Qualitative methods for analyzing process data

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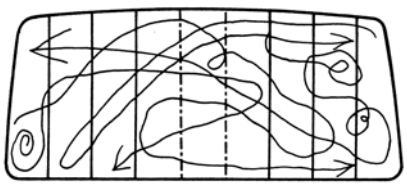
How do we research processes?

Simple answer: we go out and look

- Observations in vivo
  (meetings; conversations; events; shadowing; etc.)
- Collecting memories and interpretations
  (interviews; diaries; focus groups; questionnaires)
- Collecting temporally-embedded artifacts
  (minutes of meetings; plans; reports; etc.)

Emphasis on qualitative data

But then what?... Process data (after Mintzberg, 1979)



Greatest challenge of process research

- "Making sense" of the data
  - while respecting the complexity ("accuracy")
  - as simply as possible ("parsimony")
  - with wide applicability ("generality")

(Criteria for good theory suggested by Weick, 1979)

Seven strategies for theorizing from process data...

1. Narrative strategy
2. Quantification ← **Kevin's tutorial**
3. Alternate templates
4. Grounded theory
5. Visual mapping
6. Temporal decomposition
7. Comparative case

Langley, AMR, 1999

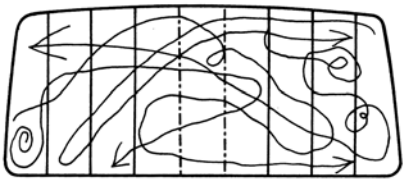
Strategy 1: Narrative

- Tell the story ("Just write it up...")
- Examples: Chandler (history); Geertz (anthropology – "thick description")
- Good narrative creates a sense of *"déjà-vu"*
- Priority on *accuracy* above *parsimony* and *generality*
  - "To be determinate, we must be indeterminate" (Van Maanen, 1996)

Laurel Richardson in *Handbook of Qualitative Reseach*

- I have a confession to make. For 30 years, I have yawned my way through numerous supposedly exemplary qualitative studies... (...) [this is] qualitative research's own dirty little secret. Our empire is (partially) unclothed.

Narrative approach...



Have we made any progress?
Description is only a first step

More exciting ways to use narrative approaches

- Investigating the narratives produced by organization members – narrative as a unit of analysis
- Presenting narratives that draw on different theoretical lenses (see strategy 3....)

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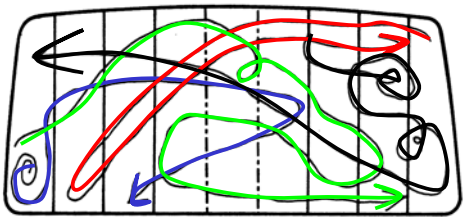
Strategy 3: Alternate templates

- Fit different *a priori* theoretical frames to data
- Classic example: Allison, 1971 *The Essence of Decision* (Cuban Missile Crisis)
- *Accuracy*, *parsimony* and *generality* created through the cumulation of perspectives

Alternate templates strategy



Completeness through complementary models
Parsimony by keeping them separate!

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Strategy 4: Grounded theory

- Build theory bottom-up (no *a priori* frame)
- Glaser & Strauss (1967); Corbin & Strauss (1990)
- Exemplar paper:
  - Gioia, Thomas, Clark and Chittipeddi: *Symbolism and strategic change in academia,* Organization Science, 1994
- ATLAS/ti or N'Vivo as modern coding tools
- Stresses *accuracy* above *parsimony* and *generality*

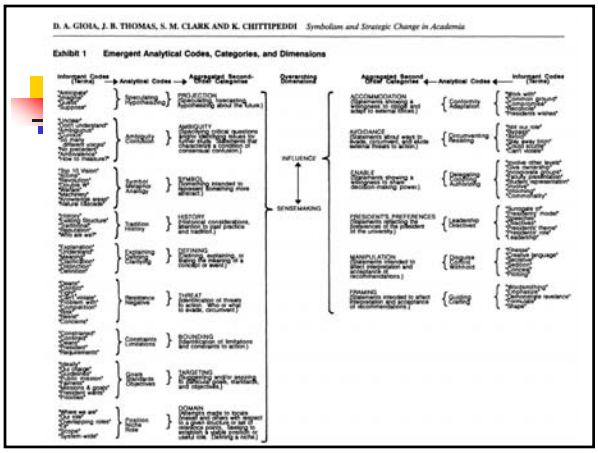
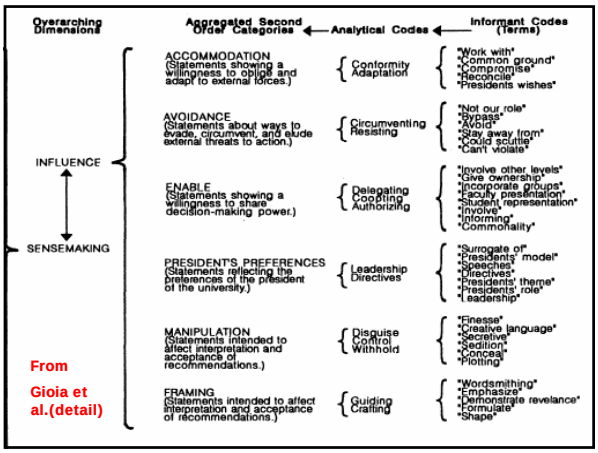
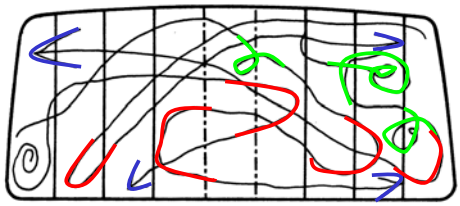

D. A. GIOIA, J. B. THOMAS, S. M. CLARK AND K. CHITTIPEDDI *Symbolism and Strategic Change in Academia*

Exhibit 1 Emergent Analytical Codes, Categories, and Dimensions



Grounded theory strategy



Description built up from the trees, not down from forest

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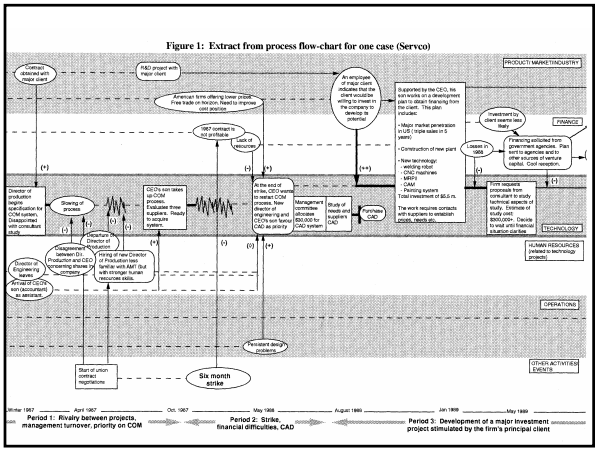
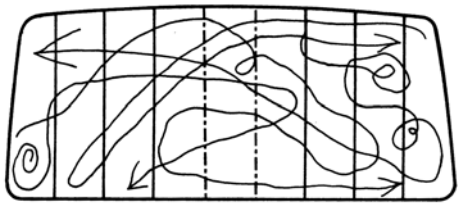
Strategy 5: Visual mapping

- A picture is worth a thousand words (?)
- Graphs, drawings, diagrams
  - Temporal flow charts
  - Relationships between people
  - Tables and matrices
- Methods gurus: Miles and Huberman
- A favorite thinking tool



Visual mapping strategy...



A metaphor with limitations!

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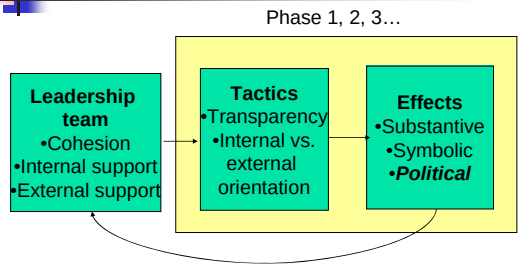
Strategy 6: Temporal decomposition

- Decompose a process into "phases"
  - Continuous episodes separated by discontinuities
- Phases may or may not have conceptual significance...
- ... but become units of analysis for comparison across time
- Example: Denis et al. (AMR, 2001): Leadership and change in pluralistic organizations
- ...Another favorite

Iterative model of leadership and strategic change under ambiguity



Denis, Lamothe, Langley, AMJ, 2001

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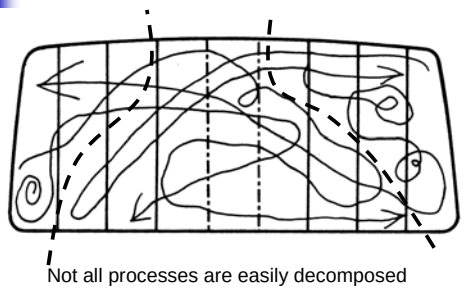
Temporal decomposition strategy



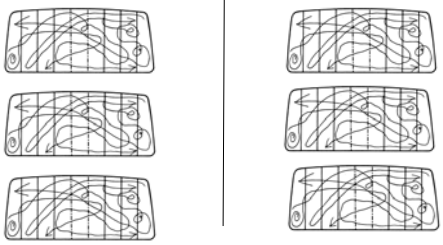
Not all processes are easily decomposed

Strategy 7: Comparative case strategy

- Identify process characteristics associated with extreme outcomes (success, failure)
- Exemplar: Eisenhardt (AMJ, 1989): *"Making fast decisions in high velocity environments"* – 8 cases of decisions in computer firms
- Emphasis on *parsimony* and *generality*

Comparative strategy

"Success" | "Failure"



How are the processes different?
(Compress processes into variables)

Table from Eisenhardt (1989)

TABLE 5
Characteristics of Counselors

Firm[a]	Counselors	Evidence[b]	Examples	Age	Description	Experience
Zap	VP, sales	I, S	"I talk a lot with the strongest managers—Bob who knows the outside world, and Jim, who is the best manager." (CEO)	55	"Experienced" "Solid guy"	20 years in the industry. Key sales executive for two prominent firms.
	VP, engineering	I, S		46	"Outstanding" "Savvy"	15 years in the industry. Senior general manager at a top firm.
Forefront	VP, sales	I, S	"My confidante. . . . When I talk with Joe, it's often about company issues." (CEO)	48	"Extremely street savvy" "Senior guy" "Doer"	Sales executive in the industry for 15 years. Worked for CEO previously.
Promise	VP, marketing	I	"I talk with Jim about a broader range of issues." (CEO)	39	"Intelligent" "Farthinking" "Renaissance man"	Co-founder with 12 years in the industry. Worked for CEO previously.
Triumph	Consultant	I, S2	"I offer advice and help and work with Harry on whatever he thinks is important." (consultant)	55	"Very experienced" "First-class manager" "High level of contacts"	Past CEO of two companies. Sits on several boards. Worked with CEO previously.
Omicron	VP, corporate development	I, S1, S2	"I come up with ideas and Jon reacts." (CEO)	33	"Hates to manage" "Quiet" "Bright"	Co-founder. Old friend of CEO. Nonmanager.
	VP, strategic planning	I, S1, S2	"I bounce ideas off Ken." (CEO)	32	"Young, bright" "Loyal"	First line manufacturing manager.

[a] There was no counselor at Alpha, Presidential, or Neutron.
[b] I = Strong support from interviews, based on evidence from multiple individuals. S = Strong support from stories, based on evidence from multiple individuals. 1 = the first decision studied in a firm and 2 = the second decision.

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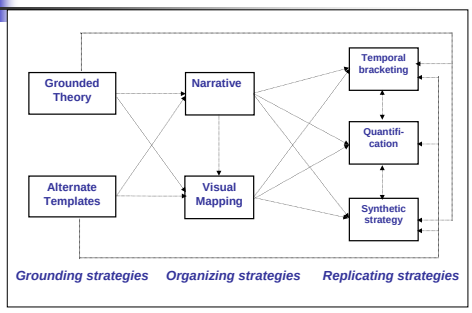
General observations: Sense-making from process data (1)

Type of understanding obtained varies with sense-making strategy...

- *Interpretations*: "sense" of participants
  - Narrative strategy; grounded theory
- *Predictions:* "sense" of causal laws
  - Comparative strategy; quantitative strategy
- *Patterns:* "sense" of surface structure
  - Visual mapping
- *Mechanisms:* "sense" of driving forces
  - Narrative strategy, alternate templates, temporal decomposition

General observations (2): Better in combination



General observations: Sense-making with process data (3)

- PREPARE to COMPARE...
  - Compare with *a priori* theories
    - Alternate templates, quantification
  - Compare with cases or sub-cases chosen for their differences/ similarities
    - Comparative, visual mapping strategies
  - Compare different time periods within cases
    - Temporal decomposition
  - Compare micro-incidents within a case
    - Grounded theory, narrative, quantification

General observations: Sense-making with process data (3)

Creative inspiration plays a key role

- But creativity favours the prepared mind

So...

- Collect good data
- Analyse data from multiple angles
- Build on prior "tacit" knowledge

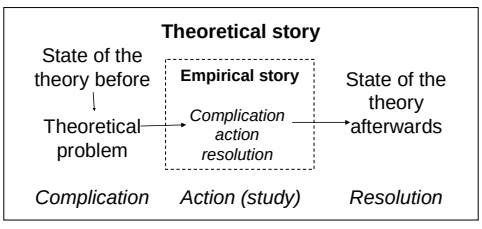
And remember: Rigorous data analysis is needed to verify emerging ideas

How do authors do and write convincing research articles on process?

Suggestion: Study of exemplars

Golden-Biddle and Locke (1997): Overall rhetorical structure

Empirical story embedded in a theoretical story (qualitative articles)



Typical questions to ask about an exemplar paper

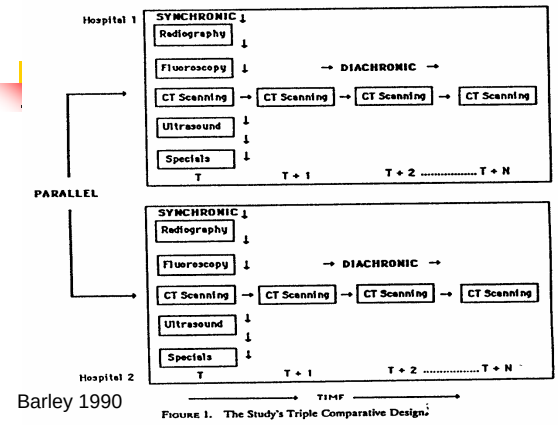
- How does the author justify their contribution in the introduction? (e.g., what makes a process approach relevant?)
- How is the methods section presented?
- How does the author link data and theory conviincingly?

Ways of linking data and theory convincingly in empirical sections

- Interweaving and connecting field and theoretical stories seamlessly...
  - Telling, showing, telling
  - Minimal telling, showing, telling, more general telling
- What makes it convincing (or not)?

Exercise: Analysis of Barley (1986)

- Read over the paper. After 5 minutes, exchange understandings of purpose and content of this paper.
- Linking data and theory: Take as an example the section titled "The structuring of suburban's CT operation", read in detail and plot what is done in each paragraph.
- Strategies for theorizing: Taking the empirical sections as a whole, what strategies does the author use for analyzing the data?
- What impressed you about the paper? What makes it convincing? What do you not like about the paper?



Barley 1990

FIGURE 1. The Study's Triple Comparative Design.

Barley: Evolution of interactions associated with adoption of CT scanner

- Hospital 1: coding of conversations between radiologists and technicians during examinations
- Phase 1: mutual exploration
  - Unsought validation
  - Anticipatory questions
  - Preference stating
- Phase 2: technician takeover
  - Clandestine teaching
  - Role reversal
  - Blaming the technologist

Barley (1986): Script

Rad: *(Sitting down at the console)* You just photographing them?
Tech: Yes, I'm rematrixing.
Rad: *(Pointing)* Is that a fracture?
Tech: No, that's probably a foramen [one part of a vertebra].
Rad: Did you see a disk here? [Was the disk ruptured or bulging?]
Tech: I just saw a little bit. It's so small you can't see it.

Barley's analysis

		SUBURBAN						URBAN							
		Phase 1			*Phase 2*			*Phase 1*			*Phase 2*			*Phase 4*	
HOSPITAL	PHASE	UV	AQ	PS	CT	RR	BT	DG	CM	UC	DS	UCrit	AcQ	TC	ME
Suburban	1	6	9	0	0	0	0	10	0	0	5	0	0	0	0
	2	2	3	2	13	14	7	11	0	0	5	0	1	9	7
Urban	1	0	0	10	0	0	1	47	12	12	21	0	2	0	0
	2	0	0	1	0	0	2	14	1	7	13	11	6	0	0
	3	0	0	1	1	0	0	50	4	9	33	4	7	0	0
	4	0	0	0	0	1	0	13	0	3	11	1	0	11	10

Legend

UV = unsought validation
AQ = anticipatory question
PS = preference stating
CT = clandestine teaching
RR = role reversal
BT = blaming the technologist
DG = direction giving
CM = countermand
UC = usurping the controls
DS = direction seeking
UCrit = unexpected criticism
AcQ = accusatory question
TC = technical consultation
ME = mutual execution

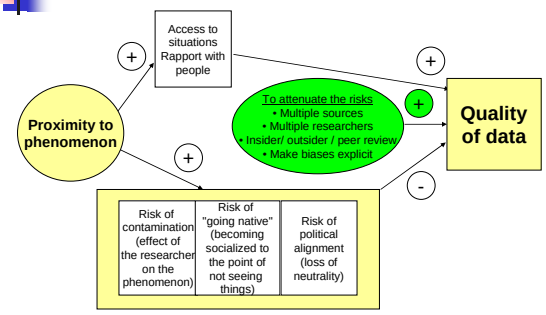
FIGURE 4. Distribution of Scripts in Urban's and Suburban's CT Operation During Specific Phases of Each Scanner's Evolution.

Other useful notes on qualitative analysis

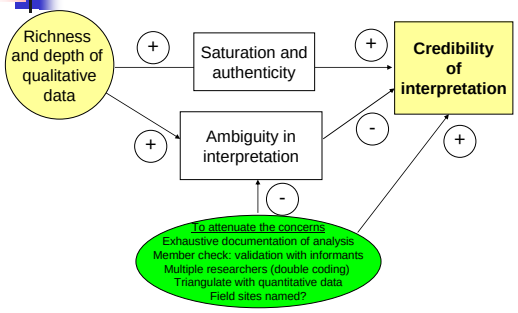
Reviewer comments... ... the problem of "credibility"

- "I was troubled throughout the manuscript by the question of whether to "believe" the account. I do believe the author, but the point is that the way the results are presented leaves the author open to this criticism...."

Issues of "credibility" during qualitative data collection



Issues of "credibility" during data analysis & interpretation



Different responses to the issue of *generalizability* in qualitative research

- *Transferability:* The important thing is to provide sufficient in-depth contextual information so that the reader can judge transferability to another situation
- *Accent on analytic generalizability* (to theory) *rather than empirical generalizability* (to population). Each case provides a complete test of a theory (much like an experiment)
- *Replication on polar cases* – if the same phenomenon occurs in very different situations, it is more likely to be general
- *Generalizability is not relevant* – qualitative research is interested in the particular, not the general