

Module 5 – Study Designs III (Qualitative Designs)



Original Author / PERC Reviewer: Karen J Black, MD, MSc

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Overview

Introduction

The qualitative researcher is interested in studying " . . . things in their natural setting, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them". Qualitative research begins with an intention to explore a particular phenomenon about which little is known (or to attempt to clarify what was deductively derived), and then seeks to talk with those who might best understand the phenomenon in question, in order to shed meaning on the problem or situation.

Objectives

You will be able to

- Discuss the types of research questions where qualitative methods would be appropriately employed
- Understand that multiple methodologies inform qualitative research
- Understand the role of the researcher in qualitative research
- Outline the data collection strategies that can be used in qualitative research and the benefits and drawbacks of each
- Discuss the possible approaches to data analysis for qualitative data
- Develop a focused qualitative research question and outline the steps needed to answer the question including: method(s) of data collection, sampling strategy, data management, and support needed (personnel, equipment, software, funds etc)
- Understand how to judge the quality of qualitative research

Key Concepts

- Qualitative research design is the best research design to use in certain circumstances
- Quantitative and qualitative studies have important differences
- Qualitative data analysis requires a systematic and rigorous approach

Activities

- Writing and submission of the research proposal outline for your qualitative research
- Downloading of a demonstration version of a QDA software

Quick Links

Journal databases for qualitative research literature searches (access through your local library website)

- CINAHL (<http://www.ebscohost.com/cinahl/>)
- PubMed (<http://www.ncbi.nlm.nih.gov/pubmed/>)
- Social Sciences Citation Index (Web of Science)(
http://thomsonreuters.com/products_services/science/science_products/a-z/web_of_science)

Qualitative data analysis (QDA) software, download a trial version:

- Atlas.ti (<http://www.atlasti.com/>)
- Nvivo, NU*DIST or Xsight (<http://www.qsrinternational.com/products.aspx>)

Critical appraisal of Qualitative Research (with review sheets):

- Health Evidence Bulletins - Wales: Additional questions to assist with the critical appraisal of a qualitative study (<http://hebw.cf.ac.uk/projectmethod/appendix9.htm>)
- Health Care Practice Research and Development Unit (HCPREDU) - University of Salford: Evaluation Tool for Qualitative Studies (<http://www.fhsc.salford.ac.uk/hcprdu/tools/qualitative.htm>)

Helpful 'how-to' articles:

- Trisha Greenhalgh, Rod Taylor. How to read a paper: Papers that go beyond numbers (qualitative research). BMJ 1997; 315 (<http://www.bmj.com/cgi/content/full/315/7110/740>)
- Catherine Pope, Nick Mays. Qualitative Research: Reaching the parts other methods cannot reach: an introduction to qualitative methods in health and health services research. BMJ 1995;311:42-45 (<http://www.bmj.com/cgi/content/full/311/6996/42>)
- Nicholas Mays, Catherine Pope. Qualitative Research: Rigour and qualitative research. BMJ 2000;320:50-52 (<http://www.bmj.com/cgi/content/full/320/7226/50>)
- Catherine Pope, Sue Ziebland, Nicholas Mays. Qualitative research: Analysing qualitative data. BMJ 2000;320:114-116 (<http://www.bmj.com/cgi/content/full/320/7227/114?.../2000>)

Task Checklist

1. Submit a write up of your qualitative research proposal
2. Have your research advisor review this proposal and provide constructive comments

Module 5: Study Designs III (Qualitative Studies)

Background

Because most medical graduates have had little exposure to qualitative research, a large part of this module will be outlining the different methodologies that can be drawn upon to answer qualitative questions. Practically speaking, however, many methodologies will use similar study design and data collection techniques such as observation, interviews and/or focus groups. This module will describe different perspectives within qualitative research, allowing the learner to find an appropriate approach to his/her research question. This module relies on the learner already having completed Modules 1 and 2.

Introduction and Definitions

The best designed quantitative study controls for all variables, changing only the one under examination. This method of inquiry, however, is unsuitable for many human/social science research questions, as it removes the real life context that makes each of us behave in a unique manner. Qualitative research methods are designed to help researchers understand people and the social and cultural contexts within which they live. In order to understand a little better the scope of qualitative research, it is important to think for a moment about knowledge and knowing.

What can be known? The ontologic question

What is the relationship of the knower to that which can be known? The epistemologic question

What are the ways of finding out knowledge? The methodological question

What can be known?

Ontology is the study of being – what is the nature of reality and what is there that can be known about it? In qualitative research there is generally the belief that much of our knowledge and understanding of human life depends on our past experiences and location in the world. This means there are multiple ‘socially constructed’ realities and these realities are ungoverned by any natural laws.

Think about an incident or interaction involving more than one person (for example, a motor vehicle collision involving 2 drivers, 2 passengers and 3 by-standers). Chances are, that if a detailed account of that interaction is collected from each person involved, there will be multiple versions of the same

experience. Each one is from an individual perspective. Which one is true? If each person feels that her version is the “truth” or reality, how can this be reconciled? Our recollection of certain details will be affected by our previous experiences and our attention to what is happening in the present. This demonstrates that realities are mental constructions, socially and experientially based, dependent for their form and content on the individual. Realities are also changeable as an individual becomes more informed and sophisticated. (Guba and Lincoln – Denzin and Lincoln’s Handbook of Qualitative Research 1994)[In contrast, the paradigm of quantitative research is that there exists a single reality, independent of any observer’s interest in it, and that reality operates according to natural laws, many of which take a cause - effect form.]
What is the relationship of the knower to that which can be known?

Epistemology is the study of knowledge and looks at the nature of the relationship between the knower and what can be known. Each person will have his/her own way of knowing. There are different epistemologies for different types of research. For example, most quantitative research (and thus researchers) follows a positivist (or objective) approach, while qualitative research tends to follow an interpretive (or subjective) approach.

Positivists generally assume that reality is objectively given and can be described by measurable properties that are independent of the observer (researcher) and his or her instruments. The observer is detached and excludes his/her values from influencing the phenomena. Positivist studies generally attempt to test theory, in an attempt to increase the predictive understanding of phenomena. If there is evidence of formal propositions, quantifiable measures of variables, hypothesis testing, and the drawing of inferences about a phenomenon from the sample to a stated population, then the research takes a positivist position. (This is quantitative research in a nutshell.)

Interpretive researchers, on the other hand, start out with the assumption that access to reality (given or socially constructed) is only through social constructions such as language, consciousness and shared meanings. In this case the researcher and researched are connected. Findings are a creation of the research process. Personal values are taken into account in the reporting of the analysis. There are multiple different philosophies that inform interpretive research. Interpretive studies generally attempt to understand phenomena through the meanings that people assign to them. Interpretive research does not predefine dependent and independent variables, but focuses on the full complexity of human sense making as the situation emerges. [Adapted

from:http://www.misq.org/discovery/MISQD_isworld/index.html#Philosophical%20Perspectives]

Qualitative research understands that we all carry with us the sum of our life experiences and thus are all biased. It is impossible to remove one's experiences from the process of trying to understand an experience or phenomenon. In addition, it is impossible to know ALL there is about an object or experience. Qualitative research seeks to increase our understanding without claiming to have discovered "the whole truth." One of the hallmarks of qualitative research is that it is exploratory. When a researcher thinks about a question, there is often a hypothesis at the beginning, and a study is designed to test that hypothesis. In qualitative research it is best to abandon whatever hypothesis might exist and attempt instead to discover or bring to light ideas that might inform a new hypothesis. Not all qualitative research is directed at hypothesis generation... simply illuminating an experience from the participants' perspectives adds to our understanding and is useful knowledge.

Creswell (1998) defines Qualitative Research:

Qualitative research is an inquiry approach useful for exploring and understanding a central phenomenon. To learn about this phenomenon, the inquirer asks participants broad, general questions, collects the detailed views of participants in the form of words or images, and analyzes the information for description and themes. From this data, the researcher interprets the meaning of the information drawing on personal reflections and past research. The structure of the final report is flexible and it displays the researcher's position and thoughts.

What are the ways of finding out knowledge?

Rather than wanting to predict or explain a certain phenomenon using experiments or surveys that can be generalized to populations, qualitative knowledge tries to describe and make sense of a certain phenomenon, leaving it in the social and cultural context. Generalizations are not sought; instead the particular details are what provide insight and understanding. To obtain this type of knowledge, qualitative research uses interviews and observation as the key approaches.

Theoretical Background

As you move through the module, think of what kinds of questions relevant to your profession and interests would be in keeping with the various traditions. For your question, you will need to "locate" it in a body of knowledge and set of assumptions. Initially this knowledge may be intuitive and reflect your own underlying assumptions of how you see the world and the research fitting in to it. As you develop your project, either before, during, or after data collection, this knowledge needs

to be informed by the existing literature – both relevant theoretical knowledge and research in the area.

The conceptual framework may be informed by knowledge of various theories, such as organizational behaviour, learning theory, developmental theory, or critical social theory (this last one especially in studies with marginalized groups). The existing body of literature will help you identify gaps in the current state of knowledge, and provide direction for data collection.

The methodology of qualitative studies refers to the assumptions that guide the collection and analysis of the data – this is the lens you are using. The method, on the other hand, refers to how one goes about collecting and analyzing the data – the mechanics of it. It is important to read a lot about your chosen methodology if you are new to qualitative research, so you are very familiar with the theory and assumptions that are associated with it.

Different Theoretical Traditions in Qualitative Inquiry

Perspective	Disciplinary Roots	Central Questions
Ethnography	Anthropology	What is the culture of this group of people?
Auto-ethnography	Literary arts	How does my own experience of this culture connect with and offer insights about this culture, situation, event and/or way of life?
Reality Testing: Positivist and realist approaches	Philosophy, social sciences and evaluation	What's really going on in the real world? What can we establish with some degree of certainty? What are plausible explanations for verifiable patterns? What's the truth insofar as we can get at it? How can we study a phenomenon so that our findings correspond, as much as possible to the real world?
Constructionism/constructivism	Sociology	How have the people in this setting constructed reality? What are their reported perceptions, "truths," explanations, beliefs and worldview? What are the consequences of their behaviours and for those with whom they interact?
Phenomenology	Philosophy	What is the meaning, structure and essence of the lived experience of this phenomenon for this person or groups of people? http://www.phenomenologyonline.com/
Heuristic inquiry	Humanistic psychology	What is my experience of this phenomenon and the essential experience of others who also experience this phenomenon intensely? http://www.psy.dmu.ac.uk/drhiles/HIpaper.htm
Ethnomethodology	Sociology	How do people make sense of their everyday activities so as to behave in socially acceptable ways?
Symbolic interactionism	Social Psychology	What common set of symbols and understandings has emerged to give meaning to people's interactions? http://www.colorado.edu/Communication/meta-discourses/Papers/App_Papers/Nelson.htm
Semiotics	Linguistics	How do signs (words, symbols) carry and convey meaning in particular contexts? http://www.abc.net.au/comms/lines/programs/prog05.htm

Hermeneutics	Linguistics, philosophy, literary criticism, theology	What are the conditions, under which a human act took place or a product was produced, that makes it possible to interpret its meanings? http://jmm.aaa.net.au/articles/13615.htm
Narratology/narrative analysis	Social sciences (interpretive), literary criticism, literary nonfiction	What does this narrative or story reveal about the person and world from which it came? How can this narrative be interpreted to understand and illuminate the life and culture that created it? http://www2.chass.ncsu.edu/garson/pa765/narrativ.htm
Ecological psychology	Ecology, psychology	How do individuals attempt to accomplish their goals through specific behaviours in specific environments?
Systems theory	Interdisciplinary	How and why does this system as a whole function as it does?
Chaos theory	Nonlinear dynamics	Theoretical physics, natural sciences: What is the underlying order, if any, of disorderly phenomena?
Grounded theory	Social sciences, methodology	What theory emerges from systematic comparative analysis and is grounded in fieldwork so as to explain what has been and is observed? http://www.scu.edu.au/schools/gcm/ar/arp/grounded.html
Orientalist, Feminist inquiry, Critical theory, Queer theory, among others	Ideologies, political, cultural, and economic	How is X perspective manifest in this phenomenon?
NB: this list is not exhaustive!		

Patton: Qualitative Research and Evaluation Methods, 3rd edition, p 132-133

One of the challenges but also valuable aspects of qualitative research is that there is no single best way to answer a question. There are multiple different approaches that can be taken, each offering its own advantages, and it is necessary to choose the method and methodology which best fits how you want to go about exploring the research idea.

Types of Questions

- The what, why and how questions work well for qualitative methods:
- What are the dynamics of the student/resident/fellow/staff team in the ED?
- Why is there brand loyalty to antibiotics?
- How does the learner gain confidence in procedures done rarely? (Note confidence is a feeling rather than a skill.)

If your research problem requires you to learn about people's view, assess a process over time, develop theories from participant perspectives or learn more detailed information from a smaller number of people, then it is appropriate to use qualitative methods.

The how many, how often questions are less suitable for qualitative methods, as are comparisons among groups (although this can work for certain questions) and interventional questions.

The **qualitative researcher** her/himself is the research tool in many qualitative projects. As such these are some of the things a qualitative researcher must be willing to do:

- “Commit to extensive time in the field, collecting extensive data and labouring over field issues of trying to gain access, rapport, and an insider perspective (especially with cultural groups different from the researcher)
- Engage in the complex time consuming process of data analysis and the ambitious task of sorting through large amounts of data and reducing them to a few themes or categories
- Write long passages because the writer needs to show multiple perspectives. These perspectives are often presented using participant voices (quotations)
- Participate in a form of social and human science research that often does not have firm guidelines or specific procedures and which is constantly evolving and changing” [taken from a presentation by Dr Joan Evans, Nov 2006]

Do not let this put you off – sounds difficult, but is fun, engaging and valuable.

Possible Approaches

Biography

The study of an individual and her or his experience as told to the researcher or found in the documents and archival material. – Can be autobiography also. Includes history, influences, a pivotal life changing event, impact of events

Phenomenology

Describes and interprets the meaning of everyday experiences, concepts and phenomena from the perspective of several individuals.

- The physician – nurse relationship in acute care
- Meanings of spirituality in palliative care

- Skateboarders' experience of risk and injury

Data sources can be interviews, focus groups, observation, photographs. The focus of data analysis is lived experience, and the meanings associated with those experiences – you as researcher are interpreting their presented interpretation of their experience – also known as circular hermeneutics.

Grounded Theory

- Seeks to understand and describe human behaviour
- Generates theory that explores social processes – how people interact, take action in response to a particular phenomenon
- Theory is generate from the “ground” up
- Often found in medical/nursing literature as thought to be more “objective” form of qualitative research with attempts to remove the researchers' opinions and interpretation – having the results come out of the data - but ultimately will be affected by the researchers' backgrounds, assumptions and combined analyses.
- Data sources include interviews, observations, focus groups, literature
- Need to be conversant in the relevant literature

Ethnography

Sees to understand human behaviour in the cultural context in which it is embedded. It requires observation of learned patterns of behaviour, language, customs, interactions and ways of life. Involves prolonged cultural immersion and understanding from the insider's point of view. The researcher is often an outsider looking in – unless it is an autoethnography in which the researcher is part of the examined culture – eg pediatric emergency doctor looking at the culture of communication within the Pediatric Emergency

- Institutional ethnography looks at the culture of institutions – such as health care, and how groups or individuals interact with that culture – within or as outsiders – eg marginalized populations accessing medical care

Sources of data include interviews, field notes, observations, policies, documents, cultural artifacts.

Case Study

- An exploration of a bounded system (defined) or a case (or multiple cases) over time through detailed, in-depth data collection involving multiple sources of information rich in context
- A case or bounded system may be a person, group, episode, process, community, hospital, society
- Data is collected about the nature of the case, its historical background, other contexts (economical, political, legal), other cases through which the case is recognized, those informants through which the case can be known
- Sources of data include interviews, observations, documents, letters, diaries, texts, policies

Participatory Action Research

“Action research...aims to contribute both to the practical concerns of people in an immediate problematic situation and to further the goals of social science simultaneously. Thus, there is a dual commitment in action research to study a system and concurrently to collaborate with members of the system in changing it in what is together regarded as a desirable direction. Accomplishing this twin goal requires the active collaboration of researcher and client, and thus it stresses the importance of co-learning as a primary aspect of the research process.” [Thomas Gilmore, Jim Krantz and Rafael Ramirez, "Action Based Modes of Inquiry and the Host-Researcher Relationship," Consultation 5.3 (Fall 1986): 161]

“The researcher studies the problem systematically and ensures the intervention is informed by theoretical considerations. Much of the researcher’s time is spent on refining the methodological tools to suit the exigencies of the situation, and on collecting, analyzing, and presenting data on an ongoing, cyclical basis.” <http://www.web.net/~robrien/papers/arfinal.html>

Before Data Collection

Gain permission:

- Need local REB approval
- Also need to gain permission from “gatekeepers” of group or site of research

Develop proposal/protocol – depending on methodology, good literature review will identify gaps in existing knowledge and inform your data collection guide. As with any study, relevance and need for research must be demonstrated to Ethics committee.

Develop interview guide for group/individual interviews. Consider pilot testing it on a small group – are the questions asking what you want to know? What kinds of probes are helpful to get the information you need?

Gather equipment necessary – tape or digital audio-recorder, video recorder, transcription pedal, notebook for field-notes, another for keeping track of decision making along the way to maintain an audit trail.

Software to help with analysis - is this necessary?

Personnel – are you going to need help with interviews, transcription, analysis?

Budget – remember that transcription takes about 4-5 times as long as the interview. For every hour of tape, you need to budget about \$100 transcription time (4-5 hours).

Methods

Sampling Strategy

The sample size in qualitative research is not something that can be calculated in advance. There are different sampling strategies that can be used, but generally they are known as purposive or purposeful strategies, in that the goal is to find rich detailed data. Some methods call for continuing to sample until there is “saturation” meaning no new ideas are being generated from the data (generally interviews), while other methods seek simply to have a wide range of experiences or viewpoints investigated (maximum variation sampling). The range of experience could be the goal, or the commonality of those experiences. It all depends on the chosen methodology. Snowball sampling is a particular technique wherein a participant names another possible participant.

Data Collection

Triangulation:

- Triangulation is the technique of using more than one method of data collection within a study to give more credibility to the results.
- If the same discoveries are made through observation as through interview and focus groups, the results are more believable.

Observations:

Observation is the process of gathering first-hand information by observing people and places at a research site. Observers can be participant observers, or non-participant observers. The location can be public or needing specific access. It is best to conduct multiple observations in the same site to gain enough information to be able to describe what goes on there. Record field notes during the observation in order not to rely on memory alone.

Mini-assignment

Observation Next time you are sitting alone in a coffee shop or restaurant, take a few minutes and observe intently your surroundings – what do you notice about the floors, the walls, the windows, the tables and chairs, the flow of people, the sounds and noise level, the way people choose seating, the smells that linger, the way people greet... if you are interested in doing observation research, this is a very good exercise – take notes at the time, and then later, try to recall how you felt while observing, try drawing your surroundings, putting things in place on a piece of paper so that you could convey your experience to another person – and then write a detailed description of your experience.

Interviews:

Individual interviews, in person, by telephone or email. Use open-ended questions to allow the participant to create options for responding. The participants can voice their experiences and perspectives. The interview responds to what the participant has said, looking for clarification and more detail.

- Tips for generating questions:
- General before specific
- Non-threatening before value-laden
- Exploratory, not leading

- A mixture of open and close ended
- Use probes
- As a last question: anything important we haven't talked about?

Focus groups:

These are group interviews that can facilitate the exchange of ideas. Some participants will recall greater detail in the group interview format than in the one on one interview. Some people need to listen to others' opinions and understandings to form their own. There is often a quieter member of the group that needs to be encouraged to talk a little bit more, or a very vocal member of the group that overpowers the other members – for this reason the facilitator needs to recognize group dynamics and engage the various members if they are not being heard from. Focus groups can give marginalized or minority groups (including youth and children) a sense of power because they outnumber the researcher, aiding in data collection because the comfort level for conversation among peers is high. The group context is more relaxed than a one on one interview.

Limitations: If there is one person's whose views are far from the group norm, these ideas may be lost because the person would need a strong sense of self to voice opposing ideas. There is the potential for participants to influence one another's responses. A limited number of questions can be asked due to groups size and time constraints. Sensitive issues may not be discussed freely. Focus groups have limits on the confidentiality that can be guaranteed to participants. Photographs/audio-visual material. Documents (e.g. memos, policies, protocols, positions statements).

Analysis

Good qualitative analysis is rigorous, systematic, procedural and disciplined, and above all, inductive in its approach. The approach to analysis depends on the methodology followed, but generally describes, interprets and attempts to derive meaning from the data. The different approaches include content analysis, constant comparison analysis, phenomenologic analysis or grounded theory analysis. Each of these approaches has similarities that appear below in the discussion of categories and themes.

Content analysis provides a descriptive record and an initial level of interpretation.

(<http://writing.colostate.edu/guides/research/content/pop2a.cfm>)

Constant comparison analysis: Glaser and Strauss (cited in Lincoln & Guba, 1985 p. 339) described the constant comparison method as following four distinct stages:

- comparing incidents applicable to each category,
- integrating categories and their properties,
- delimiting the theory, and
- writing the theory. (p. 339)

The key to this method is that analysis has to start as soon as data collection is underway, with each new transcript or text, there is ongoing changes or additions to the framework of analysis – comparing constantly.

Phenomenologic analysis: Phenomenology depends heavily on individual quotations to illustrate analytic points. The researcher must immerse himself in the individual's perspective, trying to make sense of the experience to answer the research question. [Fade S. Using interpretative phenomenological analysis for public health nutrition and dietetic research: a practical guide. Proceedings of the Nutrition Society 2004; 63: 647–653.] (<http://www.columbia.edu/~mvp19/RMC/M5/QualPhen.pdf>)

Grounded theory analysis: Reduces data into concepts and categories, which are developed into theory. The theory should rise from the data. Analysis also starts soon after data collection begins, shaping the data collection that will follow. This is the approach that typically uses “saturation” as an end point to data collection, when no new ideas are emerging from the data.

Nuts and bolts of analysis:

- Step one: Immersing oneself in the data
- Step two: Generating categories and themes

Immersing oneself in the data:

- As the researcher becomes intimately familiar with the data he or she begins the process of comprehending or making sense of what is going on
- Comprehension is reached when the researcher feels she has enough data to begin to write a complete, detailed, coherent and rich description

- When little new is learned, data saturation is reached (the richer the data – the fewer participants needed to reach saturation)

Generating Categories and Themes:

- Through prolonged engagement with the written text, the researcher begins the process of synthesizing or sifting the data to get a feel for the data
- Synthesis is reached then the researcher can provide average descriptions of how people act/relate/respond without referring to notes
- The researcher is then able to identify patterns of meaning/behaviour which are then organized into categories
- As categories of meaning emerge – critical factors reveal themselves as significant and allow the researcher to explain variations in the data
- Categories are distinct from one another – not exhaustive or mutually exclusive
- Categories are initially kept as broad as possible without overlapping – start with a few categories
- Major categories can then be sorted into smaller categories
- Subcategories are derived from the larger domain

How are categories derived?

Certain words and phrases demand attention:

- Example: in a study exploring Skateboarders' experience of risk and injury, skaters were asked what made skateboarding so enjoyable. Responses included comments about not having to answer to coaches, schedules and other team members, having the ability to skate whenever and wherever the skater chose, and moving through space under his own speed and direction. These phrases led to the category of "freedom," and subcategories of freedom from authority and schedules, freedom to explore and invent, as well as freedom of movement (in a more bodily sense).
- After categories are identified, the researcher begins the process of theorizing – selecting and fitting alternative models of the data until the best and simplest fit is obtained
- Theorizing provides structure, application and a connection with a greater body of knowledge (i.e. if you don't know the existing literature yet, it's time to familiarize yourself with it)
- Theorizing is the sorting phase of analysis

- It is an active continuous and rigorous process of viewing data as a puzzle
- Themes may be below the surface of the data, but once identified they appear obvious

Themes are often concepts indicated by the data, not concrete entities directly described by participants – the researcher has to read between the lines and reflect on the interviews as a whole. Categories can also be thought of as sub-themes, and in some cases, what starts off as a category is also a theme (freedom in skateboarding).

Catherine Pope, Sue Ziebland, Nicholas Mays. Qualitative research: Analysing qualitative data. *BMJ* 2000;320:114-116 (8 January)<http://bmj.bmjournals.com/cgi/content/full/320/7227/114?.../200>

Tips for coding data

- **For small data sets:**
- Relevant phrases can be highlighted using markers and the transcript is kept intact
- Different colours of highlighter are used to signify different categories

For large data sets:

- Concepts or quotes can be copied onto index cards and then filed under the appropriate category.
- Major categories can be labeled within each paragraph by writing the category in the margins; the data are then sorted by cutting each labeled paragraph and pasting it onto index cards.
- Each page of the transcript can be colour coded in the left margin (a coloured stripe is used for each participant and another one for the interviewer).
- When analyzing the data, significant passages are cut from the transcript and taped onto a sheet of paper and filed in the appropriate folder for that category.

The above is a description of “Manual” coding – it is easy to see how using a word processor, this process could be simplified without the need of scissors and tape, but using instead “cut and paste” functions on the computer. For large data sets, consideration should be made about the use of software to help manage data.

Remember to maintain an audit trail that documents your decisions, choices and insights. This will assist you in demonstrating dependability in theoretical rigor.

Qualitative Software

Qualitative research can use software to help with analysis. This software does not do the analysis, the researcher does. The benefits come when there is a large number of transcripts to sort through, computer software can help organize and group pieces of text that relate to the same theme that has been identified by the researcher. Key words can be put in and transcripts searched. If there are a small number of participants, it is often easier to immerse oneself in the data without worrying about analytic software. Regular word processing software can also be helpful. Quotations can be highlighted with colour or a different font or size of font, indentations can be used, italics – all to help the researcher keep track of data that is identified as especially relevant to the analysis.

There are a number of programs that are used for grouping and linking concepts. "**Nud*ist**" (<http://www.qsrinternational.com//default.aspx>) is perhaps the most widely used of this group. (In case you were wondering, the removal of clothing is purely metaphorical.) It specializes in manipulating words and text, and has the most powerful set of searching capabilities we've ever seen. QSR software, the publishers of Nudist, has a lively listserv email discussion group, which you can subscribe to through their web site. If you have hundreds of pages of text to make sense of, Nudist may be what you need. Like many of the other programs described here, it's not something you learn in an hour or two. There's a variant of Nudist, entitled NVivo, which seems to be aimed mostly at researchers who use grounded theory. Unlike Nudist, it handles RTF files, which allow different type fonts, colours, and so on. However its file sizes are more limited than Nudist's. A good way to learn Nudist (and NVivo) is to take a course.

Two other programs similar to Nudist are **Atlas/TI** (<http://www.atlasti.com/>) and **The Ethnograph** (<http://www.qualisresearch.com/>). Atlas/TI extends Nudist's hierarchical data model by allowing links between related data. A recent addition to this type of software is Xsight, a new package from **QSR** (<http://www.qsrinternational.com/>), the makers of Nudist. It's designed for market researchers, for analysing open-ended text data, and should be much quicker to learn than Nudist. CDC (the makers of Epi Info) produce **EZ-text** (<http://www.cdc.gov/hiv/topics/surveillance/resources/software/ez-text/index.htm>), free software which is like a simplified version of Nud*ist." More important than the software chosen is having a group of people who already know how to use it to help you along.

Reflexivity

One of the important components of doing qualitative research, as well as assessing qualitative research papers is the process of reflexivity. This refers to the researcher's identification and constant awareness of what he or she brings to the research. This includes preconceived notions, past experiences, how he or she is finding meaning in the data collected. There are often hypotheses that the researcher starts with at the beginning of a qualitative study, and while the study is not aimed at proving these hypotheses, but rather exploring the issue or phenomenon to develop a hypothesis, it is important to acknowledge that they existed at the beginning, and how these understandings can influence how the data is interpreted by the researcher. It is important to maintain a diary or audit trail of how the analysis develops out of the data and to describe this process in the final work to allow the reader to judge the rigor of the research.

"Deliberate, thoughtful assessment by the researcher of their own values, assumptions, characteristics and motivations in all aspects of the study – not to eliminate bias, but to be aware of "conflicting realities." http://www.psy.dmu.ac.uk/michael/qual_reflexivity.htm

Ethics Submissions

The major difficulty with qualitative research and ethics review boards is around confidentiality. There are a couple of issues here:

- The stories that people give are unique to their lives, and in some groups can easily identify them to someone else within that group. While it is easy enough to change names and ages to protect confidentiality when quoting participants in the dissemination of the findings, changing the details of their story can detract from the rigor of accurate reporting. It is essential to discuss with each participant of an interview the use of quotations and how they would like to be named if quotations are used.
- Focus groups involve multiple people, and the researcher cannot guarantee each participant that the information they share will remain confidential – there needs to be a discussion during the consent process of a focus group that encourages participants to keep everything they hear in the focus group confidential.

For a further discussion of ethics in qualitative research, see Orb A, Eisenhauer L, Wynaden D. Ethics in qualitative research. *Journal of Nursing Scholarship* 2001;33(1):93-96.

Summary

Qualitative Research is exploratory in nature, using interviews and observation as the main data collection techniques. There are a range of methodologies that can frame and guide a study's design and analysis, but there is no one right way to "do" qualitative research. The analysis is inductive, rising from the data collected to illuminate a phenomenon or inform a new hypothesis, rather than deductive to prove a predetermined hypothesis. The qualitative researcher is the research tool and all analysis is filtered through his or her past experiences and realities as themes emerge from the data. There is structure and rigour to qualitative research that, when well documented, can allow an assessment of the quality of the research process and potential transferability of the results.

Assessing the Trustworthiness of Qualitative Research

- **Credibility:** The degree of match between the realities of participants and those realities as represented by the researcher.
- Prolonged engagement
- Persistent observation
- Peer debriefing
- Researchers' ongoing recordings of expectations (part of reflexivity)

Member checks: Member checks involve taking interpreted data back to participants to see if they members feel that your analysis resonates with them and is reflective of what they thought at the time of the interview.

Transferability: The degree to which the results can be transferred to other contexts or settings. Thick descriptions of time, place, context and culture facilitate transferability judgments on the part of others who may wish to apply the study to their own situations.

Dependability: The degree to which a reviewer can understand and explore the data analysis process and judge the decisions made – and understand the factors that led the researcher to their interpretations of the data

Critical appraisal of Qualitative Research (with review sheets):

- Health Evidence Bulletins - Wales: Additional questions to assist with the critical appraisal of a qualitative study (<http://hebw.cf.ac.uk/projectmethod/appendix9.htm>)
- Health Care Practice Research and Development Unit (HCPDRU) - University of Salford: Evaluation Tool for Qualitative Studies (<http://www.fhsc.salford.ac.uk/hcprdu/tools/qualitative.htm>)

For more on reflexivity and judging the quality of qualitative studies, see: Malterud K, Qualitative research: standards, challenges and guidelines. Lancet 2001; 358(9280):483-488.

Nicholas Mays, Catherine Pope. Qualitative Research: Rigour and qualitative research. BMJ 2000;320:50-52. <http://bmj.bmjournals.com/cgi/content/full/320/7226/50>

Panel 1: Terms used in qualitative research

Term	Metaphor	Description
Reflexivity	The knower's mirror	An attitude of attending systematically to the context of knowledge construction, especially to the effect of the researcher, at every step of the research process
Preconceptions	The researcher's backpack	Previous personal and professional experiences, pre-study beliefs about how things are and what is to be investigated, motivation and qualifications for exploration of the field, and perspectives and theoretical foundations related to education and interests
Theoretical frame of reference	The analyst's reading glasses	Theories, models, and notions applied for interpretation of the material and for understanding a specific situation
Metapositions	The participating observer's sidetrack	Strategies for creating adequate distance from a study setting that you are personally involved in
Transferability	External validity	The range and limitations for application of the study findings, beyond the context in which the study was done

Panel 2: Factors that affect research

Reflexivity	Share preconceptions Establish metapositions
Transferability	Adequate and sufficiently varied sample Consider whom and what the findings concern
Interpretation and analysis	Describe theoretical frame of reference Transparent, systematic procedure

Panel 3: Guidelines for authors and reviewers of qualitative studies

Aim

Is the research question a relevant issue?
Is the aim sufficiently focused, and stated clearly?
Does the title of the article give a clear account of the aim?

Reflexivity

Are the researcher's motives, background, perspectives, and preliminary hypotheses presented, and is the effect of these issues sufficiently dealt with?

Method and design

Are qualitative research methods suitable for exploration of the research question?
Has the best method been chosen with respect to the research question?

Data collection and sampling

Is the strategy for data collection clearly stated (usually purposive or theoretical, usually not random or representative)?
Are the reasons for this choice stated?
Has the best approach been chosen, in view of the research question?
Are the consequences of the chosen strategy discussed and compared with other options?
Are the characteristics of the sample presented in enough depth to understand the study site and context?

Theoretical framework

Are the perspectives and ideas used for data interpretation presented?
Is the framework adequate, in view of the aim of the study?
Does the author account for the role given to the theoretical framework during analysis?

Analysis

Are the principles and procedures for data organisation and analysis fully described, allowing the reader to understand what happened to the raw material to arrive at the results?
Were the various categories identified from theory or preconceptions in advance, or were they developed from the data?
Which principles were followed to organise the presentation of the findings?
Are strategies used to validate results presented, such as cross-checks for rival explanations, member checks, or triangulation.
If such strategies are not described in this section, they should appear as validity discussions later in the report.

Findings

Are the findings relevant with respect to the aim of the study?
Do they provide new insight?
Is the presentation of the findings well organised and best suited to ensure that findings are drawn from systematic analysis of material, rather than from preconceptions?
Are quotes used adequately to support and enrich the researcher's synopsis of the patterns identified by systematic analysis?

Discussion

Are questions about internal validity (what the study is actually about), external validity (to what other settings the findings or notions can be applied), and reflexivity (the effects of the researcher on processes, interpretations, findings, and conclusions) addressed?
Has the design been scrutinised?
Are the shortcomings accounted for and discussed, without denying the responsibility of choices taken?
Have the findings been compared with appropriate theoretical and empirical references?
Are a few clear consequences of the study proposed?

Presentation

Is the report easy to understand and clearly contextualised?
Is it possible to distinguish between the voices of the informants and those of the researcher?

References

Are important and specific sources in the field covered, and have they been appropriately presented and applied in the text?

Taken from: Malterud K. Qualitative research: standards, challenges, and guidelines. *The Lancet*, Volume 358, Issue 9280, Pages 483-488.

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