The Ideal Qualitative Study with a Quantitative Component
6 Week Webinar Class

CLASS 3:

ESSENTIALS OF QUALITATIVE ANALYSIS

Welcome to week three of our 6 week webinar class *The Ideal Qualitative Study with a Quantitative Component*. The focus of this week is completing the quantitative analysis section of our study titled *Essentials of Qualitative Analysis*:

Week 1: Intro. & Quantitative Analysis Part 1

Week 2: Quantitative Analysis Part 2

Week 3: Essentials of Qualitative Analysis

Week 4: Essentials of Mixed Methods Research

Week 5: Statistical Analysis with Small Samples

Week 6: Write-up and Report

Why We Need a Qualitative Study

Prior to beginning a qualitative study, it is important to be able to state why qualitative methods are needed. One reason these methods might be necessary is in the case of our study where a deeper perspective is needed from the study participant than can be gained via survey research. Specifically, in our sample study we are examining factors that impact meditation class attendance, but are not completely certain what those factors are. Therefore, while we have identified and measured several variables via quantitative analysis, we would still like to gather data qualitatively to detect if certain drivers of attendance exists that we are not yet aware of.

Qualitative Research Is About You Being "Lieutenant Columbo"

Success in qualitative research involves adopting many of the traits of Lieutenant Columbo. Columbo was a homicide police detective on the air from 1971-2003. Why is Columbo such a great model for the qualitative researcher?

First of all, he was one of the all-time greats regarding the use of questions to probe for information. He always noted the context of a situation in terms of the 4 Ws, the where, why, what, and when. In other words, **where** did the crime occur (*what is the setting*)? **Why** did it occur (*what variables are associated with the outcome?*) **What** happened (*what is the outcome?*) **When** did it occur (*what was transpiring in the lives of the people directly involved, the society, and the world at the time that might have influenced the situation*)?

During his interviews, he was sensitive the interviewee and always noted how people responded to questions and what that might indicate. Did people seem to be hesitant in revealing information? Did they need more time to express themselves? Were there breaks in logic within a narrative that might indicate some information is missing? He also had an economy with words coupled with a cool pleasant demeanor, which was a key in helping the interviewee relay their story to him.

The Use of Probing Questions

As stated earlier, Columbo would get a sense of the real story because he would continue to ask probing questions until the truth surfaced (usually to the person he suspected). In a very real way, this is the job of a qualitative researcher. For example, in our sample study we will begin this process by asking each of the 100 retirement community residents the probing questions designed for our analysis:

Interviewer: Please tell me about what things might encourage you to attend meditation class daily.

Interviewer: The administration was considering moving all classes to the evening, would that help encourage you to attend meditation class?

Notice, these questions are succinct and directly to the point. These qualities are key in designing questions for qualitative research. In other words, we ask exactly what we want to know in a manner where the interviewee will grasp what is being asked easily and effectively.

The Use of Theory

A **theory** is an idea or set of ideas that is intended to explain facts or events. In the Columbo series, he made constant use of theory. His theories might have suggested that the crime occurred in relation to revenge, money, or a crime of passion. Qualitative research also makes heavy use of theory. However, theory in qualitative research includes ideas such as **Critical theory** (Oriented towards critiquing and changing society as a whole, **Phenomenology** (Explains how individuals give meanings to social phenomena in their everyday lives), and **Interactionism:** (Aimed to provide an understanding of individuals' interactions by examining the symbols, especially the language, they use in their daily encounters).

There are dozens of theories that might be used to guide qualitative research. We will not make an exhaustive review here in favor of focusing upon qualitative data analysis. However, it may be valuable to keep in mind the phrase: *When values are clear, decisions are easy*. A **value** might be defined as one's judgment of what is important in life. When conducting a research study there are constant decisions that must be made from study design, to data collection, data analysis, and data interpretation. You could go several ways in most instances. A theory often guides research in telling us what is important or impactful (what our values are) regarding our subject of study. In this way,

the theory often helps in clearly making the important decisions involved in each phase of the research study. Therefore, the choice of theory is critical and may prove of great use to the researcher. This is particularly true when the choice of theory is effective and kept in mind throughout the study.

The Use of Rules & Protocol

Columbo worked for the LAPD, which is a department that incorporates clear rules and protocol for an investigation. In other words, there are clear steps to follow and dos and don'ts laid out for the detective. While he is creative and brilliant, his success lies in operating within the parameters of these regulations. In qualitative research there is also a bevy of rules and protocol that must be followed to produce an effective research study. The remainder of this discussion will focus upon the steps of qualitative data analysis and the guidelines therein, necessary to produce an effective study with powerful findings.

Sample Size Considerations

Perhaps the first thing to consider when conducting a qualitative study is the size of the sample needed to produce accurate study findings. Specifically, how can we identify the number of individuals necessary for our study? Qualitative studies are typically associated with smaller sample sizes (relative to quantitative), but exactly how small is small?

The first factor we must acknowledge in the context of our sample study is that we are conducting a mixed-method study, which for us means we must be concerned with statistical power (a quantitative consideration). Specifically, we must conduct a power analysis that will determined the study sample size based upon informing us how many study participants we need to effectively perform statistical analysis. This number is often considerably larger than the amount of study participants involved in a qualitative study. For example, a power analysis for the regression model used in the quantitative analysis section of our study would require about 100 study participants, which is likely many more than are necessary for our qualitative analysis.

However, aside from considerations of statistical power, sample size is an important consideration in the qualitative portion of our research in terms of other factors. Specifically, within a qualitative study a researcher continues sampling until informational **redundancy** or **saturation** is achieved, which is the point at which no new information or themes are emerging from the data. Recognizing if redundancy or saturation exists relates to analyzing (at least preliminarily) the data collected to inform

subsequent data collection decisions (i.e., are the amount of data sufficient or do we need to collect more?).

It has been stated "determining adequate sample size in qualitative research is ultimately a matter of judgement and experience" (Sandelowski, 1995). Thus, effectively recognizing if redundancy and saturation has been reached, may have a great deal to do with the researchers conducing the study. Therein lies the risk of determining that saturation or redundancy has been reached prematurely, which might also be associated with using a sampling frame that is too narrow, the data analyst perspective is skewed or limited, the sampling method used is not resulting in rich, in depth information, and/or the researcher is unable to get beyond the surface or 'status quo' with respondents.

The type of sampling technique employed is an important sample size consideration. There are many sampling techniques along with specific reasons for using each. Our sample study will employ a **Convenience Sampling** as the study participants are readily available to us. Our concern for saturation or redundancy will not be a concern for us as the administrators requested that we interview all 100 community residents. Subsequently, it is likely that saturation and redundancy will have been reached early on in our study and well before data collection ends. We could likely extract a small number of the larger final sample to demonstrate how the qualitative findings were evident early on (where saturation and redundancy were achieved) and further data collection was not necessary from a qualitative standpoint.

Qualitative Research Methodology

Qualitative research methodology also impacts how data analysis is approached. The major methodologies include Action Research (where there is an immediate problem to solve), Ethnography (where the researcher participates in/observes a community), Phenomenology (where the researcher studies the subjective experience of others), Grounded Theory (where the researcher focuses upon developing a theory based on data), and Case Study Research (where the researcher studies a phenomena in existing context). While our sample study could be considered Action Research (where there is an immediate problem to solve), we will opt to consider our project Case Study Research, as the problem is not exactly immediate and we are examining a phenomena (i.e., attending meditation class) in an existing context (i.e, among residents of a particular retirement community).

It is important to note that in quantitative analysis once the data are collected, **data analysis** is largely the same regardless of *sampling technique* and *research methodology*. You may have noticed that these topics are not discussed within the quantitative data analysis section of this presentation. Briefly, these factors are not as *intimately tied* in the process of quantitative data analysis, but are intimately tied in the process of qualitative data analysis. Specifically, in qualitative analysis data collection, data analysis, and data interpretation take place **iteratively**. In short, all three processes are repeating together throughout the study with the aim of achieving the desired study goal, target, or result. This is a key in **realizing if saturation and/or redundancy has been achieved. Figure 1** presents **The 7 Steps of Qualitative Data Analysis**. The asterisk reflects that **Step 2 (Data Collection), Step 5 (Coding the Data),** and **Step 6 (Identify Themes in Codes)** are repeated simultaneously throughout the study as a means of determining if saturation and redundancy has been achieved.

Figure 1. The 7 Steps of Qualitative Data Analysis

The 7 Steps of Qualitative Data Analysis

Step 1: Study Map
(Diagram each study question/hypothesis)

Step 2: Data Collection*
(Analysis of Coding/Themes begins with data collection)

Step 3: Data Preparation for Analysis
(Organize/Transcribe writings)

Step 4: Initial Read Through of the Data
(Get a general sense of the data)

Step 5: Coding the Data*
(Locate text segments and assign code labels)

Step 6: Identify Themes in Codes*
(Note common messages in the codes that make themes)

Step 7: Summarize the Codes, Themes, and Data
(Write-up and report the findings)

*These Steps are often Simultaneous and Iterative (Observe a Sense of Saturation & Redundancy)

Qualitative Analysis Software

Before we examine each step of the process of qualitative data analysis, it would be useful to discuss the subject of Computer Assisted/Aided Qualitative Data Analysis Software (e.g., NVIVO, ATLAS). These software programs incorporate several advantages, such as content searching tools *(search for # times word mentioned)*, Coding tools *(highlight and assign coded statements to lists)*, Mapping or networking tools *(connect themes and concepts)*, and Writing/Annotation tools *(make pertinent notations)*. While these tools are useful, keep in mind they are not new. Specifically, all of these tasks have been done by hand by qualitative researchers for years. These new software programs have only made these activities electronic and automated in the interest of being more convenient and effective.

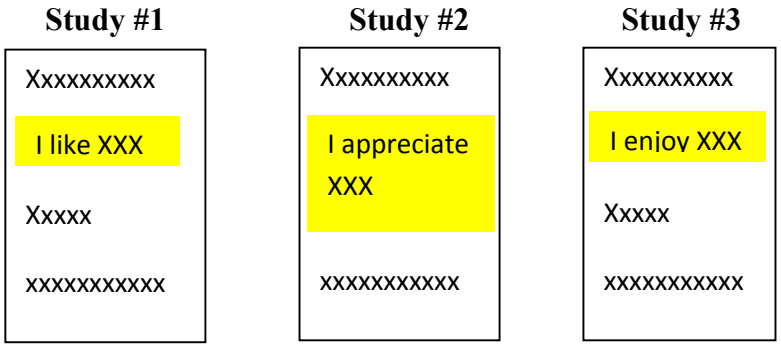
Problem: Out of Sight, Out of Mind

One of the challenges that I have been made aware of associated with these software programs is what I have termed as *Out of Sight, Out of Mind*. Specifically, while performing qualitative analysis, it is necessary to observe the coded content across study participants simultaneously to understand the data, generate ideas, and recognize themes. However, it is often difficult to do this when all the data are in housed electronically in a software database and with only one screen (the computer screen) to present all the data. Briefly, it is likely hard to impossible to recall what might be hundreds of comments within thousands of pages of text at once while constructing a theme.

Typically, when content coding in qualitative data analysis software, you scroll through the data (e.g., transcribed interview) on the screen. As you come upon certain text you would assign the comments to a category (e.g., node) that the data (e.g., statement) reflects. After coding is completed all the assigned statements are combined into a list for your review. For example, let's say you coded the three statements (highlighted in yellow) from the following three study interviews presented in **Figure 2** under the code *Class Benefits*.

Figure 2.

Three statements (highlighted in yellow) coded as *Class Benefits* from three separate study interviews



After coding is finished, the researcher would simply be provided with the series of coded statements in list form, such as:

Class Benefits:

I like XXX

I appreciate XXX

I enjoy XXX

Notice, this list is isolated from the rest of the data. As such, one cannot see much of the context of the statements, which is a primary concern in qualitative analysis. For example, the researcher cannot see the text directly before or after that statement. Subsequently, one cannot identify factors such as the train of thought in which the statement was made. Also, one cannot see the timing of the statement, such as if it was a standalone immediate declaration or part of a conversation. Factors such as these often make it difficult to place the statements of study participants in context. The researcher could refer back to the entire interview to examine these factors. However, such reference might engender breaks in concentration leading to the loss of ideas and thought, which could be very disadvantageous to the study.

To See the Whole Picture, You Must See the Whole Picture

Prior to qualitative software, qualitative analysis was typically performed using hard copies of interviews, which were colored using highlighted markers to reflect specified codes. Specifically, codes, themes, & content *receive the same color*. Notes on codes, thoughts, and ideas were also written in the margins of the hard copies and main topic underlined. I will describe how this method provides an advantage to the researcher over the use of analytic software.

Specifically, when coding was completed using the hard copy and highlighter method, the pages could be spread apart where the researcher could see all the data simultaneously. Subsequently, it became clear were codes appeared, how often, and where codes intersected. Now consider, when describing the data, the qualitative researcher aspires to present the *whole picture*. This method of spreading all the data apart and observing it at once facilitates the researcher grasping the whole picture to present because he or she is literally:

Seeing the Whole Picture!

If you are unsure of what I mean, consider Figure 3, which presents the **Mega Multi-Touch Screen**). You may notice this screen (first featured broadly in the film *Minority Report*) presents all the multiple relationships between the many factors associated with certain outcomes. This is in a word *ideal* for qualitative research.

Figure 3.

The Mega Multi-Touch Screen

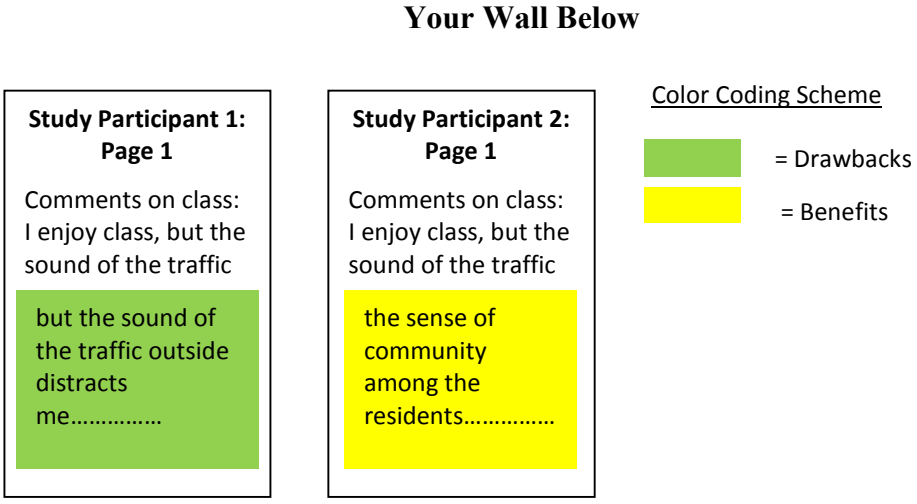
At this point you may suggest that this information is not of great use to us since few people seem to have access to a Mega Multi-Touch Screen. So you might query, *how can we see the whole picture?*

Figure 4 presents the method of appending all the hard copies to a physical wall as a means of spreading out the data to observe how codes and ideas relate and intersect. Specifically, when all the pages are up on the wall you can see how the various colored codes and notes appear on individual surveys, as well as across surveys. Granted, you may need to take pictures and plaques off the wall to make this work, but you may find this method well worth the trouble.

Earlier we mentioned that if one is using software and needs to refer back to a survey to identify where a statement was made, he or she could reference the complete survey. However, it has been estimated that the average person loses their concentration 6-10 times per minute (if you have ever tried to meditate and concentrate on one thought you can likely attest to this). Thus, the option to quickly reference each statement nested in the text the statement was made at a fast glance may prove invaluable. In this manner, there is a greater likelihood of a flow of ideas and thoughts uninterrupted by thumbing through papers or scrolling up and down documents in a computer.

Figure 4.

Using the wall as a means of grasping your data



Now that the glories of the trifecta between survey hard copies, highlighter markers, and a physical wall have been espoused, it is important to note that eventually a combined list of coded statements that relate to a single theme or subtheme (similar to that produced by the qualitative analysis software) is useful and necessary in analysis. However, during the coding process it may be helpful to see the data *spread out* to note patterns and context.

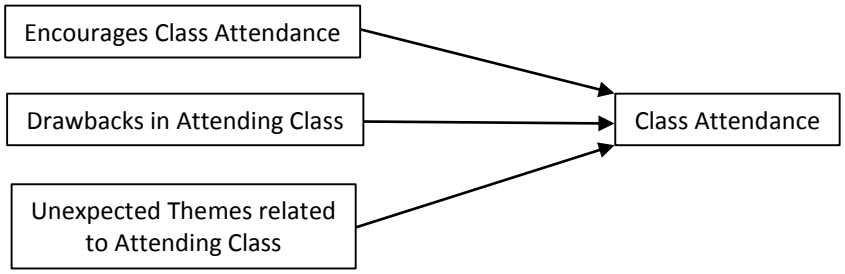
A final note to consider is that when a researcher needs to combine qualitative and quantitative data (as we will do in the mixed methods portion of our study), the qualitative must be entered into a quantitative software program. Therefore, it may be advantageous to code the qualitative data in the quantitative software at the onset and avoid the qualitative software outright. Keep in mind, the tools available in the qualitative software we described (e.g., content searching, coding, linking, annotation) are also available in the quantitative software to a large extent (including SPSS, which we will demonstrate). Thus, as it is possible to perform qualitative analysis in quantitative software, but not quantitative analysis in qualitative software, when combining these two forms of data we might consider using the quantitative software exclusively.

Applying the Steps of Qualitative Analysis to Our Sample Study

From this point on we will apply the 7 steps of qualitative data analysis to our sample study. The first step of course is the **Study Map**, where we will describe the variables being related in this analysis. **Figure 5** presents the **Study Map (Step 1)** for this analysis. Recall, the administrators wanted to know what encourages attendance and the drawbacks of attendance. Therefore, our first qualitative research questions is (**Research Question 1**) *What encourages attendance and what are drawbacks of attendance in meditation class?*

Also, recall the administrators wanted this qualitative component included as a means of identifying unidentified factors that impact class attendance. Subsequently, our second research question is (**Research Question 2)** *What are the other unexpected themes residents report in relation to attending meditation class?* These relationships under study are reflected in Figure 5 via the arrows traveling from the explanatory variables on the left to the outcome under study (*Class Attendance*) on the right.

Figure 5



Step 2: Data Collection

Step 2 involves data collection. In qualitative analysis, data collection usually involves recording direct interaction with individuals or interaction with individuals in a group setting (e.g., individual interviews, focus groups, observations) or alternate sources such as documents or records. Again, our sample study involves individual interviews where the interviewer records the statements provided by community residents.

Regarding data analysis, it is important to keep in mind that this is where we begin to monitor the data to look for codes, comments, and themes that will indicate when saturation and redundancy is being achieved.

Step 3: Data Preparation for Analysis

Data preparation will be contextual to the type of data being collected, as well as the source of the data. For example, in the case of individual interviews or focus groups, we might need to transcribe audio recording. In this case we would want to make sure all the writing is legible and the same protocol (e.g., same fonts, organization, & labels) has been used for each case. The same type of organization would also apply to data in the form of observations and/or documents. Regarding the data collection for our study, we know the researcher will act as the interviewer recording all study participant responses on hard copies (paper). Next, all interviews will be entered into word documents for analysis.

Step 4: Initial Read Through of the Data

Step 4: Initial Read Through of the Data involves a preliminary exploration of the data. At this point the researcher would read through all of the information provided (transcribed individual interviews, focus groups, observations, documents) to simply obtain a general sense of the information.

Step 5: Coding the Data

Step 5: Coding the Data involves an overall process of developing a description from the data, defining themes from the data, as well as connecting and interrelating themes. This process can be broken down into three smaller processes. **Figure 6** presents **Coding the Data in 3 Stages**, **5a: Open Coding, 5b: Axial Coding,** and **5c: Clustering**.

Figure 6

Coding the Data Presented in 3 Stages: 5a, 5b, & 5c

Step 4: Initial Read Through of the Data
Many pages of text (e.g., 100)

Step 5a: Open Coding
Divide Text Into Information Segments
Many Segments (e.g., 4 per page = 400)

Step 5b: Axial Coding
Label Segments of Information with Codes
Likely Dozens of Codes (e.g., 30-40 codes)

Step 5c: Clustering
Reduce Code Overlap & Redundancy
Codes Reduced Considerably (e.g., 20 codes)

Step 6: Identify Themes in the Codes
Identify Themes Across Codes (e.g., 5-7 themes)

Open Coding (5a), the first level of coding, involves looking for distinct concepts and categories within the data. For example, if a researcher has 100 pages of interview text to analyze, he or she might find around 4 segments per page, resulting in a total of 400 information segments for analysis (100 pages X 4 per page = 400). He or she might also assign a code word or phrase that accurately describes the meaning of the text segment. Please note when performing theoretical research a researcher might code line by line. However, when performing more general coding involving larger segments of text is adequate for practical research. This is true in action research oriented type projects such as our sample study.

Axial Coding (5b), involves looking for categories cutting across all the data. For example, if we examined the 400 information segments described in the last paragraph, we would likely identify several dozen (e.g., 30-40) like codes through relating categories and subcategories

After coding an entire text, **Clustering (5c)**, the third level of coding, involves making a list of all code words to cluster together in order to look for similar codes and redundant codes. The objective here is to **reduce code overlap and redundancy** toward moving from a long list of codes to a smaller, more manageable number (e.g., 20 or less).

Step 6: Identify Themes in Codes

After coding is complete, it would be appropriate to approach **Step 6: Identify Themes in Codes**, where the many codes would be **collapsed into themes**. Specifically, the new list of codes would be referenced and cross-referenced to reduce the data into a small number (e.g., 5-7) themes or descriptions. Themes are similar codes aggregated together to form a major idea in the database.

Naming the Themes or Categories. The names for themes or categories typically come from three sources, which are the researcher, the participants, or the literature. Most commonly, the researcher specifies terms, concepts, & categories reflecting what he or she sees in the data

Types of themes. Themes may also be categorized as **Ordinary** (themes a researcher expects), **Unexpected** (themes that are surprises and not expected to surface), or **Hard-to-classify** (themes that contain ideas that do not easily fit into one theme or that overlap with several themes). Themes can also be classified as

major and **minor themes**. The minor themes are typically the smaller themes or subthemes that compose the major theme.

Lastly, when the themes have all been identified, a check should be made to be sure that all:

1) Reflect the purpose of the research

2) Are exhaustive where all data have been placed in a category

3) Sensitive to what is in the data, e.g., in our study we would be specific with terms such as "imagery" vs. "guided imagery" used in meditation

4) Be conceptually congruent, e.g., wouldn't have separate categories for meditation, imagery, & visualization if each reflected the same activity

Implementing the Steps of Quantitative Data Analysis in Our Study (Steps 5a-c to Step 6)

From this point on we will implement Steps 5a-c and Step 6 in reference to our sample study. We will start with Step 5a: Open Coding, which has been applied to study surveys 1, 2, and 3, which are presented as Figures 7, 8, and 9, respectively.

Within these figures you will see that the text has been divided into **information segments**. Specifically, in the left hand column, you will see that each segment of text provided by a community resident reflecting an idea, thought, feeling, and so on, has been sectioned off with a notation:

The meaning or gist of the statement idea, thought, feeling, as interpreted by the researcher is written to the left of the notation. The potential codes and study ideas seen by the researcher is written across the page in the right hand column. As you can see, as we speculated there are about 3-4 segments per page.

Figure 7

Study Interview 1

Study Interview #1

Enter segments And codes here ↓	**Interviewer: Please tell me about what things might encourage you to attend meditation class daily.**	**Enter themes and study ideas here** ↓
A person to remind/lead others to class	Respondent: Basically, there are several small things that could be done, such as a staff member mentioning the class will begin about 30 minutes before. Or even one of us residents as a class	**Potential theme:** A sense of comm -unity to encourage attendance.
Use instructor respondent prefers organizer.	What would really be a great help is if Ms. Allbright who teaches the evening classes also taught the morning classes. We all like her, but the person who teaches the morning class we don't like as much.	**Potential theme:** Importance of the instructor toward encouraging attendance.
	Interviewer: The administration was considering moving all classes to the evening, would that help encourage you to attend meditation class?	
Prefers morning class because likes evening rest	Respondent: No, quite the contrary. I and most of the residents I know of would rather attend in the morning. However, we go in the evening anyway because we like Ms. Allbright the instructor. Doing that is often a problem for me because I like to rest in the evening and not have a lot of activity. The ideal thing would be to have morning classes with the girl who teaches the evening classes leading the medication class.	**Potential theme:** Factors impeding attendance **Study Idea:** The ideal combo of factors promoting attendance.
Prefers morning class + specific instructor		

Figure 8

Study Interview 2

Study Interview #2

Enter segments And codes here ↓	**Interviewer: Please tell me about what things might encourage you to attend meditation class daily.**	**Enter themes and study ideas here** ↓
Prefers morning class + specific instructor Drawback is instructor's harsh tone	Respondent: I would attend class more often if the evening instructor Ms. Allbright taught morning classes. I would like to perform mediation in the morning, but the morning instructor Ms. Getinline is too rigid for me. She tells us to visualize things in a Drill Sargent like voice that ruins the process. Other than that I think everything possible has been done to get me to class.	**Potential theme:** Class time (morning) encourages attendance **Potential theme:** Importance of the instructor encouraging attendance
	Interviewer: The administration was considering moving all classes to the evening, would that help encourage you to attend meditation class?	
Dislikes evening class due to walking in the dark	Respondent: No, that would create more of a problem than a solution because I don't like to walk the path to class in the dark.	**Potential theme:** Factors that impede attendance

Figure 9

Study Interview 3

Study Interview #3

Enter segments And codes here ↓	**Interviewer: Please tell me about what things might encourage you to attend meditation class daily.**	**Enter themes and study ideas here** ↓
Sitting in class can be painful for resident Thick cushion encourages attendance	Respondent: I don't much like meditation class. There are several reasons, but to be very frank, sitting on the floor still for all that time hurts my bottom. A thick cushion to sit on would really help me in meditation class. Believe me, many of the other residents have also told me that they feel the way I do. However, not many people want to tell other people about it. **Interviewer: The administration was considering moving all classes to the evening, would that help encourage you to attend meditation class?**	**Potential theme:** Factors that impede attendance **Potential theme:** Facilitator of class attendance
Prefers morning class+ specific instructor	Respondent: Well, to be frank again, I would prefer morning classes, but I prefer the instructor in the evenings. The best thing would be to move the evening instructor Ms. Allbright to the morning class instead of moving the morning class.	**Potential theme:** Class time (morning) encourages attendance **Study Idea:** Class instructor (morning) encourages attendance

Label Segments of Information with Codes (Step: 5b: Axial Coding)

The next step, **Step: 5b: Axial Coding** involves labeling all the information segments identified in the prior step with codes. For example, **Table 1** presents the information segments from Figures 7, 8, and 9 as codes where each was mentioned within each survey. As stated earlier in a full study there is likely to be dozens of codes (e.g., 30-40 codes).

Table 1

Label Segments of Information with Codes (Step: 5b: Axial Coding)

Interview number/Quoted comments	CODES/CATEGORIES
Interview #1	
"Staff member…resident…mentioning the class will begin"	**(CODE: Class reminder)**
"if Ms. Allbright taught the morning class/we like her"	**(CODE: Instructor: Ms. Allbright)**
"rather attend in the morning"	**(CODE: Scheduling: Morning class)**
"I like to rest in the evening and not have a lot of activity"	**(CODE: Barrier to attendance)**
Interview #2	
"I would like to perform mediation in the morning"	**(CODE: Scheduling: Morning class)**
"attend…if…Ms. Allbright taught morning classes"	**(CODE: Instructor: Ms. Allbright)**
"Ms. Getinline/Drill Sargent like voice that ruins process"	**(CODE: Negative instructor trait)**
"I don't like to walk the path to class in the dark"	**(CODE: Safety concerns RE attendance)**
Interview #3	
"Sitting on the floor still for all that time hurts my bottom"	**(CODE: Discomfort)**
"Thick cushion to sit on would really help me in meditation class"	**(CODE: Equipment help)**
"I would prefer morning classes"	**(CODE: Scheduling: Morning class)**
"I prefer the instructor in the evenings…Ms. Allbright"	**(CODE: Instructor: Ms. Allbright)**

Reduce Code Overlap & Redundancy (Step 5c: Clustering)

The next step, **Step 5c: Clustering** is where we will reduce the codes into a smaller number by identifying overlap and redundancy. For example, within **Table 2** you will see the data have been sorted into categories. Please note the ID number of each study participant is to the left of the statement so we can identify multiple comments by the same study participant.

Table 2

Reduce Code Overlap & Redundancy (Step 5c: Clustering)

ID#	CODES/CATEGORIES
	Consider Instructor Preference to Facilitate Attendance
(1)	"if Ms. Allbright taught morning class/We like her" **(CODE: Instructor: Allbright)**
(3)	"I prefer the instructor in the evenings…Ms. Allbright" **(CODE: Instructor: Allbright)**
(2)	"attend…if…Ms. Allbright taught morning classes" **(CODE: Instructor: Allbright)**
	Consider Scheduling Preference to Facilitate Attendance
(1)	"rather attend in the morning" **(CODE: Scheduling: Morning class)**
(2)	"I would like to perform mediation in the morning" **(CODE: Scheduling: Morning class)**
(3)	"I would prefer morning classes" **(CODE: Scheduling: Morning class)**
	Other
(1)	"I like to rest in the evening and not have a lot of activity" **(CODE: Barrier to attendance)**
(2)	"Ms. Getinline/Drill Sargent voice that ruins process" **(CODE: Negative instructor trait)**
(2)	"I don't like to walk the path to class in the dark"**(CODE: Safety concerns RE attendance)**
(3)	"Sitting on the floor…hurts my bottom" **(CODE: Discomfort RE attendance)**
(3)	"Thick cushion to sit on would really help…meditation class" **(CODE: Equipment help)**
(1)	"Staff member…resident…mentioning the class will begin" **(CODE: Class reminder)**

Identify Themes in the Codes (Step 6)

Now that the codes have been clustered, we can approach **Step 6**, where we can identify the major and minor themes across the codes. As we mentioned, in a normal size study we might end up with about 5-7 themes. However, in our abbreviated study here, we have two main themes, which are **Things to encourage attendance (Theme 1)** and **Barriers to attendance (Theme 2)**. Notice that all the subthemes that comprise the main theme are listed beneath that theme.

Additionally, notice that the number and percentage of study participants who provided data reflecting that theme are entered in the two right hand columns. Even if these values were not included in the article or research report based upon these data, these computations would still be necessary as we could only label several codes a theme if it cuts across a predominance of the data. Unless we computed these values how could we be sure that is the case?

Table 3

Identify Themes in the Codes (Step 6)

CODES/CATEGORIES	n	(%)
Things to encourage attendance (Theme 1)	**90**	**90**
Instructor preference/Prefer Ms. Allbright (subtheme 1)	77	77
Morning class preference (subtheme 2)	85	85
Positive instructor traits (subtheme 3)	55	55
Barriers to attendance (Theme 2)	**65**	**65**
Negative instructor traits (subtheme 1)	15	15
Lack of interest in class (subtheme 2)	25	25
Drawbacks to evening class (subtheme 3)	19	19
Physical demands of class (subtheme 4)	10	10

Step 7: Summarize the Codes, Themes, and Data

Step 7: Summarize the Codes, Themes, and Data, involves constructing a narrative description from the coding and themes to present that describes the findings of the research. Within this narrative, it is useful to identify dialogue that provides support for themes, look for dialogue in the participants' own dialect, as well as possibly use metaphors and analogies. Attention should also be paid to locate multiple perspectives and contrary evidence, as well as identify tensions and contradictions in individual experiences.

When presenting theme and/or subthemes, it is common to describe the theme/subtheme and then follow that description with a supporting quote from a study participant. For example, you will see in the text below an initial overall description of the main theme **Things to encourage attendance**, which is mostly a description of the subthemes. However, within each subtheme, you will see a quote that supports or illustrates that subtheme. You will also see this same pattern for the second theme **Barriers to attendance**.

THEME 1 (Overall description of the theme/subthemes):

Things to encourage attendance

A clear theme was evident where community residents identified several factors that encouraged class attendance, such as instructor preference, morning class attendance, and positive instructor traits. Each of these subthemes is expanded upon below [More would be added as more subthemes would likely be identified in a full analysis].

Instructor preference (this is subtheme 1)

Although residents seemed hesitant to express negative opinions about the alternate instructor (15%; n=15, mentioned such a negative comment), a clear majority of them (77%; n=77) clearly identified that they would be encouraged to attend class if Ms. Allbright was the instructor. Resident comments included statements such as:

> "What would really be a great help is if Ms. Allbright who teaches the evening classes also taught the morning classes. We all like her…"

Morning class preference (this is subtheme 2)

An overwhelming majority of residents (85%; n=85) mentioned they would prefer to attend meditation class in the morning. Of these 85, 77 described they attended evening classes specifically to be instructed by Ms. Allbright. However, their first choice would be to attend class in the morning. Resident comments included statements such as:

"I would attend class more often if the evening instructor Ms. Allbright taught morning classes…"

THEME 2 (Overall description of the theme/subthemes):

Barriers to attendance

A second theme was evident among community residents regarding factors that act as barriers to class attendance. For example, community residents reported feeling discouraged from class attendance by negative instructor traits, lack of interest in class, drawbacks to evening class, as well as physical demands of class [More would be added as more subthemes would likely be identified in a full analysis].

Drawbacks to evening class (this is subtheme 1)

As mentioned previously, several residents mentioned a preference to attend class in the morning. Additionally, several (19%; n=19) also mentioned drawbacks related to class attendance in the evening. For example, a resident stated:

"[Attending evening class] is often a problem for me because I like to rest in the evening and not have a lot of activity."

"[Attending evening class] would create more of a problem than a solution because I don't like to walk the path to class in the dark."

Within our 6 week webinar, week 6 focuses upon the write-up of the results. Subsequently, all the elements of the report that the qualitative and quantitative research have in common will be presented there. These include providing a description of the setting, making comparisons with the literature, interpreting the data in view of past research, showing how findings support or contradict prior studies, the limitations of the study, and what future research is suggested. Here we will discuss a few elements of a report that are specific to qualitative research.

For example, qualitative research often makes use of simple tables, such as Table 3 within this document. However, qualitative research also makes use of unique visual data displays, such as a comparison table or matrix, hierarchical tree diagram that represents themes and their connections, boxes that show connections between themes, and/or the physical layout of the setting involved in the research.

Qualitative researchers typically believe that personal views cannot be separated from interpretations, so **personal reflections** about the meaning of the data are often included in the study. For example regarding our sample study one might see a statement such as:

"Several of the residents had been diagnosed with ADHD and had been prescribed meditation classes by their doctors as treatment. Many were actively taking medication for the condition.

I was unaware of these diagnoses until after the interview sessions. I was quite surprised because many of the residents with the diagnosis were the most focused people during the interview."

Statements are also included that might address **research bias**. Again, regarding our sample study one might see a statement such as:

"I am not an impartial bystander when it comes to promoting the benefits of attending meditation classes, so I knew I had to enhance internal validity at the outset of the study. I have been involved with designing interventions that use meditation class as a means of enhancing cognitive and physical health outcomes among individuals 65 and older for over 15 years.

I written a book and several related articles on this topic. I have also appeared on Good Morning America with a group of people who attended one of these interventions. Being aware of my bias to encourage class attendance, I took precautions to maintain objectivity during data collection and analysis toward accurately representing the project fairly and accurately."

Reliability or Dependability

From a quantitative perspective, reliability refers to the extent to which research findings can be replicated. However, from a qualitative perspective, dependability (reliability) is not based on outsiders getting the same results, but that outsiders concur that, given the data collected, the results make sense. In other words, the results are dependable and consistent (Lincoln & Guba, 1985).

External Validity

External validity is concerned with the extent to which the findings of one study can be applied to other situations. It is important to keep in mind that external validity is problematic in qualitative research because "In qualitative research, a single case or small nonrandom sample is selected precisely because the researcher wishes to understand the particular in depth, not to find out what is generally true of the many" (Merriam, 1998, p. 208).

In Conclusion

Qualitative analysis identified factors related to class attendance that were not included in the initial quantitative analysis. Perhaps the biggest factor was the fact that residents were attending class based upon their preference of one instructor over another. One could say that *Instructor preference* surfaced as a possible confounding variable identified using qualitative methods. A **confounding variable** is a variable correlated with both the dependent and independent variables that regularly distorts statistical findings!

The issue of Class Instructor is related to the Independent Variable (Class assignment: Morning or Evening) as residents describe the preferred instructor teaching in the evening. Class instructor is related to Dependent Variable (Class Attendance) as residents seem more likely to attend when they believe the preferred instructor will be there. Notice, the qualitative element may have been responsible for identifying the variable to produce accurate findings.

Now the question begs, how can we use these qualitative data to inform our study to better identify the strongest predictor of class attendance as administrators requested? Next week our mixed methods design will demonstrate how these two forms of data come together to answer the research question in an ideal manner. Hold onto your socks, you are going to see something remarkable!