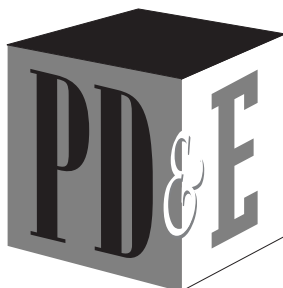


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Program Development & Evaluation

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**Ellen Taylor-Powell
Marcus Renner**

Analyzing Qualitative Data

Introduction

Qualitative data consist of words and observations, not numbers. As with all data, analysis and interpretation are required to bring order and understanding. This requires creativity, discipline and a systematic approach. There is no single or best way.

Your process will depend on:

- the questions you want to answer,
- the needs of those who will use the information, and
- your resources.

This guide outlines a basic approach for analyzing and interpreting narrative data — often referred to as **content analysis** — that you can adapt to your own extension evaluations. For descriptions of other types of qualitative data analysis, see Ratcliff, 2002. Other techniques may be necessary for analyzing qualitative data from photographs and audio or video sources.

This booklet is a companion to *Analyzing Quantitative Data* G3658-6 in this series.

Narrative data

Text or narrative data come in many forms and from a variety of sources. You might have brief responses to open-ended questions on a survey, the transcript from an interview or focus group, notes from a log or diary, field notes, or the text of a published report. Your data may come from many people, a few individuals, or a single case.

Any of the following may produce narrative data that require analysis.

- **Open-ended questions and written comments on questionnaires** may generate single words, brief phrases, or full paragraphs of text.
- **Testimonials** may give reactions to a program in a few words or lengthy comments, either in person or in written correspondence.
- **Individual interviews** can produce data in the form of notes, a summary of the individual's interview, or word-for-word transcripts.
- **Discussion group or focus group interviews** often involve full transcripts and notes from a moderator or observer.
- **Logs, journals and diaries** might provide structured entries or free-flowing text that you or others produce.
- **Observations** might be recorded in your field notes or descriptive accounts as a result of watching and listening.
- **Documents, reports and news articles** or any published written material may serve as evaluation data.
- **Stories** may provide data from personal accounts of experiences and results of programs in people's own words.
- **Case studies** typically include several of the above.

The analysis process

Once you have these data, what do you do? The steps below describe the basic elements of narrative data analysis and interpretation. This process is fluid, so moving back and forth between steps is likely.

Step 1 Get to know your data.

Good analysis depends on understanding the data. For qualitative analysis, this means you read and re-read the text. If you have tape recordings, you listen to them several times. Write down any impressions you have as you go through the data. These impressions may be useful later.

Also, just because you have data does not mean those are quality data. Sometimes, information provided does not add meaning or value. Or it may have been collected in a biased way.

Before beginning any analysis, consider the quality of the data and proceed accordingly. Investing time and effort in analysis may give the impression of greater value than is merited. Explain the limitations and level of analysis you deem appropriate given your data.

Step 2 Focus the analysis.

Review the purpose of the evaluation and what you want to find out. Identify a few key questions that you want your analysis to answer. Write these down. These will help you decide how to begin. These questions may change as you work with the data, but will help you get started.

How you focus your analysis depends on the purpose of the evaluation and how you will use the results. Here are two common approaches.

Focus by question or topic, time period or event.

In this approach, you focus the analysis to look at how all individuals or groups responded to each question or topic, or for a given time period or event. This is often done with open-ended questions. You organize the data by question to look across all respondents and their answers in order to identify consistencies and differences. You put all the data from each question together.

You can apply the same approach to particular topics, or a time period or an event of interest. Later, you may explore the connections and relationships between questions (topics, time periods, events).

Focus by case, individual or group.

You may want an overall picture of:

- **One case** such as one family or one agency.
- **One individual** such as a first-time or teen participant in the program.
- **One group** such as all first-time participants in the program, or all teens ages 13 to 18.

Rather than grouping these respondents' answers by question or topic, you organize the data from or about the case, individual or group, and analyze it as a whole.

Or you may want to combine these approaches and analyze the data both by question and by case, individual or group.

Step 3 Categorize information.

Some people refer to categorizing information as coding the data or indexing the data. However, categorizing does not involve assigning numerical codes as you do in quantitative analysis where you label exclusive variables with preset codes or values.

To bring meaning to the words before you:

- **Identify themes or patterns** — ideas, concepts, behaviors, interactions, incidents, terminology or phrases used.
- **Organize them into coherent categories** that summarize and bring meaning to the text.

This can be fairly labor-intensive depending on the amount of data you have. **But this is the crux of qualitative analysis.** It involves reading and re-reading the text and identifying coherent categories.

You may want to assign abbreviated codes of a few letters, words or symbols and place them next to the themes and ideas you find. This will help organize the data into categories. Provide a descriptive label (name) for each category you create. Be clear about what you include in the category and what you exclude.

As you categorize the data, you might identify other themes that serve as subcategories. Continue to categorize until you have identified and labeled all relevant themes.

The following examples show categories that were identified to sort responses to the questions.

Question	Categories
	<i>Responses to the question were sorted into:</i>
1. <i>What makes a quality educational program?</i>	Staff (Stf), relevance (Rel), participation (Part), timeliness (Time), content (Con)
2. <i>What is the benefit of a youth mentoring program?</i>	Benefits to youth (Y), benefits to mentor (M), benefits to family (Fam), benefits to community (Comm)
3. <i>What do you need to continue your learning about evaluation?</i>	Practice (P), additional training (Trg), time (T), resources (R), feedback (Fdbk), mentor (M), uncertain (U)

Possible code abbreviations are designated in parentheses.

Here are two ways to categorize narrative data — using preset or emergent categories.

Preset categories

You can start with a list of themes or categories in advance, and then search the data for these topics. For example, you might start with concepts that you really want to know about. Or you might start with topics from the research literature.

These themes provide direction for what you look for in the data. You identify the themes **before** you categorize the data, and search the data for text that matches the themes.

Emergent categories

Rather than using preconceived themes or categories, you read through the text and find the themes or issues that recur in the data. These become your categories. They may be ideas or concepts that you had not thought about.

This approach allows the categories to **emerge** from the data. Categories are defined **after** you have worked with the data or as a result of working with the data.

Sometimes, you may combine these two approaches — starting with some preset categories and adding others as they become apparent.

Your initial list of categories may change as you work with the data. This is an iterative process. You may have to adjust the definition of your categories, or identify new categories to accommodate data that do not fit the existing labels.

Main categories may be broken into subcategories. Then you will need to resort your data into these smaller, more defined categories. This allows for greater discrimination and differentiation.

For example, in the question about benefits of a youth mentoring program, data within the category benefits to youth might be broken into a number of subcategories.

Question	Categories
<i>What is the benefit of a youth mentoring program?</i>	Benefits to youth (Y)
	School performance (Y-SP)
	Friendship (Y-Friends)
	Self-concept (Y-SC)
	Role modeling (Y-RM)
	Benefits to mentor (M)
Benefits to family (Fam)	
Benefits to community (Comm)	

Subcategories

Continue to build categories until no new themes or subcategories are identified. Add as many categories as you need to reflect the nuances in the data and to interpret data clearly.

While you want to try to create mutually exclusive and exhaustive categories, sometimes sections of data fit into two or more categories. So you may need to create a way to cross-index.

Reading and re-reading the text helps ensure that the data are correctly categorized.

Example 1 shows labeling of one open-ended question on an end-of-session questionnaire. In this example, all responses were numbered and given a label to capture the idea(s) in each comment. Later, you can sort and organize these data into their categories to identify patterns and bring meaning to the responses.

Example 1. Labeling data from an end-of-session questionnaire (21 respondents)

Categories: Practice (P), additional training (Trg), time (T), resources (R), feedback (Fdbk), mentor (M), uncertain (U)

3-13-02 Evaluation Workshop, Madison

Q 5. What do you need next to continue your learning about evaluation?

Line 7 is left uncoded because "Yes" is not usable data.

- | | | |
|---------|----|---|
| Trg | 1 | More advanced data analysis |
| T, R | 2 | More time/information on all the same concept |
| P | 3 | Just start doing them |
| Trg | 4 | Another workshop |
| Fdbk | 5 | Assessment feedback on how beneficial (or how well I did) the evaluation of my project was for USDA |
| Trg | 6 | How to measure long range planning outcomes |
| | 7 | Yes |
| P | 8 | Do it! |
| Trg | 9 | Need additional training and review |
| P | 10 | Practice makes perfect |
| T | 11 | Time to do actual reports |
| T, Fdbk | 12 | Time to complete an actual project report using this framework. Constructive feedback on strengthening that report. |
| Trg | 13 | More on how to decide evaluation reporting at the beginning of the grant or as you write the grant |
| P, M | 14 | Practice what I learned with assistance of a mentor |
| U | 15 | Unsure until I use the new ideas I've learned here. |
| P | 16 | Apply what I have learned |
| Trg | 17 | I need more training on analyzing data (need very basic hands on exercises) – maybe more exercises on indicators |
| Trg | 18 | Would have liked to go to observation interview training too! |
| R | 19 | More specific examples, i.e. completed logic models for different topics |
| U | 20 | Not sure yet. I'll know when I sit down to writing report. |
| R, P | 21 | Research suggested resources — develop more surveys – trial and error till I become perfect |

Step 4 Identify patterns and connections within and between categories.

As you organize the data into categories — either by question or by case — you will begin to see patterns and connections both within and between the categories. Assessing the relative importance of different themes or highlighting subtle variations may be important to your analysis. Here are some ways to do this.

Within category description

You may be interested in summarizing the information pertaining to one theme, or capturing the similarities or differences in people's responses within a category. To do this, you need to assemble all the data pertaining to the particular theme (category).

What are the key ideas being expressed within the category? What are the similarities and differences in the way people responded, including the subtle variations? It is helpful to write a summary for each category that describes these points.

Larger categories

You may wish to create larger **super categories** that combine several categories. You can work up from more specific categories to larger ideas and concepts. Then you can see how the parts relate to the whole.

Relative importance

To show which categories appear more important, you may wish to count the number of times a particular theme comes up, or the number of unique respondents who refer to certain themes. These counts provide a very rough estimate of relative importance. They are not suited to statistical analysis, but they can reveal general patterns in the data.

Relationships

You also may discover that two or more themes occur together consistently in the data. Whenever you find one, you find the other. For example, youth with divorced parents consistently list friendship as the primary benefit of the mentoring program.

You may decide that some of these connections suggest a cause and effect relationship, or create a sequence through time. For example, respondents may link improved school performance to a good mentor relationship. From this, you might argue that good mentoring causes improved school performance.

Such connections are important to look for, because they can help explain **why** something occurs. But be careful about simple cause and effect interpretations. Seldom is human behavior or narrative data so simple.

Ask yourself: How do things relate? What data support this interpretation? What other factors may be contributing?

You may wish to develop a table or matrix to illustrate relationships across two or more categories.

Look for examples of responses or events that run counter to the prevailing themes. What do these countervailing responses suggest? Are they important to the interpretation and understanding? Often, you learn a great deal from looking at and trying to understand items that do not fit into your categorization scheme.

Step 5 Interpretation – Bringing it all together

Use your themes and connections to explain your findings. It is often easy to get side tracked by the details and the rich descriptions in the data. But what does it all mean? What is really important?

This is what we call **interpreting the data** — attaching meaning and significance to the analysis.

A good place to start is to develop a list of key points or important findings you discovered as a result of categorizing and sorting your data.

Stand back and think about what you have learned. What are the major lessons? What new things did you learn? What has application to other settings, programs, studies? What will those who use the results of the evaluation be most interested in knowing?

Too often, we list the findings without synthesizing them and tapping their meaning.

Develop an outline for presenting your results to other people or for writing a final report. The length and format of your report will depend on your audience. It is often helpful to include quotes or descriptive examples to illustrate your points and bring the data to life. A visual display might help communicate the findings.

Sometimes a diagram with boxes and arrows can help show how all the pieces fit together. Creating such a model may reveal gaps in your investigation and connections that remain unclear. These may be areas where you can suggest further study.

“Nuts and bolts” of narrative analysis

Moving from a mass of words to a final report requires a method for organizing and keeping track of the text. This is largely a process of **cutting and sorting**.

Work by hand, either with a hard copy (print copy) or directly on the computer. Exactly how you manage the data depends on your personal preference and the amount and type of qualitative data you have. Here are some data management tips:

- **Check your data.** Often, there are data from multiple respondents, multiple surveys or documents. Make sure you have everything together. Decide whether the data are of sufficient quality to analyze, and what level of investment is warranted.
- **Add ID numbers.** Add an identification (ID) number to each questionnaire, respondent, group or site.
- **Prepare data for analysis.** You may need to transcribe taped interviews. How complete to make your transcription depends on your purpose and resources. Sometimes, you may make a summary of what people say, and analyze that. Or certain parts of an interview may be particularly useful and important and just those sections are transcribed. Other times, you will want to have every word of the entire interview. However, transcription is time-consuming. So be sure both data quality and your use of the data are worth the investment.

With small amounts of narrative data, you may work directly from the original hard copy.

However, text is usually typed into a computer program. In extension, we typically type into a word processing program (Microsoft Word or Word Perfect) or into Excel.

You may decide to use a relational data base management program such as ACCESS, or a special qualitative data analysis program.

Your decision depends on the size of your data set, resources available, preferences, and level of analysis needed or warranted.

Decide whether you will enter all responses question by question, or whether you want to keep all text concerning one case, individual, group or site together (see Step 2). Save the file.

If you type the data into a word processing program, it is helpful to leave a wide margin on the left so you have space to write labels for text and any notes you want to keep. Number each line to help with cutting and sorting later.

Computer software

Several software programs — for example, Ethnograph and NUD*IST — specifically analyze qualitative data. They systematize and facilitate all the steps in qualitative analysis. SAS software will manipulate precategorized responses to summarize open-ended survey questions (see Santos, Mitchell and Pope, 1999). CDC EZ-Text is a freeware program developed by the Centers for Disease Control and Prevention.

For smaller data sets and modest analysis needs, many people work by hand, with a word processing program or spreadsheet.

Note: Mention of products is not intended to endorse them, nor to exclude others that may be similar. These are mentioned as a convenience to readers.

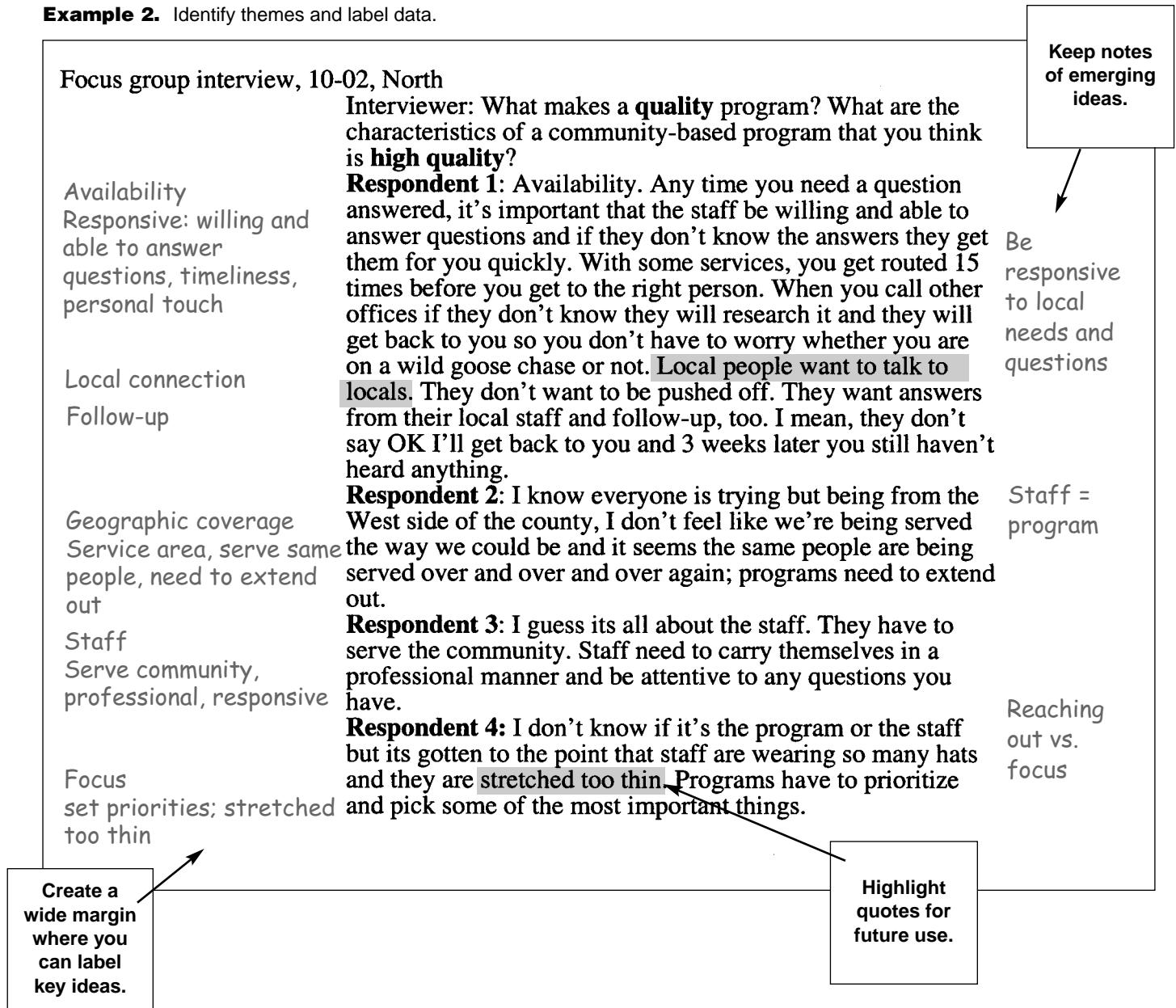
- **Make copies.** Make a copy of all your data (hard copy and electronic files). This gives you one copy to work from and another for safekeeping.
- **Identify the source of all data.** As you work with the data, you will need to keep track of the source of the information or the context of the quotes and remarks. Such information may be critical to the analysis. Make sure you have a way to identify the source of all the data, such as by individual, site and date.

Think about what information to keep with the data. For example, you might use identifiers to designate the respondent, group, site, county, date or other source information. Or you may wish to sort by variables such as age, gender or position. Will you want to compare and contrast by demographic variable, site and date?

These identifiers stay with the information as you cut and sort the data, either by hand or in the computer. If you are working with hard copies, you might use different colors of paper to color-code responses from different people or groups (for example, see Krueger, 1998).

- **Mark key themes.** Read through the text. Look for key ideas. Use abbreviations or symbols (codes) to tag key themes — ideas, concepts, beliefs, incidents, terminology used, or behaviors. Or, you might give each theme a different color. Keep notes of emerg-

Example 2. Identify themes and label data.



ing ideas or patterns and how you are interpreting the data. You can write or type these in the margins, or in a specified column. Or keep a separate notebook that records your thoughts and observations about the data (see Example 2).

- **Define categories.** Organize or combine related themes into categories. Name (label) these categories by using your own descriptive phrases, or choose words and key phrases from the text. Be clear about what the category stands for. Would someone unfamiliar with the data understand the label you have chosen? Write a short description or definition for each category,

and give examples or quotes from the text that illustrate meaning. Check with others to see if your labels make sense. You may also describe what the category does not include to clarify what is included.

- **Cut and sort.** Once you define categories and label data, grouping the data into categories involves some form of cutting and sorting. This is a process of selecting sections of data and putting them together in their category.

Hard copy — A simple method is to cut text out of the printed page and sort into different piles. Each pile represents a category and has a name. As you work with the data,

you may make new piles, combine piles, or divide piles into subcategories. Remember to keep the identifier (source of data) with the data so you know where the text came from. Also, remember that you are working with a copy, not the original material.

Electronic copy — It is relatively simple and fast to move text around in a word processing program using the Windows platform. You can cut and paste text into different Windows, each representing a single category. If you type the category label directly into the computer file, you can use the **search** function to gather chunks of text together to copy and paste. Or you can separate the text into paragraphs, code the beginning of each paragraph, and then sort the paragraphs. You may prefer to use Excel. If the data are in Microsoft Word, you can easily transfer them to Excel. Set up an Excel file that includes columns for the ID number, identifiers, categories (themes), codes, and text (see Example 3).

When cutting and sorting, keep track of the source of the data. Be sure to keep identifiers attached to all sections of data.

Keep enough text together so you can make sense of the words in their context. As you cut and move data, text can easily become fragmented and lose its contextual meaning. Be sure to include enough surrounding text so the meaning is not open to misinterpretation.

If data do not seem to fit, place those in a separate file for possible use later.

- **Make connections.** Once you sort the data, think about how the categories fit together and relate. What seems more important, less important? Are there exceptions or critical cases that do not seem to fit? Consider alternative explanations. Explore paradoxes, conflicting themes, and evidence that seems to challenge or contradict your interpretations.

To trace connections, you can spread note cards across a table, use sticky notes on walls, or draw diagrams on newsprint showing the categories and relationships. Another approach is to create a two-dimensional or three-dimensional matrix. List the categories along each axis, and fill the cells with corresponding evidence or data. For further explanation, see Patton, 1990.

You can use simple hand tabulations or a computer program:

- to search and count the frequency a topic occurs or how often one theme occurs with another, or
- to keep track of how many respondents touch on different themes.

Such counts may be illuminating and indicate relative importance. But treat them with caution — particularly when responses are not solicited the same way from all respondents, or not all respondents provide a response.

Example 3. Screen shot of Excel spreadsheet

	A	B	C	D	E	F
1	Question 2 from survey, Sept 2002 What is greatest impact the community group has had on the community to date?					
2	ID	Category	Code	Narrative	Notes	
3	1	Service	FRC	Getting a child care and resource center		
4	2	Collaboration	Focus, common goal	Focused diverse interests on a particular issue. Worked to accomplish goal of mutual interest		
5	3	Service	Parenting info	Increase information on parenting issues		
6	4	Education	Share info	Sharing knowledge of resources between service providers		
7	5	Collaboration	Coord	Bringing together agencies on behalf of the community		
8	6	Education	Parent ed	Parent education		
9	7	Collaboration	interagency effort	Establishment of an interagency effort		
10	8	Service, collaboration	FRC, people together	Getting a family resource center established; brought people together from different groups		
11	9	None yet	None	Nothing as yet. Do have complete faith that we will eventually make a huge difference		
12	10	Service	Res	More resources available in community		
13	11	Service	services	Increased services		
14	12	Collaboration	sense of cohesion	Fostering a sense of cohesiveness among community agencies to address those issues that permeate our society		
15	13	Collaboration	Coordination, common goal	Brings together government employees as well as key school, community offices, etc. All work for a common goal or understanding of each others' needs and programs and serve the public in their best interest.		
16						
17						
18						

Enhancing the process

As with any analysis process, bias can influence your results. Consider the following ways to increase the credibility of your findings.

Use several sources of data.

Using data from different sources can help you check your findings. For example, you might combine one-on-one interviews with information from focus groups and an analysis of written material on the topic. If the data from these different sources point to the same conclusions, you will have more confidence in your results.

Track your choices.

If others understand how you came to your conclusions, your results will be more credible. Keep a journal or notebook of your decisions during the analysis process to help others follow your reasoning. Document your reasons for the focus you take, the category labels you create, revisions to categories you make, and any observations you note concerning the data as you work with the text.

People tend to see and read only what supports their interest or point of view. Everyone sees data through his or her own lens and filters. It is important to recognize and pay attention to this. The analysis process should be documented so that another person can see the decisions that you made, how you did the analysis, and how you arrived at the interpretations.

Involve others.

Getting feedback and input from others can help with both analysis and interpretation. You can involve others in the entire analysis process, or in any one of the steps. For example, several people or one other person might review the data independently to identify themes and categories. Then you can compare categories and resolve any discrepancies in meaning.

You can also work with others in picking out important lessons once cutting and sorting is done. Or you can involve others in the entire analysis process, reviewing and discussing the data and their meaning, arriving at major conclusions, and presenting the results.

Involving others may take more time, but often results in a better analysis and greater ownership of the results.

Pitfalls to avoid

Finally, with any qualitative analysis, keep in mind the following cautions.

Avoid generalizing.

The goal of qualitative work is not to generalize across a population. Rather, a qualitative approach seeks to provide understanding from the respondent's perspective. It tries to answer the questions: "What is unique about this individual, group, situation or issue? Why?"

Even when you include an open-ended question on a survey, you are seeking insight, differences, the individual's own perspective and meaning. The focus is on the individual's own or unique response.

Narrative data provide for clarification, understanding and explanation — not for generalizing.

Choose quotes carefully.

While using quotes can lend valuable support to data interpretation, often quotes are used that only directly support the argument or illustrate success. This can lead to using people's words out of context or editing quotes to exemplify a point.

When putting together your final report, think about the purpose for including quotes. Do you want to show the differences in people's comments, give examples of a typical response relative to a certain topic, highlight success? In any event, specify why you chose the selected quotes. Include enough of the text to allow the reader to decide what the respondent is trying to convey.

Confidentiality and anonymity are also concerns when using quotes. Even if you do not give the person's identity, others may be able to tell who made the remark. Consider what might be the consequences of including certain quotes. Are they important to the analysis and interpretation? Do they provide a balanced viewpoint?

Get people's permission to use their words. Check with others about the usefulness and value of the quotes you select to include.

Address limitations and alternatives.

Every study has limitations. Presenting the problems or limitations you had while collecting and analyzing the data helps others better understand how you arrived at your conclusions.

Similarly, it is important to address possible alternative explanations. What else might explain the results? Show how the evidence supports your interpretation.

Concluding comments

Working with qualitative data is a rich and enlightening experience. The more you practice, the easier and more rewarding it will become. As both a science and an art, it involves critical, analytical thinking and creative, innovative perspectives (Patton, 1990).

Be thoughtful, and enjoy.

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Resources

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Authors: Ellen Taylor-Powell, evaluation specialist, and Marcus Renner, research assistant, Program Development and Evaluation, University of Wisconsin-Extension.

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