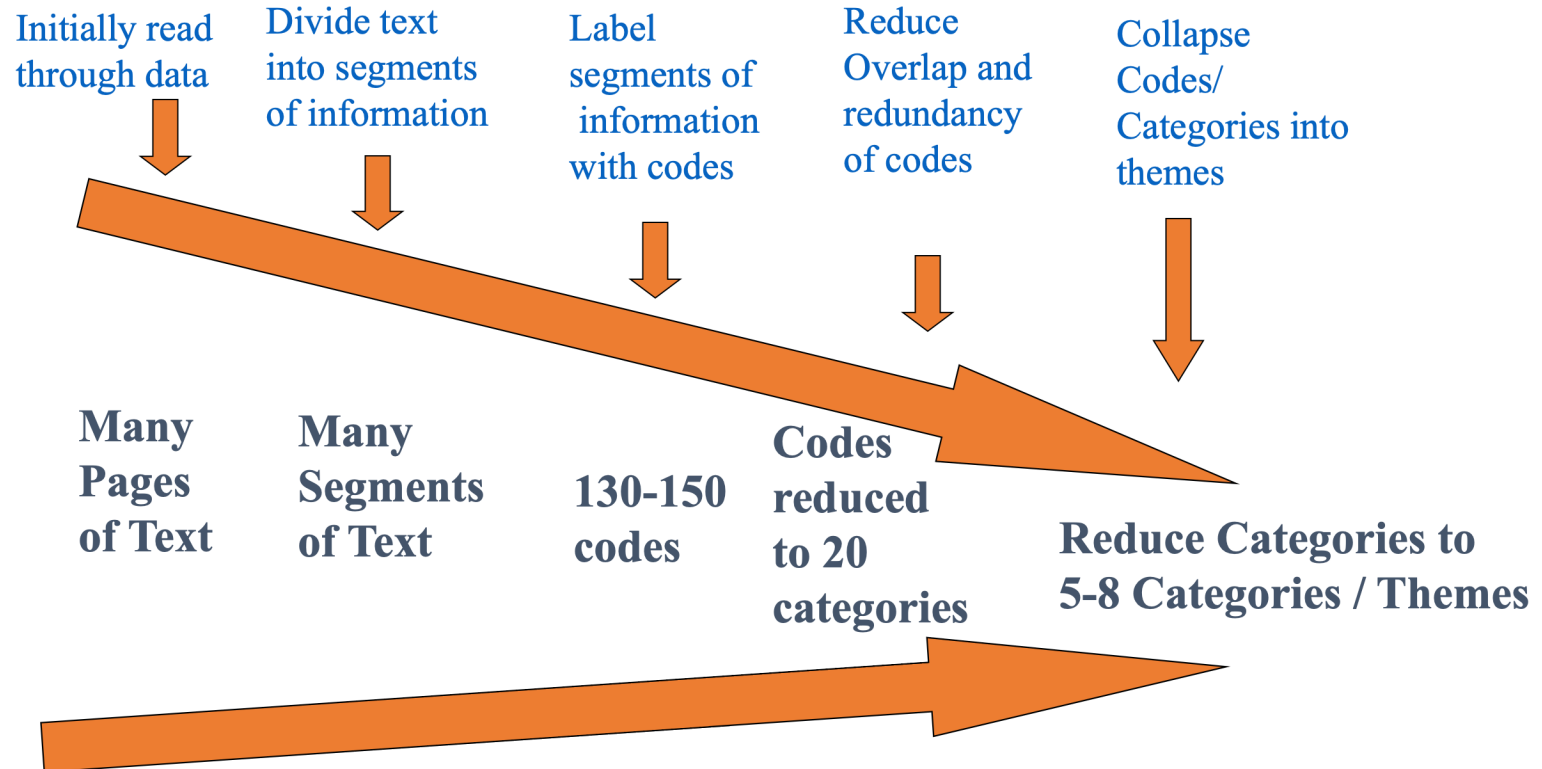# Qualitative Analysis
Creswell, Ch. 9

Research Methodology in Computer Science
CSCI 514

Steps of Qualitative Analysis

1. Familiarizing yourself with the data

2. Coding/Abstraction

   - Attach codes/labels to chunks of data

   - Characterize/summarize the data

3. Finding themes/patterns

   - Use these abstractions to find themes/patterns

   - Review potential themes

   - Define and naming themes

4. Interpret the data

"Winnowing Down": Qualitative Data - Reduction

Initially read
through data

Divide text
into segments
of information

Label
segments of
information
with codes

Reduce
Overlap and
redundancy
of codes

Collapse
Codes/
Categories into
themes

**Many
Pages
of Text**

**Many
Segments
of Text**

**130-150
codes**

**Codes
reduced
to 20
categories**

**Reduce Categories to
5-8 Categories / Themes**

Coding

Coding: Types of Codes

- Descriptive
  - Code summarizes the basic topic of a passage of text

> [1] As I walked toward the school, there was a 7-11 convenience store 1 block away, next to a small professional office building: an optometrist, podiatrist, and other medical/health-related clinics. Directly across the street was an empty lot, but next to that stood a Burger King restaurant.   [1] BUSINESSES

Coding: Types of Codes

- In vivo
  - Short quote as code

I [1] hated school last year. Freshman year, it was awful, I hated it. And [2] this year's a lot better actually I, um, don't know why. I guess, over the summer I kind of [3] stopped caring about what other people thought and cared more about, just, I don't know.

[1] "HATED SCHOOL"

[2] "THIS YEAR'S BETTER"

[3] "STOPPED CARING"

Coding: Types of Codes

- Process
  - Actions ("-ing" words)

Well, that's one problem, that [my school is] pretty small, so [1] if you say one thing to one person, and then they decide to tell two people, then those two people tell two people, and in one period everybody else knows. [2] Everybody in the entire school knows that you said whatever it was. So. . . .

[1] SPREADING RUMORS

[2] KNOWING WHAT YOU SAID

Coding: Types of Codes

- Emotion
  - Experienced by participant or inferred by researcher

[1] I just hated it when he got awarded with the honor. [2] I mean, we're praising mediocrity now. Never mind that what you've accomplished isn't worth squat, it's all about who you know in the good ol' boys network.	[1] "HATED IT" [2] BITTERNESS

Coding: Types of Codes

- Values (V), Attitudes (A), Beliefs (B)

[1] Government regulation of women's health issues has gotten out of hand. It's not about "protecting" us, it's about their need to control and dominate women [2] through covert religious ideology. White Christian men are deciding what's law and what's moral and what's, how it's supposed to be. [3] They can say, "It's *not* a war on women" all they want, but trust me—it's a war on women.

[1] B: GOVERNMENTAL CONTROL

[2] B: COVERT RELIGIOUS MOTIVES

[3] A: MISOGYNIST MOTIVES

Provisional Coding

- Begin with a "start list" of research-generated codes
- Revise, delete, expand as needed

Appropriate for qualitative studies that build on or corroborate previous research and investigations

Hypothesis Coding

- Apply predetermined list of codes specifically to assess a hypothesis
- The codes are developed from a theory/prediction about what will be found in the data before they have been collected or analyzed.

Used when searching for rules, causes, and explanations in the data.

Coding Process Notes

- Level of detail
  - Any block of data is a candidate for more than one code
  - Not every portion of the transcripts must be coded

- Analysis concurrent with data collection
  - Helps identify missing spots (which new data to collect)

Finding Themes

There is More then One Way to Find Themes

- Consider these codes related to the first month of withdrawal symptoms described by a participant in a smoking cessation treatment program:
  - Anxiety [emotion]
  - Nervousness [emotion]
  - Restlesness [emotion]
  - Deep Breathing [process]
  - Throat Burning [process]
  - "Felt Like Crying [in vivo/emotion/process]
  - "Hurt Someone Bad" [in vivo/emotion]
  - Angry [emotion]
  - "Eating A Lot More" [in vivo/process]
  - Wandering Around [process]
  - Habitual Movements [descriptive]
  - Memories Of Smoking [descriptive]
  - Smelling New Things [process]

One Way

- Theme by code type
  - Emotions (Anxiety, Nervousness, "Hurt Someone Bad," Restlessness, "Felt Like Crying," Angry)
  - Processes (Deep Breathing, Throat Burning, "Felt Like Crying," "Eating A Lot More," Wandering Around, Smelling New Things)
  - Descriptors (Habitual Movements, Memories Of Smoking)

Do they make sense?

A Better Way?

- Recategorize
  - Negative Emotions (Anxiety, Nervousness, "Hurt Someone Bad," Restlessness, "Felt Like Crying," Angry)
  - Physical Changes: Deep Breathing, Throat Burning, "Eating A Lot More," Smelling New Things
  - Restless Journey: Wandering Around, Habitual Movements
  - Regretful Loss: "Felt Like Crying," Memories Of Smoking

Note: inherently subjective process

Validity and Reliability Strategies for Quality Rigorous Qualitative Research

- Purposeful / Purposive Sampling Strategies (Patton, 1990)

- Constant Comparative Process (Corbin & Strauss, 2014)

- Researcher's Reflexivity and Bracketing (Beech, 1999)

- Types of Triangulation (Denzin, 1970)

- Member Checks (Creswell & Miller, 2000)

- Audit Trail (Lincoln and Guba, 1982) or Research Journal - record of the detailed account of the methods, procedures and decision points in carrying out the study

Triangulation

- Using multiple and different methods, investigators, sources, and theories to obtain corroborating evidence.
- Reduces the possibility of chance associations, as well as of systematic biases prevailing due to a specific method being utilized
- Four types:
  - Data triangulation: use of a variety of sources in a study
  - Investigator triangulation: use of several different researchers
  - Theory triangulation: use of multiple perspectives to interpret the results of a study
  - Methodological triangulation: use of multiple methods to study a research problem

Member Checking

- Review the interview protocol by a community member
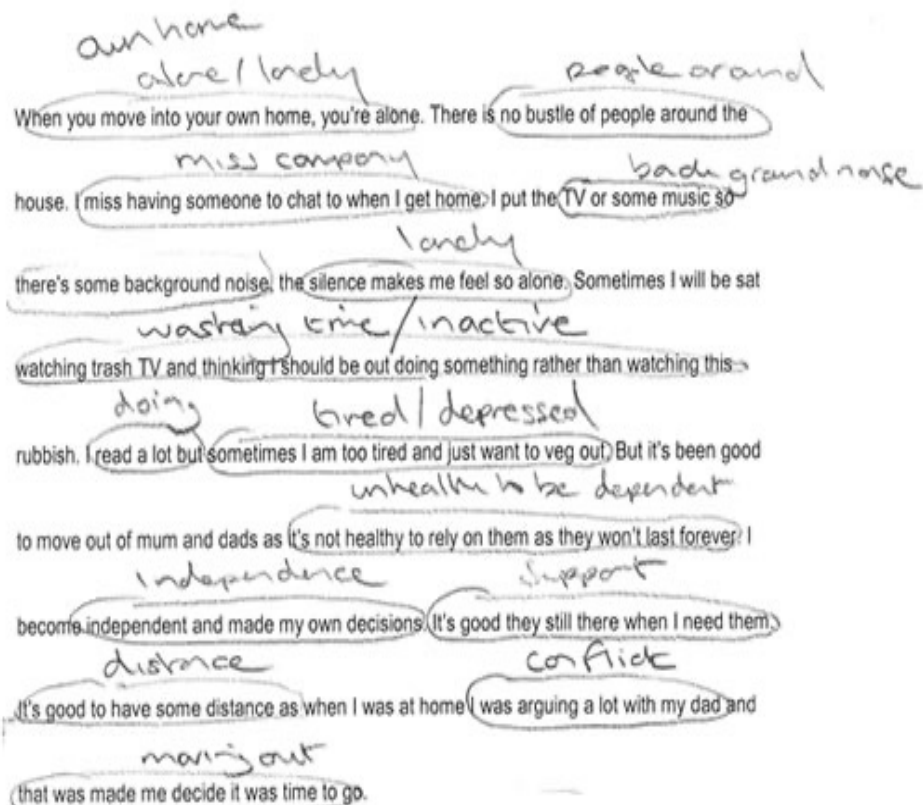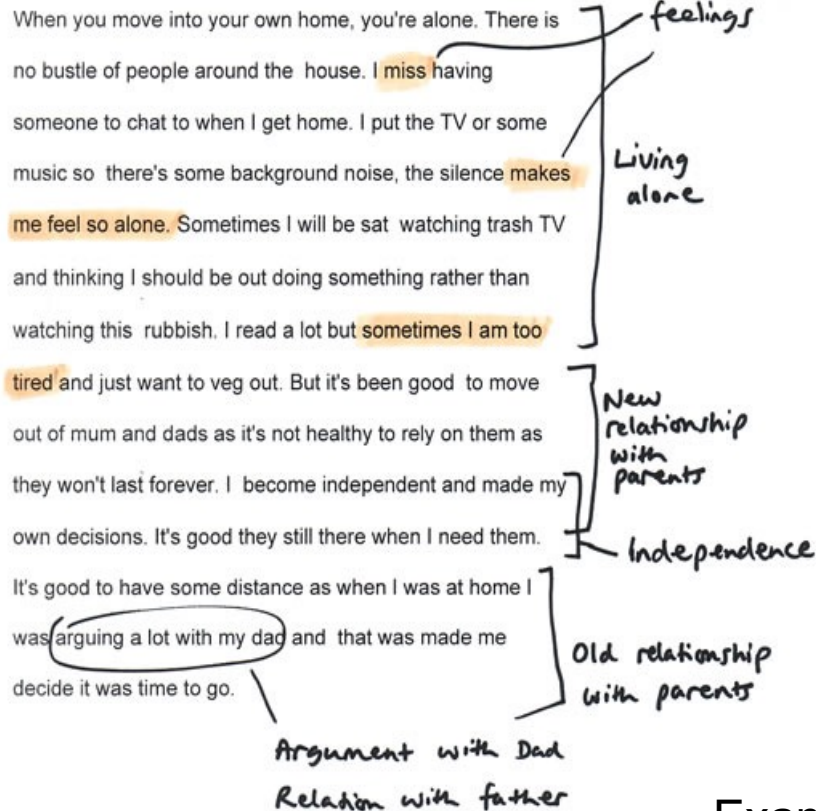- Review the findings by a community member

"We presented interviewees with both a summary and a full draft of Sections 4–7, along with questions prompting them to look for correctness and areas of agreement or disagreement (i.e., fit), and any insights gained from reading about experiences of other developers and platforms (i.e., applicability)."

Audit Trails

- A study and its findings are auditable when another researcher can clearly follow the decision trail regarding theoretical and methodological issues throughout the study.

- Could another researcher with the same data, perspective, and situation arrive at the same or comparable, but not contradictory, conclusions?

- Maintaining extensive documentation of records and data:
  - raw data (e.g., videotapes, written notes, survey results);
  - data reduction and analysis products (e.g., write-ups of field notes, summaries, unitized information, quantitative summaries, theoretical notes);
  - data reconstruction and synthesis products (e.g., structure of categories, findings and interpretations, final reports);
  - process notes (i.e., methodological notes, trustworthiness notes, audit trail notes);
  - materials related to intentions and dispositions (e.g., research proposal, personal notes, reflexive journals, expectations);
  - instrument development information (e.g., pilot forms, preliminary schedules, observation formats, and surveys.

Qualitative Analysis Examples

Old School Coding

When you move into your own home, you're alone. There is no bustle of people around the house. I miss having someone to chat to when I get home. I put the TV or some music so there's some background noise, the silence makes me feel so alone. Sometimes I will be sat watching trash TV and thinking I should be out doing something rather than watching this rubbish. I read a lot but sometimes I am too tired and just want to veg out. But it's been good to move out of mum and dads as it's not healthy to rely on them as they won't last forever. I become independent and made my own decisions. It's good they still there when I need them. It's good to have some distance as when I was at home I was arguing a lot with my dad and that was made me decide it was time to go.

Annotations (left example): feelings · Living alone · New relationship with parents · Independence · Old relationship with parents · Argument with Dad · Relation with father

Annotations (right example): own home · alone / lonely · people around · miss company · bad background noise · lonely · wasting time / inactive · doing · tired / depressed · unhealthy to be dependent · Independence · support · distance · conflict · moving out

Examples of old fashioned coding method

Excel Coding Examples

Can filter and sort in Excel, can search for text and words – makes it easier

	Category	Coding	Text: What do you enjoy most about being a nurse?
1			
2	Caring & Comforting	comforting others	The thing I enjoy most about being a nurse is the opportunity to comfort others during stressful times.
3	Connections	connecting to patients by touching	When I was at the bedside nursing, I could see it in my patient's faces when I patted or squeezed their hand while giving explanation or directions that they were reassured. I use this same practice today, even though I am no longer at the bedside giving direct care. When I deal with employee issues or patient complaints/concerns I still find myself touching in someway to connect with them, to ultimately comfort others!
4	Helping Others	helping in stressful times	The thing I enjoy most about being a nurse is the opportunity to comfort others during stressful times.
5	Job Diversity	example of memorable nursing experiences	The precious moments of delivering babies as a midwife, will never be forgotten. The chaotic hurricane seasons and the times spent with people in need at that time. I remembered my deployment to Punta Gorda during hurricane Charlie, I saw the devastation and was able to hear and feel the people fortunate enough to be alive. I have been everywhere and everyplace working with wonderful, supportive and caring people throughout my 29 years of nursing and will never trade them for anything. Public health nursing will always be number one on my list.
6	Challenging & Rewarding Profession	experience_diversity in public health nursing	As a community health nurse educator, I enjoy working with different organizations, and diverse populations and love working in the community.
7	Job Diversity	experience_diversity in nursing	Some of my memorable experiences were home visiting to high and low risk neighborhoods, working with the elderly population, and as a nurse at the sickle cell camp. Sharing knowledge by precepting nursing students and most importantly taking care of the special premature babies in NICU.
8	Educator	sharing knowledge	Sharing knowledge by precepting nursing students and most importantly taking care of the special premature babies in NICU.
9	Connections	connection_personal	I enjoy the opportunity to make a difference in a patient's life. Whether it's through teaching, providing care or supporting a family.
10	Challenging & Rewarding Profession	experience_proud to be a nurse	Each aspect of care allows me to give personally of myself and feel rewarded at the end of the day, knowing I made a difference. I also really enjoy teaching the Hospital Corpsman in the Navy Hospital nursing skills, ultimately the skills and nursing care I teach them can be paid forward on the battlefield. Knowing that fills up my heart with pride.
	Caring & Comforting	caring for clients	What I enjoy most about nursing is caring for my clients and reassuring them that I am providing excellent nursing care,

Name	Sources	References	C

Name	Sources	References
Assessment Challenges	21	108
Organizational Barriers	20	49
Doing Assessment Barriers	14	33
Cultural Barriers	13	26
lacking culture of assessment	6	8
lacking understanding of assessment	5	5
motivation & morale	5	5
habits and rituals	3	3
Service vs academic unit	2	3
Positive_valuing assessment	2	2
Types of Assessment	20	83
Assessment for Change and Decision-Making	14	36
decision making and prioritizing	6	13
as a change instrument	3	5
evolving roles	4	5
making a case with data	4	5
responding to future needs	4	4
closing the loop	1	1
helps build programs	1	1
knee jerk change	1	1
value of different perspectives in assess...	1	1
Assessment as a Process	17	29
Assessment as an Alignment Tool	9	18
Measurement & Effectiveness	21	80
How are We Measuring Success	16	49
Methods for Measurement	12	31
Assessment Implementation Issues	17	43
Data Collection & Analysis Issues	12	25
Department & Project Specific Issues	9	12
Assessment Reporting Issues	5	6

Summary | **Reference**

helps manage change (understanding what is needed calls for making changes);

Reference 2: 6.85% coverage

assessment requires change otherwise there's no reason to do it in the first place

Reference 3: 9.52% coverage

determining outcomes or action items based on the information you get--figuring out what to do from what you've found

Internals\\Interviewee#16
1 reference coded, 20.38% coverage

Reference 1: 20.38% coverage

do we need to have someone with a formal role in assessment, someone who goes to different departments to help them conduct assessment? we're becoming a lean organization which means we have even less time than we did in the past for things like assessment

Internals\\Interviewee#18
1 reference coded, 25.00% coverage

Reference 1: 25.00% coverage

1Assessment helps us understand what is working and what isn't so we can make decisions on how to adjust what we do.

Internals\\Interviewee#19
1 reference coded, 15.03% coverage

Reference 1: 15.03% coverage

As student demographics and patterns change, we need to be agile to meet their adapting needs and remain a relevant part of the University Community

NVivo Coding

The Findings: 3 Main Themes

- Personal Touch in The Learning Process
  - Personalized learning (one-on-one connection)
  - Integration by design
- Stepping Out into New Librarian Roles
  - Identity as mentor not just a "helper"
  - Refocus from service to leader
- Creative Integration of Roles & Responsibilities
  - Less support strategies; more partner collaboration
  - Evaluation of Expertise; Strengths Building

Personal Touch in The Learning Process

"Really trying to engage the students in that process ... as the instructor I can pinpoint where I think specific students are struggling and then students have many insights into where they think they are struggling. Sometimes it is hard for students to identify what it is they really needing to work on. Or what it is they want to work on".

The winnowing down of categories

The 17 Original Categories .. become	The 5 Final Categories/Themes
• Collaborations • Communication Issues • Departmental Relationships	• Collaboration & Communications Issues
• Strategies for Planning, Implementing & Integrating SLOs • Culture and Priorities Issues	• Strategies for Planning, Implementing & Integrating SLOs
• Curriculum and Instruction • Tools-Instruments-Resources for SLOs • IL Topics • Professional Development	• Curriculum and Instruction
• Roles/Responsibilities for Assessment and SLOs • Accountability & Reporting of SLOs	• Roles/Responsibilities for Assessment and SLOs
• Structures, Policies, and Administration • Leadership	• Structures, Policies, and Administration

- Categories Dropped Due to Low Frequency Numbers:
    - Challenges
    - Opportunities
    - General (SLO catch all)
    - Change Related

Activity

- Read interview excerpts
- RQ: How do ASL interpreters manage mixed ability group discussions?
  - Develop codes
  - Apply codes to transcript, compare notes in group
  - Report

Resources

- Qualitative Data Analysis
  - http://onlineqda.hud.ac.uk/index.html