarding choice of a facilitator for meetings

Another strength was that some participants thought that under the new model facilitation work was not only confined to case managers. Under the model, anyone could become a facilitator.

Increased reflection on practice

Some people also felt that the model provided an opportunity to reflect on practice thus helping them to improve it.

Total responsibility for cases

Some also pointed out that workers have the total responsibility for cases which seemed to be much better from a number of viewpoints. As pointed out by one person, 'Under the model, a field worker is responsible for the total intervention, from A to Z. You do everything in a patch.'

Compliance with government's child placement policy

One of the participants pointed out that the model actually complied with the government's legislative obligation to place Aboriginal and Torres Strait Islander children with their families. According to this participant:

The model actually meets, for Aboriginal and Torres Strait Islanders child placement principle which is now enshrined in our legislation, where it actually states that children will be placed with family, extended family, immediate community and extended community and a non-Aboriginal person is a last resort ... So this model actually meets that.

The role of statistics in research

The role of statistics in research is sometimes exaggerated. Statistics have a role only when you have

collected the required information, adhering to the requirements of each operational step of the research process. Once data is collected you encounter two questions:

1. How do I organise this data to understand it?
2. What does the data mean?

In a way, the answer to the first question forms the basis for the second. Statistics can play a very important role in answering your research questions in such a manner that you are able to quantify, measure, place a level of confidence on the findings, make an assessment of the contribution each variable has made in bringing out change, measure the association and relationship between various variables, and help predict what is likely to happen in the light of current trends.

From individual responses, particularly if there are many, it becomes extremely difficult to understand the patterns in the data, so it is important for the data to be summarised. Some simple statistical measures such as percentages, means, standard deviations and coefficients of correlation can reduce the volume of data, making it easier to understand. In computing summary measures, certain information is lost and therefore misinterpretation is possible. Hence, caution is required when interpreting data.

Statistics play a vital role in understanding the relationship between variables, particularly when there are more than two. With experience, it is easy to ‘read’ the relationship between two variables from a table, but not to quantify this relationship. Statistics help you to ascertain the strength of a relationship. They confirm or contradict what you read from a piece of information, and provide an indication of the strength of the relationship and the level of confidence that can be placed in findings. When there are more than two variables, statistics are also helpful in understanding the interdependence between them and their contribution to a phenomenon or event.

Indirectly, knowledge of statistics helps you at each step of the research process. Knowledge of the problems associated with data analysis, the types of statistical test that can be applied to certain types of variable, and the calculation of summary statistics in relation to the measurement scale used plays an important role in a research endeavour. However, you can also carry out a perfectly valid study without using any statistical procedures. This depends upon the objectives of your study.

Summary

In this chapter you have learnt about processing data. Irrespective of the method of data collection, qualitative or quantitative, the information is called ‘raw data’ or simply ‘data’. The processing of data includes all operations undertaken from when a set of data is collected until it is ready to be analysed either manually or by a computer. Data processing in quantitative studies starts with data editing, which is basically ‘cleaning’ your data. This is followed by the coding of data, which entails developing a code book, pre-testing it, coding per se and verifying the coded data. In this chapter we have provided a prototype for developing a code book, detailing descriptions of how to develop codes for open-ended and closed questions, and a step-by-step guide to coding data, taking an example from a survey. The chapter also includes detailed information about content analysis and how to treat data for narrative and thematic styles of

writing, and an extended example from a qualitative study is provided.

Though the development of a frame of analysis continues until you have finished the report, it helps immensely in data analysis to develop this before you begin analysing data. In the frame of analysis the type of analysis to be undertaken (e.g. frequency distribution, cross-tabulation, content analysis), and the statistical procedures to be applied, should be specified.

Computers primarily help by saving labour associated with analysing data manually. Their application in handling complicated statistical and mathematical procedures, word processing, displaying and graphic presentation of the analysed data saves time and increase speed. Statistics are desirable but not essential for a study. The extent of their application depends upon the purpose of the study. Statistics primarily help you to make sense of data, 'read' the data, explore relationships and the interdependence between variables, ascertain the magnitude of an existing relationship or interdependence and place confidence in your findings.

For You to Think About

- Refamiliarise yourself with the keywords listed at the beginning of this chapter and if you are uncertain about the meaning or application of any of them revisit these in the chapter before moving on.
- What procedures can you set in place to ensure the accuracy of the information obtained in both quantitative and qualitative studies?
- Thinking of examples from your own area of study, consider the advantages and disadvantages of having used open-ended or closed questions when you come to process your data.
- Assess the role of statistics for a study in your area of interest.