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# Mixed Methods

A Talk for Members of the EPIC Community  
March 14, 2019

## What we heard from you

- How can ethnography and qual coding in general meld with machine learning?
- How do you mix qual and quant sample logic?
- How do you order mixed methods
- How do you get buy-in for ethnography?

# Can you quantitatively analyze a story?

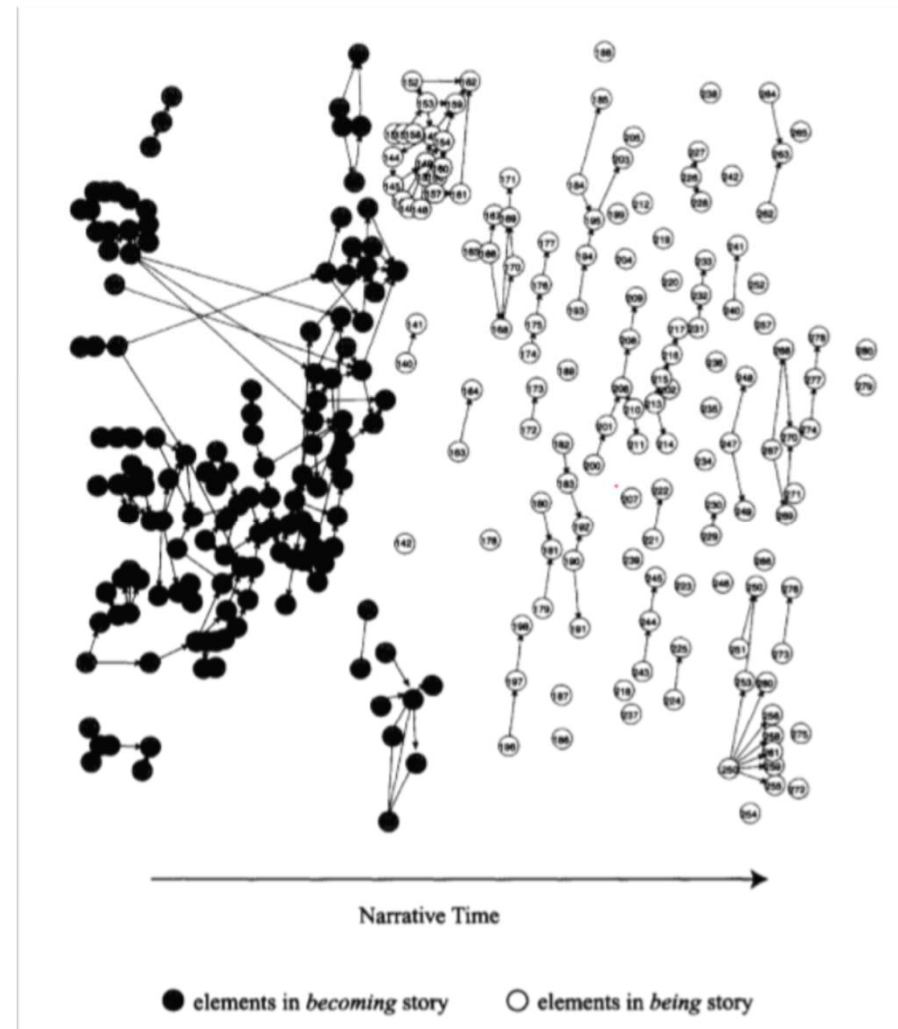
A case study of using life stories to understand how people become self-identified Nazis.

# Mixed Methods Example

What causes someone to become a Nazi?

Transformed life stories written by Nazis into network “elements” (events; settings; people; etc)

Becoming a Nazi stories were more dense than Being a Nazi



# Becoming versus Being

## Becoming a Nazi

- Qualitatively:
  - Moving around a lot
  - Losing social connections
  - Disrupted connections to existing institutions like church and school
- Quantitatively:
  - Fewer and fewer connections to school, church, etc.
  - More and more interactions with other Nazis
  - More moving

## Being a Nazi

- Qualitatively:
  - Simple, binary, unchanging
  - Lacking the dynamism of the Becoming phase
  - Activities less coherent; more isolated
- Quantitatively:
  - Fewer and fewer instances of self-reflection
  - Activities less likely to be associated with sensemaking

# The lesson?

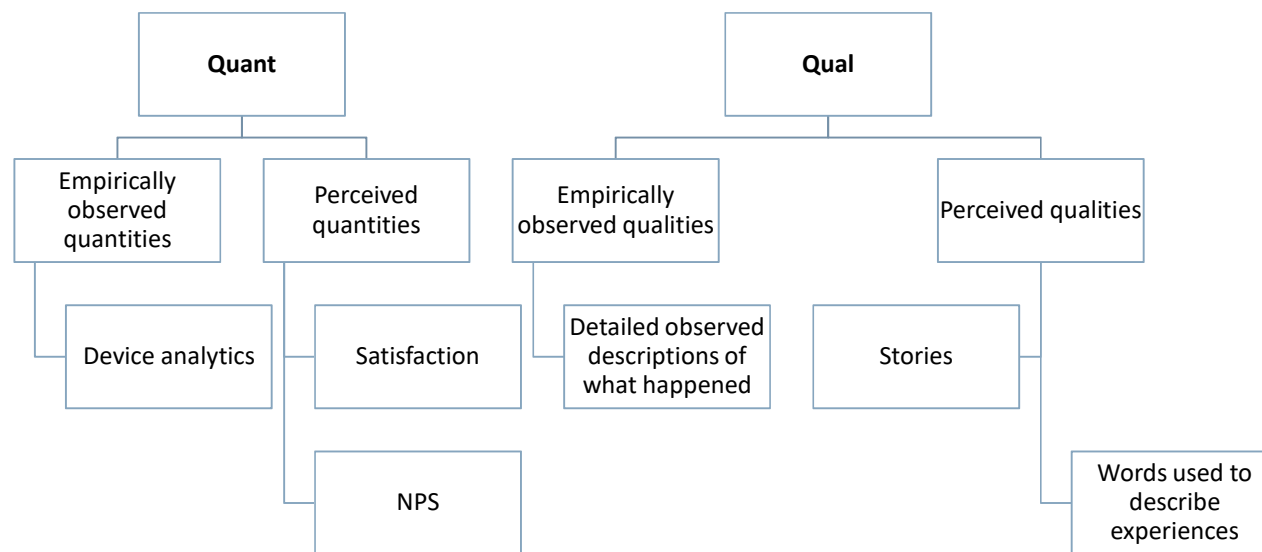
Even stories can be transformed into quantitative measures, but to do so you must master two types of validity.

# What do you mean by “mixed methods”?

- Some disagreement about what mixed methods really means

being mixed. For example, some use the term “quantitative” to characterize studies based on large samples, such as the Panel Study of Income Dynamics or the World Values Survey. Others use it to describe any studies that use formal mathematical models when analyzing data, even when the sample size is small—for example, studies using social network analysis

managers. By contrast, some use the term “qualitative” to describe all small-sample studies, regardless of whether the analysis is formal, because they consider those studies to lack statistical generalizability. Others use “qualitative” to characterize any approach in



Qual can be  
“empirical”



# Qualitative vs. Quantitative

	Quantitative	Qualitative
Role of theory in research	Deductive, testing of theory	Inductive, generating theory
Ontological orientation	Objectivism	Constructionism
Epistemological orientation	Natural science model	Interpretivism

## So...what are “mixed methods” anyway?

### **Ostensibly:**

- Mixing qualitative and quantitative research methods in the same study

### **More fundamentally:**

- Mixing philosophical traditions
- Mixing very different kinds of data
- Mixing differently trained researchers
- Mixing types of outcomes and impacts

# Quant researchers worry about...

I want to know what  
causes something else.



I really spend a  
lot of time  
wondering how  
to measure  
things.



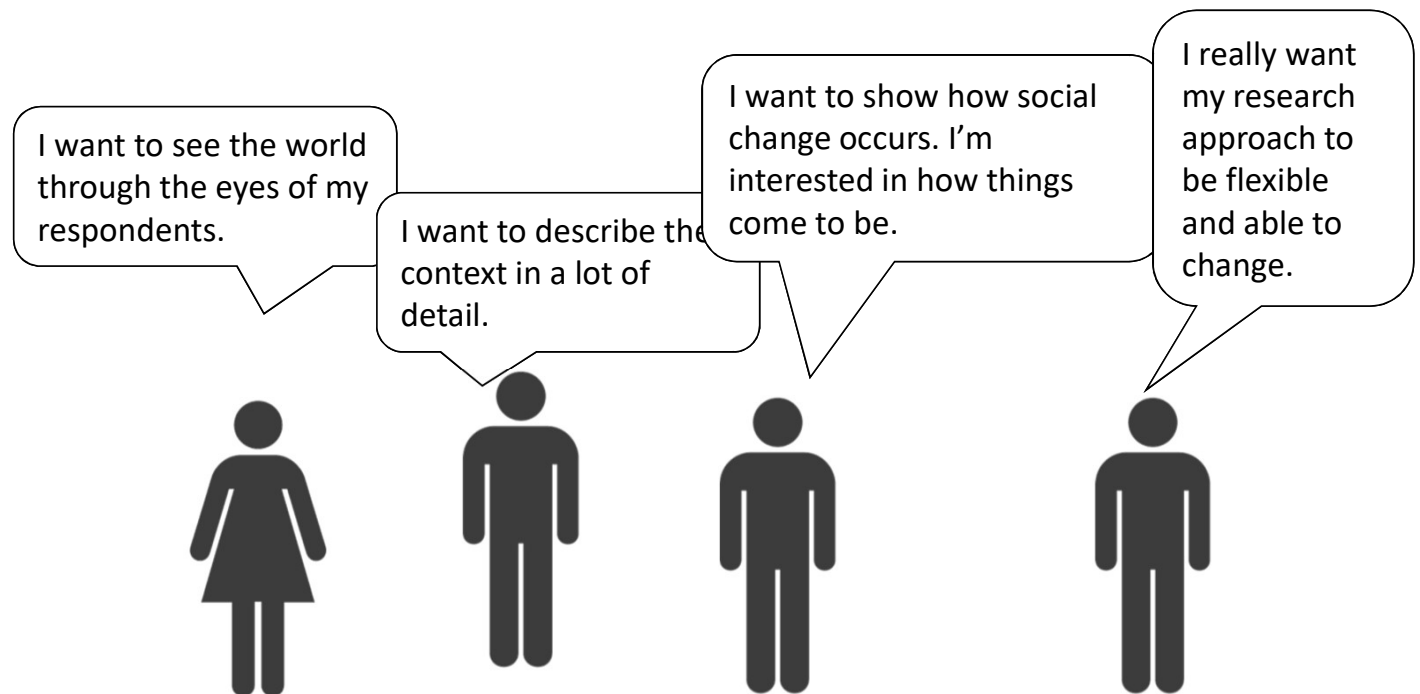
I wonder how small  
patterns generalize to big  
patterns.



I want to make sure  
others can repeat  
my findings.



# What do qual researchers worry about?



# Different expectations

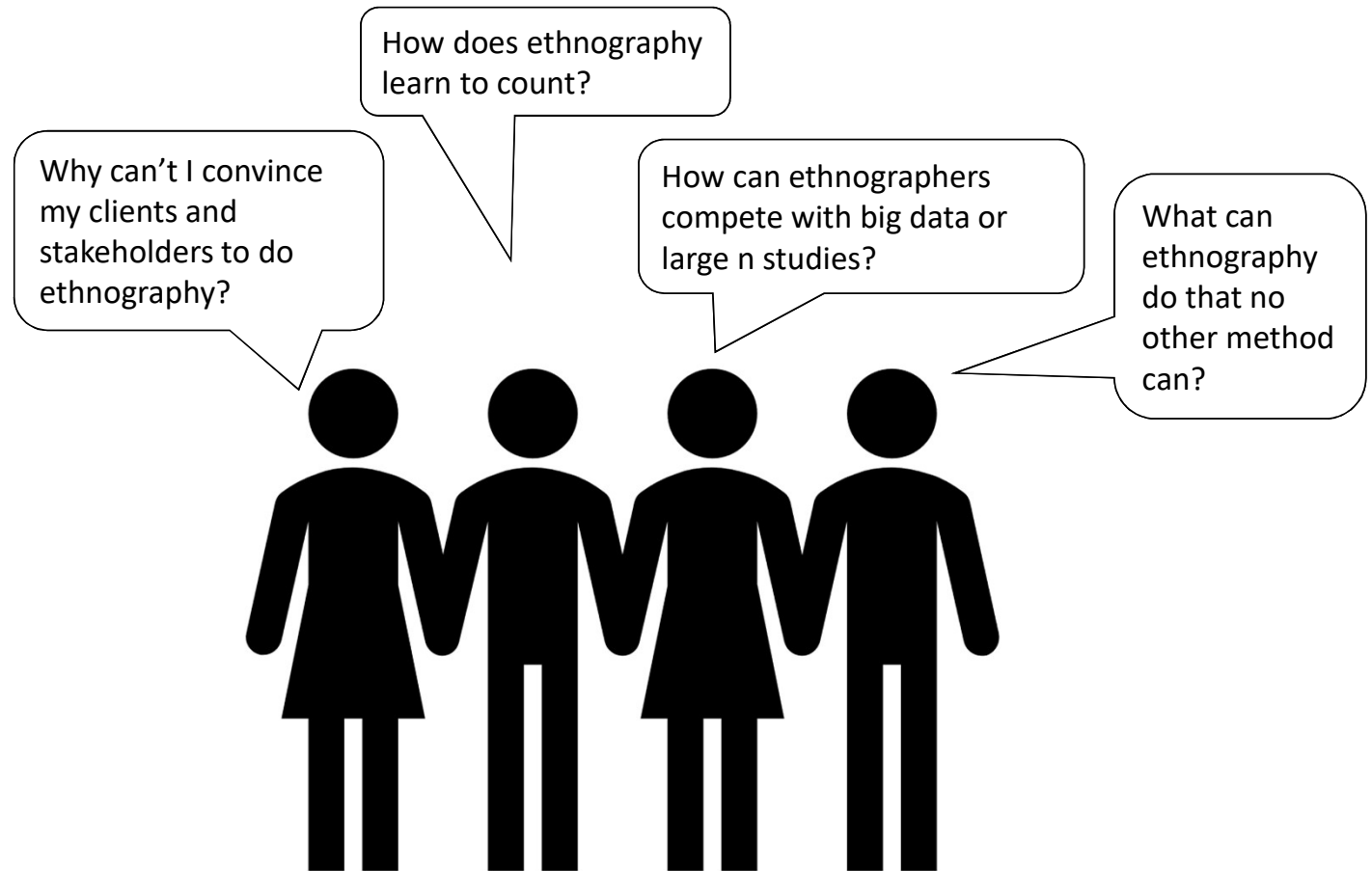
## Quant researchers...

- Want predictive power
- Want closed hypotheses
- Expect research design to be locked down early
- Expect analysis to be fast
- Are comfortable reducing detail and potentially nuance
- Can be distrustful of low-n studies
- Tell great data summaries and create predictive data

## Qual researchers...

- Want detail
- Want open-ended questions
- Expect to adjust research design
- Expect to spend time with participants
- Are comfortable with ambiguity
- Can be easily overwhelmed with too much data
- Tell great stories and create rich data

## *Ethnographers worry about...*



## Interlude

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On your own, write down an example of a project you remember that, *in retrospect*, was actually mixing philosophical traditions.

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Now *thinking back*, what was the impact of mixing those two traditions?



TIME DOES NOT PERMIT IN-  
DEPTH QUALITATIVE  
RESEARCH



TIME DOES NOT PERMIT IN-  
DEPTH QUANTITATIVE  
RESEARCH



NEGOTIATING ACCESS TO  
PARTICIPANTS IS  
CHALLENGING



FINDING A LARGE QUANT  
DATA SET IS CHALLENGING

Why mix methods?



## Methodological reasons for mixing methods

1. Triangulation: corroboration of earlier data
2. Complementarity: deepen or enhance other data
3. Development: use one method to inform and improve the other
4. Initiation: resolving earlier contradictory findings
5. Expansion: expanding the inquiry to ask different questions

Source: Bryman, A. (2006). Integrating Quantitative and Qualitative Research: How Is It Done? *Qualitative Research*, 6(1), 97–113. <https://doi.org/10.1177/1468794106058877>

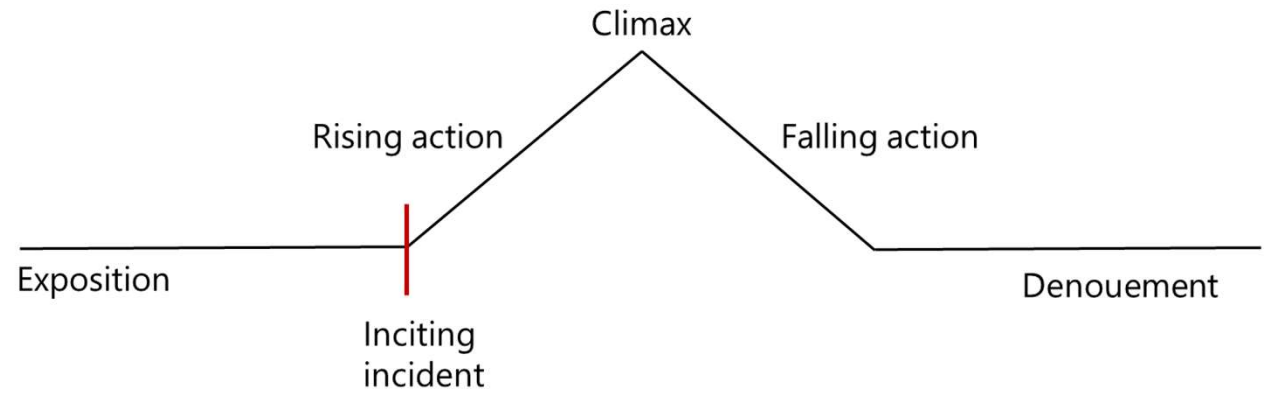
## The best of both worlds

- Detail *and* Predictive power
- Great stories *and* Precision
- Adaptability *and* Good planning

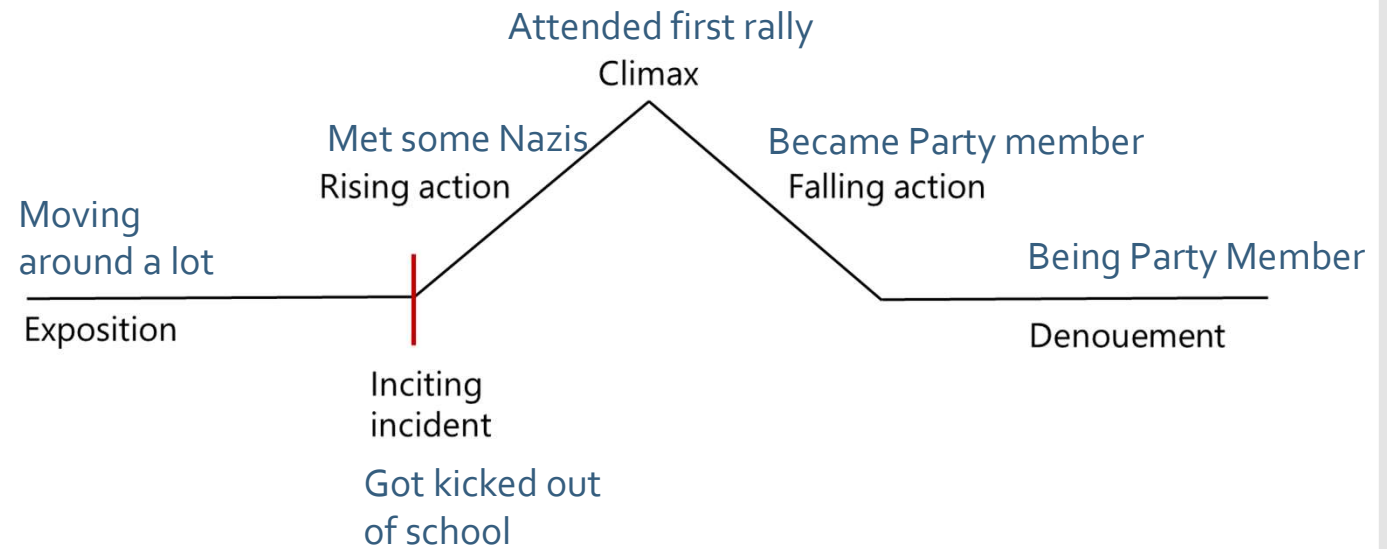
## Ethnography's secret super power

- Ethnographers tell stories with a beginning, a middle and an end.
- Stories are the most understandable, intelligible, and “sticky” types of data that exist

# Freitag's pyramid



# Becoming a Nazi pyramid



*Soc Sci Med*. 2010 Mar;70(5):769-78. doi: 10.1016/j.socscimed.2009.10.067. Epub 2009 Dec 11.

**Why do interventions work in some places and not others: a breastfeeding support group trial.**

Hoddinott P<sup>1</sup>, Britten J, Pill R.

whereas the quantity of intervention delivered did not. In the three localities where breastfeeding rates declined, negative aspects of place including deprivation, unsuitable premises and geographical barriers to inter-professional communication; personnel resources including staff shortages, high workload and low morale; and organisational change predominated (the base model tiers). Managers focused on solving these problems rather than delivering the policy and evidence of progress to the higher model tiers was weak. In



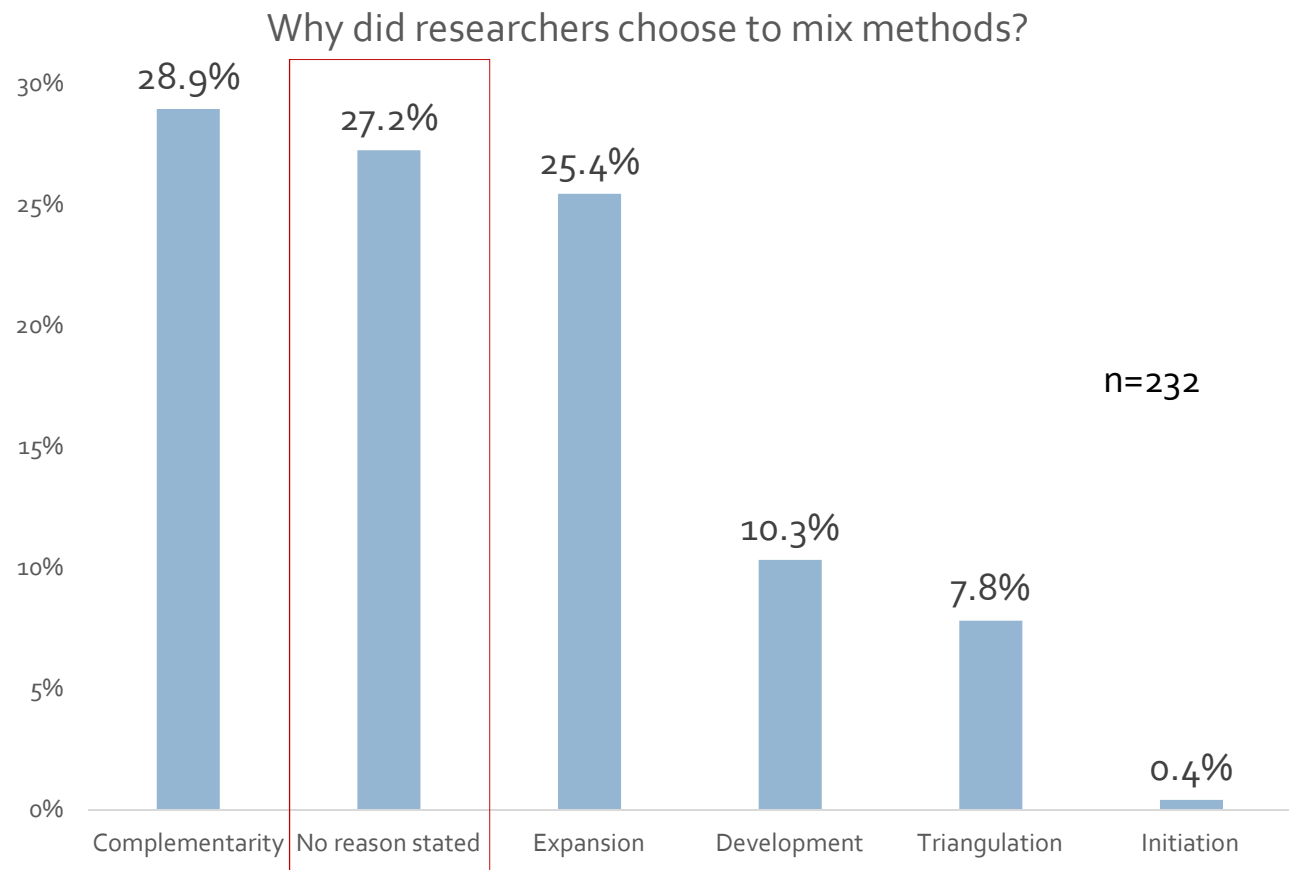
Initiation

Ethnography finds  
why health policy  
failed

On-the-ground observation finds that breastfeeding policy failed because of the specific conditions of that location – even though the policy was found to work elsewhere.

## Make sure you have a reason!

A significant minority of researchers had no apparent reason for mixing methods.



Source: Bryman, A. (2006). Integrating Quantitative and Qualitative Research: How Is It Done? *Qualitative Research*, 6(1), 97–113.  
<https://doi.org/10.1177/14687994060058877>

# Considerations in designing a mixed methods study

## Logic of enquiry

- Inductive: aimed at discovery
- Deductive: aimed at testing

## Sequencing

- Simultaneous
- Sequential

## Priority or dominance

- Qualitative data: why, how
- Quantitative data: how many



# Types of mixed method designs

## Simultaneous

- Qual + Quant: interviews and analytics
- Quant + other Quant: survey and analytics
- Qual + other Qual: ethnography and focus groups

## Sequential

- Qual → Quant: explore first then measure or test
- Quant → Qual: get lots of data then zero in on something specific for more detail
- Quant → Quant: general summary statistics then more specific variables
- Qual → Qual: explore and then explore one particular topic more deeply

# Making ethnography quantitative

- Frequencies of coded data
- Surveys of participants
- “Nested” studies of large surveys with a sub-sample also observed ethnographically
- Non-nested studies: large surveys paired with a parallel (concurrent) ethnographic study
- Controversial to do anything more than frequencies

Room	Approximate number of attendees	Number of open laptops	Share of participants with divided attention
LOCATION 1	45	19	42%
LOCATION 2	16	5	31%
LOCATION 3	120	31	26%
LOCATION 4	120	15	13%

# Example of frequencies

## Interlude

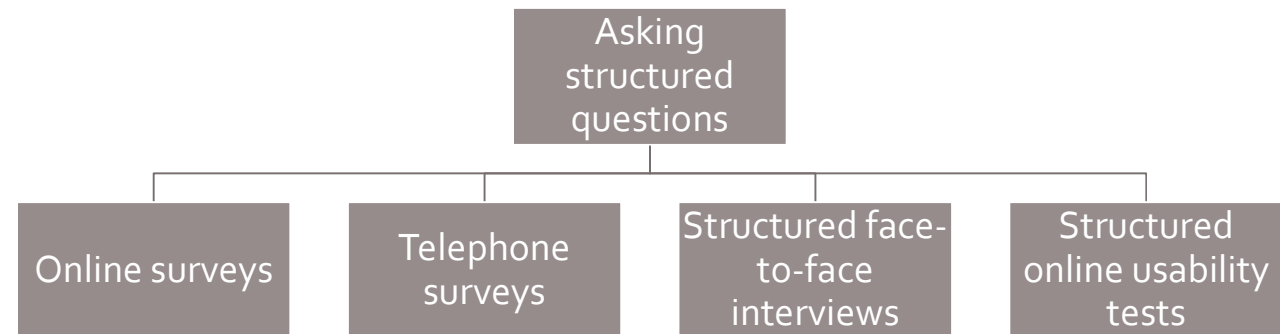
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On your own, write down the sequencing of a project you remember.

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Now *thinking back*, what was the impact of having that particular sequence?

# What is a “survey”?



## Interlude

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Using Zoom, vote: Can you calculate “averages” of ethnographic data?

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On your own, write down why or why not

## New horizons

- Massive amount of easily collected text, coupled with analysis tools, makes it possible to create entirely new kinds of methods, Small calls these “crossover methods”
- Crossover methods include:
  - Turning narratives into social network data, and analyzing using social network analysis
  - Turning narratives into critical incidents and analyzing using sequence analysis techniques like structure analysis

# Mixing ethnography with machine learning

Crowston, K., Allen, E. E., & Heckman, R. (2012). Using natural language processing technology for qualitative data analysis. *International Journal of Social Research Methodology*, 15(6), 523-543.

**Table 2.** Group maintenance coding scheme showing conceptual categories, indicators and definitions.

Category	Indicator	Definition
Emotional Expressions	<i>Emoticons</i>	Emphasis using emoticons
	<i>Capitalization</i>	Emphasis using capitalization
	<i>Punctuation</i>	Emphasis using punctuation
Positive Politeness	<i>Colloquialisms/Slang</i>	Use of colloquialisms or slang beyond group-specific jargon
	<i>Vocatives</i>	Referring to or addressing a specific participant
	<i>Inclusive pronouns</i>	Incorporating writer and recipient(s)
	<i>Salutations/Closings</i>	Personal greetings and closures
	<i>Complimenting</i>	Complimenting others or message content
	<i>Expressing agreement</i>	Showing agreement
	<i>Apologies</i>	Apologizing for one's mistakes
	<i>Encouraging participation</i>	Encouraging members of the group to participate
	<i>Expressing appreciation</i>	Showing appreciation for another person's actions
Negative Politeness	<i>Disclaimers/Self-depreciation</i>	Disclaiming prior to a face-threatening act (FTA); self-depreciation to distance
	<i>Rational for FTA</i>	Stating an FTA as a general rule to minimize impact
	<i>Hedges/Hesitation</i>	Tactics to diminish force of act; hesitation in disagreement
	<i>Formal verbiage</i>	Using

**Table 3.** System performance.

CODE	RECALL		PRECISION		GS # of INSTANCES	
	Training	Testing	Training	Testing	Training	Testing
<i>Apologies</i>	89%	67%	81%	67%	19	3
<i>Formality</i>	90%	89%	55%	53%	29	9
<i>Complimenting</i>	88%	67%	70%	40%	40	6
<i>Agreement</i>	87%	80%	61%	60%	71	15
<i>Capitalization</i>	96%	60%	27%	19%	73	10
<i>Appreciation</i>	90%	64%	91%	45%	90	14
<i>Emoticon</i>	91%	91%	30%	81%	122	32
<i>Salutations</i>	77%	86%	79%	86%	159	28
<i>Punctuation</i>	79%	71%	16%	22%	257	34
<i>Slang</i>	89%	67%	71%	69%	274	81
<i>Inclusive Pronouns</i>	98%	98%	90%	58%	478	55
<i>Hedges</i>	80%	74%	63%	69%	1136	244

Note: Recall is the percentage of human applied codes found the system; precision is the percentage of codes found by the system that match the human codes. Testing results are

Based on these theories and their discussion in the literature, an initial coding scheme was created deductively to investigate Group Maintenance behaviours in the

once again, social theory is the answer



## Make sure to...

- When collecting ethnographic data, make sure you have enough detail to power any other (quant) method
- When doing frequencies, make sure you are “counting” consistently
- When doing social network analysis, make sure you use a consistent definition for a node
- If you are training an algorithm, make sure you have clear rules based on social theory, not made up belief

# Concerns

Use caution when mixing methods because there are deep and fundamental differences that will create unexpected challenges in multiple phases of the research project.

## Before doing anything:

- Ask both qualitative and quantitative research questions
  - Create quant hypotheses
  - Ask open-ended how, why, in what way questions
- Gather the mixed method team to discuss the philosophical divide

## Before data collection:

- Create (qual) concepts and (quant) variables Plan early how to analyze data both quantitatively and qualitatively
- Create qualitative codes in data analysis tool
- Determine quantitative variables in data analysis tool

# Concerns

Use caution when mixing methods because there are deep and fundamental differences that will create unexpected challenges in multiple phases of the research project.

## During analysis:

- Use inductive (what do the data say?) and deductive (what do the data say about a given hypothesis?)
- Consider inferential statistics if your design permits

## During reporting:

- Create holistic models, diagrams, explanatory metaphors to “contain” (summarize) your qual data
- Create frequency tables of variables to summarize your quant data

## Selected sources

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