What is Grounded Theory?
Grounded Theory is hard.

Also, “‘Grounded theory’ is perhaps one of the most abused phrases in the qualitative health literature. Increasingly researchers are making claims to have used a grounded theory approach in what emerges as rather superficial thematic content analysis.”

Organization of this presentation

- Definition of Grounded Theory
- Niche in research
- A brief history
- When to use Grounded Theory
- Methodologic Fundamentals
- Difference from thematic analysis
- Personal examples

Interwoven with a model study
Grounded Theory is

“a qualitative research method that uses a systematic set of procedures to develop an inductively derived grounded theory about a phenomenon” (Strauss and Corbin, 1998:24)
Where does Grounded Theory fit amongst research methods?
A quick review:
What is qualitative research?
## Quantitative vs. Qualitative research basics

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(Adapted from Merriam 2009: 18)
## Quantitative vs. Qualitative research basics

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<tr>
<td>Examples</td>
<td>RCT, Cohort study, Case-control study</td>
<td>Thematic analysis *, Ethnography, Phenomenology, Grounded Theory</td>
</tr>
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*(Adapted from Merriam 2009: 18)*
A brief history of Grounded Theory
Grounded Theory is

“a qualitative research method that uses a systematic set of procedures to develop an inductively derived grounded theory about a phenomenon” (Strauss and Corbin, 1998:24)

“Substantive” = applicable to a specific situation. connotes “usefulness” and “resonance”
Significance of *Discovery*

**Epistemological setting**
- Positivism
- Dominance of quantitative methods
- Fuzzy nature of qualitative methods

**Discovery of Grounded Theory**
- Operationalized qualitative research
- Generated “valid” results

Subsequent divergent epistemology of Authors
When to use Grounded Theory:

You want to develop a substantive theory.

You want a deep explanation for a situation.

You’re asking,

“What’s going on here?”
Why are people acting the way they do?
How are they doing what they do?
Examples of medical education studies labeled as “grounded theory” studies
Original Communications

Capturing the teachable moment:
A grounded theory study
of verbal teaching interactions
in the operating room

Nicole K. Roberts, PhD,a Michael J. Brenner, MD, FACS,b Reed G. Williams, PhD,b
Michael J. Kim, MD, b and Gary L. Dunnington, MD, FACS,b Springfield, IL.

Surgery
May 2012
Understanding the Effects of Short-Term International Service-Learning Trips on Medical Students

Nauzley C. Abedini, Larry D. Gruppen, PhD, Joseph C. Kolars, MD, and Arno K. Kumagai, MD

Academic Medicine, Vol. 87, No. 6 / June 2012
Examples of medical education studies labeled as “grounded theory”

Opening the black box of clinical skills assessment via observation: a conceptual model

Jennifer R Kogan,¹ Lisa Conforti,² Elizabeth Bernabeo,² William Iobst² & Eric Holmboe²

Medical Education 2011: 45: 1048–1060
Doing Grounded Theory
Methodologic Fundamentals of Grounded Theory

- Theoretical sampling
- Open coding
- Constant comparisons
- Memos
- Diagrams
- Axial coding
- Theoretical saturation

Iterative process

Data collection and analysis “blur and intertwine continually”

(Glaser and Strauss 1967: 43)
Theory generation

Adapted from
Grounded Theory by Birks and Mills, 2011
Methodologic Fundamentals of Grounded Theory

- Theoretical sampling
- Open coding
- Constant comparisons
- Memos
- Diagrams
- Axial coding
- Theoretical saturation

Theory generation

Iterative process
Theoretical sampling of data

Responsive to emerging categories and concepts:

“the analyst jointly collects, codes and analyses his data and then decides what data to collect next and where to find them”

(Glaser and Strauss, 1967: 45)
Theoretical sampling of data

“from people, places, and events that will maximize opportunities to develop concepts in terms of their properties and dimensions, uncover variations, and identify relationships between concepts”

(Strauss & Corbin 2008:143)

Data collected through
• interviews (including focus groups)
• documents
• observations
Methodologic Fundamentals of Grounded Theory

- Theoretical sampling
- **Open coding**
- Constant comparisons
- Memos
- Diagrams
- Axial coding
- Theoretical saturation

Theory generation
Coding:

What is it?
Example of process coding

Taken from Saldaña 2009

Narrative on Spreading Rumors:

The group is small, so if you say one thing to one person, and then they decide to tell two people, then those two people tell two people, soon everybody knows.
A sample for you

Q: What do you think are the benefits of bedside rounds?

P1: Well, I think benefits to people in the rounds and benefits to the patients. Benefits to people doing the rounds is you get to know the patients better, you can demonstrate historical points like penicillin allergy and physical findings and points and how you discuss things with people, that you don’t use med speak to talk to the patients. There are some house officers who are actually very good at communicating with patients and I point out afterwards that the rest of us need to emulate these people and imitate them. The other thing is benefit for patients, that the crew is there, we’re interested in them, we are all working together, we all want to help them, and establishing rapport between the group number one and the specific people who are really involved more intimately with the care of the patient.
Open coding (a.k.a. initial coding)

“Fracture” the data

• Apply codes line by line

Develop “theoretical sensitivity”
Developing theoretical Sensitivity

A couple techniques:

• Review meanings of significant words
• Ask, “What if . . .”

. . . you get to know the patients better, you can demonstrate historical points like penicillin allergy and physical findings and points and how you discuss things with people, that you don’t use med speak to talk to the patients. There are some house officers who are actually very good at communicating with patients and I point out afterwards that the rest of us need to emulate these people and imitate them. The other thing is benefit for patients, that the crew is there, we’re interested in them, we are all working together, we all want to help them, and establishing rapport between the group number one and the specific people who are really involved more intimately with the care of the patient.
Open coding continued

Systematic way for researcher to interact with the data to:

• become very familiar with it
• make sense of it

Contrast = *in vivo* coding
documentation of themes as stated by participant
different way but I’m curious as to what are your thoughts as what are the positive aspects of bedside rounds or what do you think are the benefits of bedside rounds?

P1: Well I, I think ah benefits ah **benefits to people in the rounds** and **benefits to the patients**. Benefits to people doing the rounds is you get to know the patients better you can ah demonstrate historical points like penicillin allergy and ah, ah physical ah findings and points and how, how you discuss things with people that you don’t use med speak to talk to the patients. There, there are some, some house officers who are actually very good at communicating with patients and ah I point out afterwards that ah the rest, the rest of us need to emulate these people and imitate them ah the other thing is benefit for patient ah that the crew is there we’re interested in them, we are all working together, we all want to help them ah, (clears throat) and ah establishing rapport that I talked about before ah between the group number one and the specific people who are really involved more intimately with the care of the patient.

Q: Do you think quality of care is better from bedside rounds?

P1: Oh (laugh) how can I say no, sure, sure.

Q: Can you hypothesize a reason why the quality is better I mean I’m hearing all of your reasons-

P1: well quality is better because ah, ah you get more
Comments?

Questions?
Our model Grounded Theory study:

Hereafter termed:

“Influential Experiences Study”
“Influential Experiences Study”

Goals:
“. . . we focus on experiences perceived by doctors as having been influential in their learning, and explore the constituents and characteristics of these experiences in order to develop a better understanding of the conditions required for meaningful learning to occur. . . We ask not only what experiences are considered influential, but also what allows these experiences to resonate with learners.”
“Influential Experiences Study”

**Study population:**
• Faculty within 5 years of first academic appointment.
  (single institution: Schulich School of Medicine and Dentistry, University of Western Ontario)

**Data collection method:**
• Individual interviews
**Feedback credibility**
- The process of deciding what feedback/information can be trusted
- Deciding how much weight to place on feedback
- Influence of the source/sender of the feedback on its credibility
- Which sources of feedback are respected? What earns them respect?
- Alignment of feedback with self-assessment

**Influence of feedback**
- When is feedback influential/neutral/non-influential/counter-productive?
- Comments related to the influence of negative feedback and the influence of positive feedback
- Comments about barriers to the creation or delivery of useful feedback
- Influence of style of feedback delivery on whether it is influential
- Influence of context on receptivity to feedback

**Learning by observation**
- Observation and attempted emulation as an approach to learning
- What is being observed? (physician behavior, patient response, one's own comfort...)
- Comments about “negative” role modeling (learning how not to do things)

**Learner attitude**
- Its influence on feedback, learning, and performance
- Motivation for learning—e.g. wanting to be good at the job, wanting to look competent

**Learning from the work**
- Memorable clinical or work experiences
- Emotional impact of memorable clinical experiences
- Value of supervised teaching vs. simply accumulating clinical experience
- Role of supervisors in debriefing work incidents and the effect of this input
- Clinical outcomes/results as a form of feedback on performance
- Limitations of learning from the work — i.e. When is the ‘feedback’ offered by the clinical work itself less than trustworthy?
- “Growth moments” that signal readiness to move to the next level

**Self-assessment**
- Perceived role and importance of self-assessment during training
- Perceived accuracy of self-assessment
- Influences on self-assessment — how it is informed or constructed

**Measuring up**
- Wanting to measure up to peers
- Wanting to please supervisors, meet their expectations, earn their respect
- Not wanting to disappoint/fail
- The effects of the threat of being humbled in front of peers or colleagues on learning

**Influence of feedback on measure up**
- Wanting to measure up to peers
- Wanting to please supervisors, meet their expectations, earn their respect
- Not wanting to disappoint/fail
- The effects of the threat of being humbled in front of peers or colleagues on learning

**Confidence**
- Influences on the development of confidence and/or self-doubt
- Comments relating to the development of professional identity
- Learning to trust judgment and instincts
- Fragility of confidence
- Interaction between confidence and receptivity to feedback

**Independence/autonomy**
- Experiences of independence, autonomy, or “freedom” during training
- Being given trust or autonomy as a form of positive feedback (e.g. comments about a supervisor deciding not to come in to review a case personally, or about being allowed to do a procedure)
- Taking responsibility for clinical cases and its effect on learning

**Collegiality**
- Being included or “let in”
- The value of “support” (vs. supervision, teaching, etc)
- Rites of passage (e.g. “surviving” critical feedback as a rite of passage)
- Support of peers; camaraderie

**Assessments**
- Influence of assessment strategies (including OSCE, ITER, final exams) on learning and development during training
- Influence (positive or negative) of looming certifying exams on learning

**Role models**
- Comments related to individuals viewed as role models
- What enables someone to become a role model?
- Ideas about the influence of role models

**Mentoring**
- Comments related to mentoring (either explicitly labeled as such or not)
- Comments related to individuals offering advice, guiding career decisions, offering opportunities that were important
Methodologic Fundamentals of Grounded Theory

- Theoretical sampling
- Open coding
- **Constant comparisons**
- Memos
- Diagrams
- Axial coding
- Theoretical saturation

Theory generation

Iterative process
Constant comparison

**Within-narrative comparison**
- Code and classify data from current transcript
- Compare emerging themes

**Between-narrative comparison**

**Within-narrative comparison**
- Code and classify data from current transcript
- Compare emerging themes

Another systematic way to increase knowledge of the data

(www.cipd.co.uk/NR/rdonlyres/.../Chapter18PowerPointSlides.ppt)
## Final coding scheme for “Influential Experiences Study”

<table>
<thead>
<tr>
<th>Learning by doing/ learning from clinical work</th>
<th>Determining credibility (i.e. of learning cues and experiences)</th>
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<tbody>
<tr>
<td><strong>Learning conditions</strong></td>
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<td>a. Autonomy</td>
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<td>b. Collegiality</td>
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<td>c. Influential teachers</td>
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<td>d. Learner attitude</td>
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<td>e. Presence of mentors</td>
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<td><strong>Learning cues</strong></td>
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<td>a. Being allowed to do things vs. requiring supervision</td>
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<td>b. Feeling comfortable with tasks</td>
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<tr>
<td>c. Formal assessments of knowledge and skill</td>
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<td>d. Measuring up (to peers, to standards, to expectations)</td>
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<tr>
<td>e. Responses of patients and families</td>
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<tr>
<td>f. Patient or clinical outcomes</td>
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<td>g. Role models</td>
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| Receiving feedback                            |                                                               |
| a. Influence of feedback in general           |                                                               |
| b. Debriefing difficult experiences           |                                                               |
| c. Preceptors’ responses to learner errors    |                                                               |

| Learning outcomes                             |                                                               |
| a. Confidence                                 |                                                               |
| b. Practice change                            |                                                               |
| c. Fragility of learning from clinical experience |                                                               |

| Reflection                                    |                                                               |
|                                             |                                                               |
Methodologic Fundamentals of Grounded Theory

Iterative process

- Theoretical sampling
- Open coding
- Constant comparisons
- **Memos**
- **Diagrams**
- **Axial coding**
- Theoretical saturation

Theory generation
From codes to concepts

Keeping asking deep questions.

• What is happening here?
• Why are participants acting this way?
• What did the participants mean when they said --?

Use

• memos
• diagrams
• Flexibility and creativity (Watling and Lingard 2012)
“Influential Experiences Study”: memos

1. Learners consider a number of factors when making judgments about the credibility of the learning information that surrounds them. These factors include whether or not the information aligns with their personal values. If it conflicts with their personal and professional values, it is likely to be judged as not credible and discarded.

2. Credibility of feedback received from a supervisor is strongly linked to the respect the learner has for the supervisor. Respect is derived largely from that individual's performance as a clinician, rather than his or her style of relating to the learner. The degree of esteem in which the supervisor is held within the community may factor into the decision-making process, and learners may use informal networks of colleagues to determine this. Feedback that matches self-assessment is more likely to be deemed credible.

3. As they become more experienced themselves, they are able to make more sophisticated judgments. Reputation alone is not a guarantee of credibility.

4. Linked with #2 above, those supervisors who achieve role model status tend to have credibility, again based on their perceived clinical expertise.

5. When feedback from a supervisor is clearly linked to the clinical work, and when the central concern is patient well-being, the feedback is deemed credible (regardless of how it is delivered).

6. Feedback that matches self-assessment is more likely to be deemed credible.

7. Feedback credibility is strengthened when sound rationale or justification accompanies it. The most persuasive rationale is grounded in clinical work and outcomes. Feedback needs to “make sense” in the clinical context.

8. Feedback from patients or families is more likely to be judged as credible.

9. Negative feedback can be judged as credible when accompanied by clear evidence that it is true. Perhaps this evidence is a requirement? In a sense, it is necessary for the learner to decide to agree with the feedback.

10. Feedback deemed not credible may have unintended consequences. (e.g. Feedback is dismissed, learner career choice is affected, etc.)

Some general comments: Credibility statements mainly relate to determining the credibility of feedback. Does this imply that other performance indicators (e.g. Clinical outcomes) have intrinsic trustworthiness? The judgments that are made are grounded in the clinical work – Is the feedback source good at the work? Does the feedback align with the learner's value system and their approach to their professional work?
Axial coding

- Identifying relationships between codes
- Model adapted from (Strauss and Corbin, 1990)
“Influential Experiences Study”:
Example of diagram drawn from data collected

- Learning Environment
  - Collegiality
  - Mentors

- Explicit feedback

- Clinical work

- Information about performance
  - Role models
  - Standards

- Reflection
  - Self-assessment

- Credibility

- Judgment

- Outcomes

- Information used

- Information dismissed

Redrawn from (Watling and Lingard Medical Teacher 2012)
Methodologic Fundamentals of Grounded Theory

- Theoretical sampling
- Open coding
- Constant comparisons
- Memos
- Diagrams
- Axial coding
- **Theoretical saturation**

Theory generation

Iterative process
Theoretical Saturation

State when

“sufficient data has been collected for the researcher to have gained an adequate understanding of the dimensions and properties of the concepts and themes that have emerged.”
(Watling and Lingard 2012)

Rather than absence of new information from continued data collection
Methodologic Fundamentals of Grounded Theory

Iterative process
- Theoretical sampling
- Open coding
- Constant comparisons
- Memos
- Diagrams
- Axial coding
- Theoretical saturation

Theory generation
Moving from Thematic Analysis to Grounded Theory takes:

- Effort
- Discipline
- Constant thinking
- Inspiration and creativity
- Experience?

Combine all of these and you may develop a “theory” of what’s going on.
So what is a “theory”? 

“. . . an explanatory scheme comprising a set of concepts related to each other through logical patterns of connectivity”

Birks and Mills 2011

(The definition I like best)
The “theory” is articulated through a storyline that employs “descriptive narrative about the central phenomenon of the study.”

Strauss and Corbin 1990

Diagrams also commonly used.
“Learning occurs through the accumulation and processing of clinical experiences. As they participate in clinical work, learners can attend to a variety of sources of information, or ‘learning cues’, that facilitate the interpretation of the experience and the construction of knowledge from it. These cues include feedback, role models, clinical outcomes, patient or family responses, and comparisons with peers. The integration of a cue depends on the learner’s judgement of the credibility of the information. . . Various learning conditions, including the learner’s own attitude and values, shape how these credibility judgements are made and how reflection proceeds.”

Watling et al. *Medical Education* 2012
‘Grounded Theory’ in the Med Ed literature and personal experience

“‘Grounded theory’ is perhaps one of the most abused phrases in the qualitative health literature. Increasingly researchers are making claims to have used a grounded theory approach in what emerges as rather superficial thematic content analysis.”

• The Value of Bedside Rounds – A Multi-Center Qualitative Study

• Exploring Clinical Reasoning Strategies during Clinical Vignette Style Multiple Choice Examinations: A Mixed Methods Study
Grounded Theory is sometimes misunderstood and unappreciated by reviewers.
“The lack of a control group is a huge problem.”
“How did the authors measure internal consistency or reliability of the transcript analysis?”
Grounded Theory is sometimes misunderstood by authors. Including Jed and myself.
“You have not used your results to build theory nor a model around bedside teaching or the process for bedside teaching. . . Thus, grounded theory as your form of methodology will need to be removed from the manuscript.”
“What they describe however is not quite what I consider to be grounded theory. . .

There is no strong argument to support the use of grounded theory. . .

If I were in the authors position, I would want to try to identify a qualitative expert to see if they could not guide the group in taking a deeper approach to data analysis.”
Grounded Theory is

“a qualitative research method that uses a systematic set of procedures to develop an inductively derived grounded theory about a phenomenon” (Strauss and Corbin, 1998:24)
References


## Proposed Criteria for Grounded Theory studies

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<th>(Corbin &amp; Strauss 2008)</th>
<th>(Charmaz 2006)</th>
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<td>• readily understandable</td>
<td>• “fit” (i.e. findings resonate with both the professionals for whom the research was intended and study participants)</td>
<td>• Credibility (logic and conceptual grounding)</td>
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<td>• “fit” the substantive area to which it was applied</td>
<td>• Usefulness.</td>
<td>• Originality (significance)</td>
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<td>• sufficiently general to be applied to a variety of diverse daily situations</td>
<td>• quality criteria:</td>
<td>• Resonance</td>
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I'm looking at her labs.

Laboratory studies:

Leukocyte count  
7800 µL (7.8 x 10^9/L) with normal differential

Bilirubin (total)  
12.0 mg/dL (205.2 µmol/L) - "Elevated."

Bilirubin (direct)  
5.6 mg/dL (93.6 µmol/L) - "Elevated, as well."

Aspartate aminotransferase  
23 U/L

Alanine aminotransferase  
35 U/L

Alkaline phosphatase  
464 U/L - "Certainly elevated."

Antinuclear antibody test  
Negative

Anti-smooth muscle antibody  
Negative

Antimitochondrial antibody  
Negative

"Looks like they also ran a bunch of rheumatologic tests, which are negative.

Ultrasound shows normal caliber of the hepatic ducts and normal gallbladder without wall thickening."

Which of the following should be done next?

A. Cholecystectomy
B. Endoscopic retrograde cholangiopancreatography
C. Liver biopsy
D. Observation

"So, in this case, the values show why she has elevated bilirubin and jaundice and nausea. She is 19 and she just had Bactrim. I'm thinking maybe there's some sort of drug-induced issue. Maybe I'm thinking she has an issue with some hemolysis. Maybe she has G6PD deficiency, which does need (A). I'm looking through the answers. So, she doesn't have cholelithiasis, so I don't think in this case, she needs a liver biopsy, for sure. It's either (B) or (D). It's like ERCP. I'm trying to see if there is any reason why she... Like the Alk phos is 464. That could be because of either bone or because of something in her biliary duct. The gallbladder has no wall thickening. So, in this case, I'd probably choose (D)."