Qualitative Data Analysis

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The Continuum

Quantitative

There is no such thing as qualitative data.
Everything is either 0 or 1
(Fred Kerlinger)

Qualitative

All research ultimately has a qualitative grounding
(D.T Camp bell)

Different approaches to arrive at the same destiny

http://www.socialresearchmethods.net/kb/qualdeb.php

Outline of the Presentation

- Qualitative research
- Qualitative data
- Qualitative analysis
- Qualitative software
- Qualitative reporting

Qualitative Research

What is qualitative research?

"Development of *concepts* which help us to understand social *phenomena* in *natural* (rather than experimental) settings, giving due emphasis to the *meanings*, *experiences* and *views* of the participants."

Pope & Mays

BMJ 1995;311:42-45

Dimensions of qualitative methods

Understanding context

- How economic, political, social, cultural, environmental and organizational factors influence health

Understanding people

- How people make sense of their experiences of health and disease

Understanding interaction

- How the various actors involved in different public health activities interact each other

Qual Vs Quan: Basic differences

	Qualitative	Quantitative
Purpose	To describe a situation, gain insight to particular practice...	To measure magnitude-How widespread is a practice...
Format	No pre-determined response categories	Pre-determined response categories, standard measures
Data	In-depth explanatory data from a small sample	Wide breadth of data from large statistically representative sample
Analysis	Draws out patterns from concepts and insights	Tests hypotheses, uses data to support conclusion
Result	Illustrative explanation & individual responses	Numerical aggregation in summaries, responses are clustered
Sampling	Theoretical	Statistical

Qual Vs Quan: Analytic approaches

	Quantitative	Qualitative
Research question	Fixed/Focused	Broader, contextual, flexible
Expected outcome	Identified in advance	Usually not predefined, emergent research question
Hierarchy of phases	Linearity	Circular
Confounding factors	Controlled during design & analysis	Searched in the field
Time dimension	Slower	Rapid to slower

Qual Vs Quan: Data collection method

	Quantitative	Qualitative
Sampling	Random sampling	Open ended and less structured protocols (Flexible)
Tools	Structured data collection instruments	Depend on interactive interviews
Results	Produce results that generalize, compare and summarize	Produce results that give meaning, experience and views

Models for Combining Qual-Quan methods

Qual-Quan Combining models

Sequential use model

Concurrent use model

Qual-Quan model

Quan-Qual model

Quan || Qual model

Quan ⇔ Qual model

Important concepts in Designing qualitative research

Concept	Description
Natural setting	Participants are free from any control & data are collected in their natural environment
Holism	The whole is more than the sum, take magnitude of contextual factors in to account
Human as a research instrument	Researcher is involved in every step being responsive, flexible, adaptive and good listener
Emergent design	Study design emerges as further insights are gained through data collection and analysis
Saturation or redundancy	A stage where additional interview or observation is not believed to add new information-enough is enough!

Common qualitative study designs

Study design	Description
Ethnography	Portrait of people- study of the story and culture of a group usually to develop cultural awareness & sensitivity
Phenomenology	Study of individual's lived experiences of events-e.g. the experience of AIDS care
Grounded theory	Going beyond adding to the existing body of knowledge-developing a new theory about a phenomenon-theory grounded on data
Participatory action research	Individuals & groups researching their own personal beings, socio-cultural settings and experiences
Case study	In-depth investigation of a single or small number of units at a point (over a period) in time. E.g. Evaluation of s service

Sampling in Qualitative research

Aim

- To generate a sample which allows understanding the social process of interest

Technique

- Purposive sampling- selection of the most productive sample to answer the research question
- Ongoing interpretation of data will indicate who should be approached, including identification of missing voices

Size

- The one that adequately answers the research question-until new categories, themes or explanations stop emerging from the data
- Depend on available time and resources

Sampling techniques in qualitative research

Snow ball/chain sampling

Extreme/deviant case sampling

Homogeneous sampling

Maximum variation sampling

Convenience sampling

Opportunistic sampling

Qualitative Data

What is qualitative data?

- Data that are not easily reduced to numbers
- Data that are related to concepts, opinions, values and behaviours of people in social context
- Transcripts of individual interviews and focus groups, field notes from observation of certain activities, copies of documents, audio/video recordings...

*www.socialresearchmethods.net/kb/qual**data**.php*

Types of Qualitative Data

Structured text, (writings, stories, survey comments, news articles, books etc)

Unstructured text (transcription, interviews, focus groups, conversation)

Audio recordings, music

Video recordings (graphics, art, pictures, visuals)

Qualitative data collection methods

Methods	Brief explanation
Observation	The researcher gets close enough to study subjects to observe (with/without participation) usually to understand whether people do what they say they do, and to access tacit knowledge of subjects
Interview	This involves asking questions, listening to and recording answers from an individual or group on a structured, semi-structured or unstructured format in an in-depth manner
Focus Group Discussion	Focused (guided by a set of questions) and interactive session with a group small enough for everyone to have chance to talk and large enough to provide diversity of opinions
Other methods	Rapid assessment procedure (RAP), Free listing, Pile sort, ranking, life history (biography)

Questions for qualitative interviews

Types of questions	Examples
Hypothetical	If you get the chance to be an HIV scientist, do you think you can discover a vaccine for HIV?
Provocative	I have heard people saying most evaluations are subjective-what do you think?
Ideal	In your opinion, what would be the best solution for eliminating gender-based violence?
Interpretative	What do you mean by good?
Leading	Do you think prevention is better than cure?
Loading	Do you watch that culturally degrading TV show on condom use?
Multiple	Tell me your three favourite authors, the book you like best by each author, and why you like those books?

Focus of Qualitative questions

- Experience: When you told your manager that the project has failed, what happened?
- Opinion: What do you think about the role of evaluation for program improvement?
- Feelings: When you got to know that the project was a success, how did you feel?
- Knowledge: Tell me about the different ways of promoting PME?
- Input: When you have lectures on evaluability assessment, what does the instructor tell you?

Preparing transcript

Transcribe word by word (verbatim)

Consider non-verbal expressions

Try to do the transcribing yourself

Be patient-Time consuming

Preparing Metadata(Log)

Project/research title

Date of data collection

Place of data collection

ID-code of informant(s)

Research team

Method of data collection

Documentation type: Tape recorder, notes and observations

Qualitative Analysis

What is Qualitative Data Analysis?

Qualitative Data Analysis (QDA) is the range of processes and procedures whereby we move from the qualitative data that have been collected into some form of explanation, understanding or interpretation of the people and situations we are investigating.

QDA is usually based on an interpretative philosophy. The idea is to examine the meaningful and symbolic content of qualitative data

http://onlineqda.hud.ac.uk/Intro_QDA/what_is_qda.php

Approaches in analysis

Deductive approach

- Using your research questions to group the data and then look for similarities and differences
- Used when time and resources are limited
- Used when qualitative research is a smaller component of a larger quantitative study

Inductive approach

- Used when qualitative research is a major design of the inquiry
- Using emergent framework to group the data and then look for relationships

Points of focus in analyzing text data

- The primary message *content*
- The evaluative *attitude* of the speaker toward the message
- Whether the content of the message is meant to represent *individual or group-shared* ideas
- The degree to which the speaker is representing *actual Vs hypothetical* experience

http://qualitativeresearch.ratcliffs.net/15methods.pdf

Qualitative Vs Quantitative Data analysis

Qualitative

- Begins with more general open-ended questions, moving toward greater precision as more information emerges
- Pre-defined variables are not identified in advance
- Preliminary analysis is an inherent part of data collection

Quantitative

- Key explanatory and outcome variables identified in advance
- Contextual/confounding variables identified and controlled
- Data collection and analysis distinctly separate phases
- Analysis use formal statistical procedures

Tools for helping the Analytical Process

Summaries: Should contain the key points that emerge from undertaking the specific activity

Self Memos: Allow you to make a record of the ideas which occur to you about any aspect of your research, as you think of them

Researcher Diary

Terms used in Qualitative data analysis

Theory: A set of interrelated concepts, definitions and propositions that presents a systematic view of events or situations by specifying relations among variables

Themes: idea categories that emerge from grouping of lower-level data points

Characteristic: a single item or event in a text, similar to an individual response to a variable or indicator in a quantitative research. It is the smallest unit of analysis

Coding: the process of attaching labels to lines of text so that the researcher can group and compare similar or related pieces of information

Coding sorts: compilation of similarly coded blocks of text from different sources in to a single file or report

Indexing: process that generates a word list comprising all the substantive words and their location within the texts entered in to a program

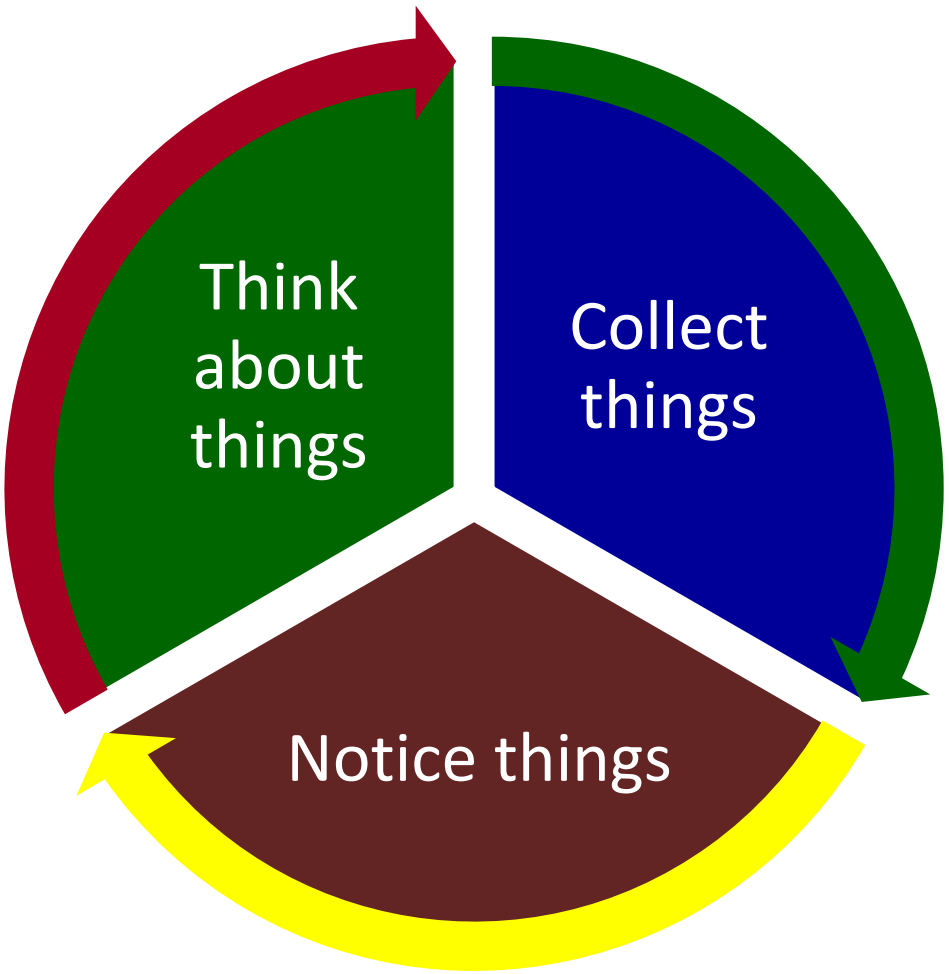
Principles of Qualitative data analysis

1. People differ in their experience and understanding of reality (constructivist-many meanings)
2. A social phenomenon can't be understood outside its own context (Context-bound i.e. book is in the pen)
3. Qualitative research can be used to describe phenomenon or generate theory grounded on data
4. Understanding human behaviour emerges slowly and non-linearly
5. Exceptional cases may yield insights in to a problem or new idea for further inquiry

Features of Qualitative data analysis

- Analysis is circular and non-linear
- Iterative and progressive
- Close interaction with the data
- Data collection and analysis is simultaneous
- Level of analysis varies
- Uses inflection i.e. “this was good”
- Can be sorted in many ways
- Qualitative data by itself has meaning, i.e. “apple”

Noticing, Collecting and Thinking Model



The Process of Qualitative data analysis

Step 1: Organize the data

Step 2: Identify framework

Step 3: Sort data in to framework

Step 4: Use the framework for descriptive analysis

Step 5: Second order analysis

Step 1: Organize the data

- Transcribe the data (you can use *hyperTRANSCRBE* software)
- Translate the data (You can use language translation software like SYSTRAN)
- Data cleaning
- Label the data
  - Structuring
  - Familiarizing

www.researchware.com/ht

Step 2: Identify a Framework

- Read, Read, Read...
- Identify a Framework
  - Explanatory – Guided by the research question
  - Exploratory-Guided by the data
- Framework will structure, label and define data
- Framework=Coding plan

Step 3: Sort data in to Framework

- Code the data
- Modify the Framework
- Data entry if use computer packages

http://onlineqda.hud.ac.uk/Intro_QDA/how_what_to_code.php

Step 4: Use Framework in descriptive analysis

- Descriptive analysis
  - Range of responses in categories
  - Identify recurrent themes

Stop here if exploratory research

Step 5: Second order analysis

- Identify recurrent themes
- Notice patterns in the data
- Identify respondent clusters
  - Search for causality
  - Identify related themes
- Build sequence of events
- Search data to answer research questions
- Develop hypothesis and test

Types of qualitative analysis

- Content analysis
- Narrative analysis
- Discourse analysis
- Framework analysis
- Grounded theory

http://onlineqda.hud.ac.uk/methodologies.php

Content analysis

- Content analysis is the procedure for the categorization of verbal or behavioural data for the purpose of classification, summarization and tabulation

- The content can be analyzed on two levels
  - Descriptive: What is the data?
  - Interpretative: what was meant by the data?

http://writing.colostate.edu/guides/research/content/pop2a.cfm

Narrative analysis

- Narratives are transcribed experiences
- Every interview/observation has narrative aspect-the researcher has to sort-out and reflect up on them, enhance them, and present them in a revised shape to the reader
- The core activity in narrative analysis is to reformulate stories presented by people in different contexts and based on their different experiences

http://faculty.chass.ncsu.edu/garson/PA765/narrativ.htm

Discourse analysis

- A method of analyzing a naturally occurring talk (spoken interaction) and all types of written texts

- Focus on ordinary people method of producing and making sense of everyday social life: How language is used in everyday situations?
  - Sometimes people express themselves in a simple and straightforward way
  - Sometimes people express themselves vaguely and indirectly
  - Analyst must refer to the context when interpreting the message as the same phenomenon can be described in a number of different ways depending on context

http://www.bmj.com/cgi/content/extract/337/aug07_3/a879

Framework Analysis

- Familiarization: Transcribing & reading the data
- Identifying a thematic framework: Initial coding framework which is developed both from a priori issues and from emergent issues
- Coding: Using numerical or textual codes to identify specific piece of data which correspond to different themes
- Charting: Charts created using headings from thematic framework (can be thematic or by case)
- Mapping and interpretation: Searching for patterns, associations, concepts and explanations in the data

http://www.bmj.com/cgi/content/full/320/7227/114

Grounded Theory

- Analytic induction
  - Starts with an examination of a single case from a 'pre-defined' population in order to formulate a general statement about a population, a concept or a hypothesis
  - Then the analyst examines another case to see whether it fits the statement
  - If it does, a further case is selected
  - If it doesn't fit there are two options
    - Either the statement is changed to fit both cases or the definition of the population is changed in such a way that the case is no longer a member of the newly defined population
  - Then another case is selected and the process continues
  - In such a way one should be able to arrive at a statement that fits all cases of a population-as-defined
  - This method is only for limited set of analytic problems: those that can be solved with some general overall statement

http://www.bmj.com/cgi/content/extract/337/aug07_3/a567

Strategies for analyzing observations

- Chronology: describe what was observed chronologically overtime, to tell the story from the beginning to the end
- Key events: describing critical incidents or major events, not necessarily in order of occurrence but in order of importance
- Various settings: describe various places, sites, settings, or locations in which events/behaviours of interest happen
- People: describing individuals or groups involved in the events
- Process: describing important processes (e.g. Control, recruitment, decision-making, socialization, communication)
- Issues: Illuminating key issues – how did participants change

Quality in Qualitative studies

Criteria	Issues	Solution
Credibility (=internal validity)	Truth value	Prolonged & persistent observation, Triangulation, peer-debriefing, member checks, deviant case analysis
Transferability (=external validity)	Applicability	Thick description, referential adequacy, prevention of premature closure of the data, Reflexive journal
Dependability (=reliability)	Consistency	Dependability audit Reflexive journal
Conformability (=objectivity)	Neutrality	Conformability audit Reflexive journal

http://onlineqda.hud.ac.uk/Intro_QDA/qualitative_analysis.php

Qualitative Software

Choosing and Using Computer software

- It is possible to conduct qualitative analysis without a computer

- Concerns: relying too much on computers shortcuts will impede the process by distancing the researcher from the text

- Advantages: ease the burden of cutting and pasting by hand, and produce more powerful analysis by creation and insertion of codes in to text files, indexing, construction of hyperlinks, and selective retrieval of text segments

Traditional Method of Qualitative analysis

Traditional Qualitative data analysis is labor-intensive.

After gathering data researchers

- Transcribe the source material with a word processor,
- Make multiple photocopies of the text,
- Painstakingly read through and assign codes to the material,
- Cut the pages up in to coded passages, and then
- Manually sort the coded text in order to analyze the patterns they find

http://gsociology.icaap.org/methods/qual.htm

Qualitative analysis with softwares

- With qualitative softwares, your workflow will be similar, but each step will be made easier by the computer's capability for data storage, automated searching and display.
- You can use text, picture, audio and video source files directly
- You can assign codes manually (autocode) to any section of text, audio or video or part of a picture
- Analysis is easy with the report feature, where you can select a subset of cases and codes to work with, choose what data to use, and sort your reports automatically

http://caqdas.soc.surrey.ac.uk/

Uses of computer software in Qualitative Studies

1) Transcribing data
2) Writing/editing the data
3) Storage of data
4) Coding data (keywords or tags)
5) Search and retrieval of data
6) Data linking of related text
7) Writing/editing memos about the data
8) Display of selected reduced data
9) Graphic mapping
10) Preparing reports

http://onlineqda.hud.ac.uk/Intro_CAQDAS/What_the_sw_can_do.php

How to choose software - Key Questions

Type and amount of data
Theoretical approach to analysis
Time to learn Vs time to analyze
Level of analysis (Simple or detailed)
Desired “closeness” to the data
Any desired quantification of results
Individual or working as a team
Peer software support available
Any cost constraints

(Weitzman and Miles 1995; Lewins and Silver 2005)

Common qualitative softwares

Atlas ti 6.0 (www.atlasti.com)

HyperRESEARCH 2.8 (www.researchware.com)

Max QDA (www.maxqda.com)

The Ethnograph 5.08

QSR N6 (www.qsrinternational.com)

QSR Nvivo (www.qsrinternational.com)

Weft QDA (www.pressure.to/qda)

Open code 3.4 (www8.umu.se)

Basic steps in using Qualitative softwares

1. Install the program (note the requirements)
2. Learn the operation using the help menu
3. Prepare a source document (in text format)
4. Open a project/study unit/Hermeneutic unit
5. Import text, audio, video, picture source files
6. Read the imported text documents
7. Select the segment of the text
8. Insert codes, categories, memos, quotations etc
9. Search, sort, manage categories, manage quotations etc
10. Mapping of concepts, layering, linking etc
11. Producing reports, matrices, exporting data, print

(Demonstrate with Open code 3.4)

Writing a Qualitative report

Writing qualitative report

Qualitative research generates rich information- thus deciding where to focus and the level of sharing is very challenging.

http://www.psy.dmu.ac.uk/michael/qual_writing.htm

Getting Ready to Write

- Must come close to the point of maturation
  - Be aware of resource constraints and sponsors interests

- Organize your materials
  - List of codes
  - Summary device: Tables, thematic structure

- Writing a chronicle ("writing it out of your head")

Choosing a Style and Focus

- Format
    - Research report
    - Scientific research article
    - Report to donor
    - Field report
    - Evaluation report...
- Focus
    - Academic: conceptual framework/theories, methodology and interpretation
    - Practitioners: Concrete suggestions for better practice, policy recommendations
    - Lay readers: Problem solving, reform on practice/policy

Variations in the Report Format

- Problem-solving approach (problem-based)
- Narrative approach (chronological)
- Policy approach (evidence-based)
- Analytic approach (Theory/conceptual framework based)

Reporting Qualitative Research

- **Typically use quotes from data**
  - Descriptive
  - Direct link with data
  - Credibility

- **Ways to use quotes**
  - Illustrative
  - Range of issues
  - Opposing views

Reporting without Quotes

- List range of issues
- Rank or sequence issues
- Describe types of behaviour, strategies, experiences
- Report proportions (most, many, the majority)
- Flow diagrams: decision-making, event sequencing etc

Interpretation

- Interpretation is the act of identifying and explaining the core meaning of the data
- Organizing and connecting emerging themes, sub-themes and contradictions to get the bigger picture-what it all means
  - Think how best to integrate data from multiple sources and methods
- Make generalization-providing answers to questions of social and theoretical significance
- Ensuring credible or trustworthy interpretations

Standard Report Format

1. **Introduction**
   - Literature review
   - Purpose of the study
   - Brief description of the study
     - Who did the study, where and when
     - Description of relevant cultural and contextual information
2. **Methods**: study design, sampling method, data collection method, data analysis methods
3. **Results**: Presentation, interpretation, relate to relevant conceptual framework, discuss methodological difficulties affecting your results
4. **Conclusion**: Key findings, logical next step, implication of findings
5. **Recommendations**: Relate to policy or practice
6. **Acknowledgement**
7. **References**

The End