

Qualitative Methods in IS Research

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Agenda

- What is Qualitative Research?
 - Differences between Quantitative & Qualitative Research
 - Challenges & Opportunities
- When/Why do Qualitative Research?
 - Importance of Qualitative Research in IS
- Types of Qualitative Methods
 - Data Collection Methods
 - Data Analysis & Theorizing
- Principles & Evaluation Criteria
- Ethnography
- Action Research
 - Design Science

Quantitative & Qualitative Research

Quantitative Methods

- Typically positivist
- Appearance of objectivity through distance
 - Survey as tool
 - Statistics
- Deductive: a priori theory
 - Theory/hypothesis testing
 - Explain & predict; narrow & precisely defined categories
 - Statistical sampling
- Fit data to theory

Qualitative Methods

- Typically interpretive
- Acknowledgement of subjectivity → reflexivity
 - Researcher is instrument
 - Limited quantification of data
- Inductive: theory as sensitizing device or outcome
 - Theory building
 - Construction of intersubjective meanings; many categories
 - Theoretical sampling
- Give data free reign to find its way to central questions and answers

Challenges and Opportunities

Challenges

- Lots of unstructured data
- Post-hoc theorizing → uncertainty, risk, ambiguity
- Personally challenging & exhausting work (active listening)
- Page limitations
- Few clear method guidelines & conventions (e.g., p-values for statistical significance) → **plausability**
- “That’s obvious!”

Opportunities

- “IT artifact” → ensemble view; situated understanding of IT
- Flexibility of interpretation/ framing
- Richness of data → exciting, personal learning
- Surprise & innovation
- Connection and relevance to practice

When/Why do Qualitative Research?

- When the phenomenon of interest is:
 - Significantly determined by the ways in which individuals conceive of or construe their world
 - (Work) Practices: Logic of everyday life
 - Largely implicit, i.e., not easily accessible to participant
 - Culture: Beliefs, Sensemaking, Reasoning
 - Poorly understood; little (or no) prior theory
 - Discovery orientation
- When objective is to understand categories, assumptions and logics through which individuals in a given context (culture, workplace) construe their world

Importance of Qualitative Research in IS

- Call to focus on the IT Artifact
 - “explicit[ly] theorize about **specific** technologies with distinctive cultural and computational capabilities, existing in various social, historical and institutional contexts, understood in **particular** ways and used for **certain** activities”
- Defn of the IT Artifact
 - Bundles of material and cultural properties packaged in some socially recognizable form such as hardware and/or software

Conceptualization of IT

- Nominal View
- Computational View
- Tool View
- Proxy View
- Ensemble View
 - technology is socially constituted → need a thorough grasp of the structured and structuring influence of social action on the development and use of IT

Major Types of Qualitative Methods

- Case Study
 - Positivist, interpretivist
- Ethnography
 - Critical, confessional/reflexive, thick description
- Action Research
 - Canonical, critical
 - Cycles of intervention and assessment

Data Collection Methods

- Interview
 - Structured vs Unstructured
 - Critical incident
 - Repertory grids and Laddering
 - Long interview
- Diary/Journal
- Document Review
 - Textual/Linguistic Analysis
- Questionnaire
 - Open ended questions
- Observation
 - More or less embedding and participation

Data Analysis & Theorizing

- Idiographic Analysis (within case analysis)
 - Impressionistic reading → identification of patterns and socio-cultural tendencies
- Cross-Case Analysis
 - Comparisons against “close”, “extreme” or “far-out” cases
- Grounded Theory*
 - Constant Questioning
 - Constant comparison (of phenomena, concepts and categories)
 - Axial/Open Coding → attributing a category of the phenomenon to the text
 - Selective Coding → categories that has meaning in relation to context and other data
 - Theoretical Coding → categories that define a pattern

*Strauss & Corbin, 1998, *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, Sage.

What is Theory?

- Components of (all) Theory
 - Means of representation
 - Constructs
 - Statement of relationships
 - Scope
- Components of some Theories
 - Causal explanation
 - Testable propositions
 - Prescriptive statements

Types of Theory in IS

- Analysis
 - taxonomy, classification framework
- Explanation
 - meta-theory, causality
- Prediction
 - prediction w/o causal explanation
- Explanation & Prediction
 - hypothesis testing
- Design & Action
 - design theory

Assuring Quality

- Triangulation (validity)
- Member Checking (validity)
- Peer Review (reliability)
- Collective Interpretation (reliability)
 - Inter-coder reliability

Principles & Evaluation Criteria

1. Hermeneutic Circle
 - iterative interpretation across levels of meaning, part → whole → part
2. Contextualization
 - Critical reflection of socio-historical background of research setting/context
3. Interaction between Researcher and Subjects
 - Critical reflection on how the data were socially constructed in through interaction with researcher

Principles & Criteria (contd)

4. Abstraction and Generalization
 - Abstracting empirical details to theoretical concepts, categories and causal relationships
5. Dialogic Reasoning
 - Ongoing interaction between researcher's understanding/interpretation and empirical data
6. Multiple Interpretations
 - Sensitivity to multiple meanings and interpretations among participants in field
7. Suspicion
 - Sensitivity to systematic distortion and biases of informants

Ethnography

What is Ethnography?

Research Questions Suitable to Ethnography

Evaluation Criteria

Example: MISQ 2000

What is Ethnography?

- Method (from cultural anthropology)
 - Immersion in a culture unknown to researcher
 - Experiencing of every-day, mundane life over extended period of time
 - Reliance on key informants
 - Researcher as instrument: co-creates the data being collected
 - Emphasis on writing
 - Fieldnotes: what happened in field
 - Personal notes: what happened to you during travel and in the field (personal thoughts and feelings)
- Research output
 - Representation of field/foreign culture

Evaluation Criteria

- Authenticity: demonstrate that researcher was immersed in the field
 - Validity: representative of 'reality'
 - Reliability: do others interpret it the same way?
- Plausibility: make findings relevant to audience
- Criticality: move readers to examine their own taken-for-granted assumptions

Ethnography in US Company

- Knowledge Management Technology
- RQ: how technology hardens (or softens) information
- Access: ‘sideways’; through technology champion
- Data: participant observation; mostly fieldnotes; handful of interviews
- Analytical technique:
 - Weekly conversations with Dick Boland
 - Constant comparison of three groups of knowledge workers ... and then myself as a knowledge worker
- ‘Result’: three practices of informing
 - Ex-pressing, transforming and monitoring

Action Research

What is Action Research?

Action Research in IS

Evaluation Criteria

Design Science vs Action Research

Example: MISQ 2004

What is Action Research?

- Interventionist method → change
 - Simply studying a situation w/o helping considered 'immoral'
- Collaborate with practitioners to solve a real problem
 - Addresses divide between research and practice
- Learning through action
 - Cycles of experimentation: design → intervene → evaluate → learn

Action Research - Cycles

- Diagnosing
 - Joint (researcher and participant) identification of problem and causes
- Action Planning
 - Planning solutions/interventions
 - Make theory explicit; develop hypotheses
- Action Taking
 - Example: Building & implementing technology
- Evaluating
 - Joint assessment
 - Test hypotheses
- Specifying Learning
 - Lessons learned → entry into the next AR cycle

Evaluation Criteria

- Researcher-Client Agreement
- Cyclical Process Model
- Theory
- Change through Action
- Learning through Reflection

Action Research vs Design Science

Action Research

- Social science
- Theory for Explanation
 - Technology in its human context of use
- Technology to solve an existing problem
 - collaboration w/ practitioners
- Technology studied in its 'natural' setting

Design Science

- Computer science
- Theory for Prescription
 - Design Science
- Technology innovation; can solve a potential problem
 - no practitioner involvement needed
- Technology assessment in experimental setting

Example: MISQ 2004

- Dissertation by Rikard Lindgren, Victoria Inst.
- Challenge: 5 papers that made up dissertation had been published previously
 - Entire 30-month AR study – 2 cycles
 - Evaluation criteria of canonical AR
- Challenge: synthesizing theory for Competence Management
 - Key design idea (individual interests as part of competence mgmt) ‘inspired’ by distinction between job-based vs skill-based HR approach
 - Mostly practitioner publications

Lindgren, Henfridsson & Schultze, 2004. Design Principles for Competence Management Systems: A Synthesis of an Action Research Study, *MISQ*, 28(3/4)

Wrap Up

- Select method based on research question
 - As well as personal interest and aptitude
 - As well as feasibility (co-operation of participants, ethical standards)
- Make sure you apply, test or generate theory

Interviewing Techniques

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- Advantages & Objectives of Interviewing
- Repertory Grids
- Laddering
- Critical Incident Technique
- The Long Interview

Advantages & Objectives of Interviewing

Advantages

- Collect data in a cost-effective manner
- Assurance of ethical standards of research
 - Clearly defined interaction, informed consent, anonymity

Objectives

- Gain insight into the ways in which individuals conceive of and/or construe their world
- Collect rich and authentic data
 - Allow participants to express themselves in their own words, with their own stories, based on their own cultural experience

Repertory Grids

- Based on Personal Construct Theory (Kelly)
 - Individuals rely on personal constructs (which are nevertheless social/ inter-subjective) to make sense of events
 - Personal constructs are bi-polar (distinction b/w good & bad)
- Used to:
 - gain insight into cognitive and decision making processes*
 - Rep Grids are mapping tool for cognition
 - identify attributes and dimensions that are implicitly used to make sense of and attribute meaning in a particular domain
 - gain understanding of assumptions, expectations, values & beliefs

*Tan & Hunter, 2002, The Repertory Grid Technique: A Method for the Study of Cognition in Information Systems, MISQ, 26(1).

Repertory Grids - Basics

- Elements – objects of attention
 - People (systems analysts), activities (IS projects), events, objects
 - Can be nomothetic (supplied by researcher) or idiographic (emergent, from participant)
- Constructs – individual's interpretation of elements
 - Attributes of an “excellent” systems analyst
 - Bipolar constructs (high vs low biz knowledge)
 - Elicited through **triads**
- Links – relate constructs to elements
 - Rating different elements (systems analysts) and, based on the attributes associated with them, inferring what it means to be an “excellent” systems analyst

Steps in Repertory Grid Method

During Interview

1. Generate Elements
 - E.g., List the strategic issues that currently face your organization*.
2. Compare Elements to Identify Attributes
 - E.g., Triads of first 5 issues mentioned

After Interview

3. Distinguish Discrete Attributes
 - E.g., 29 respondents, 529 discrete attributes
4. Cluster Attributes into Dimensions/ Components
 - E.g., 42 dimensions identified; 3 coders; inter-rater reliability

*Dutton, Walton & Abrahamson, 1989, Important Dimensions of Strategic Issues: Separating the Wheat from the Chaff. J. of Mgmt Studies, 26(4).

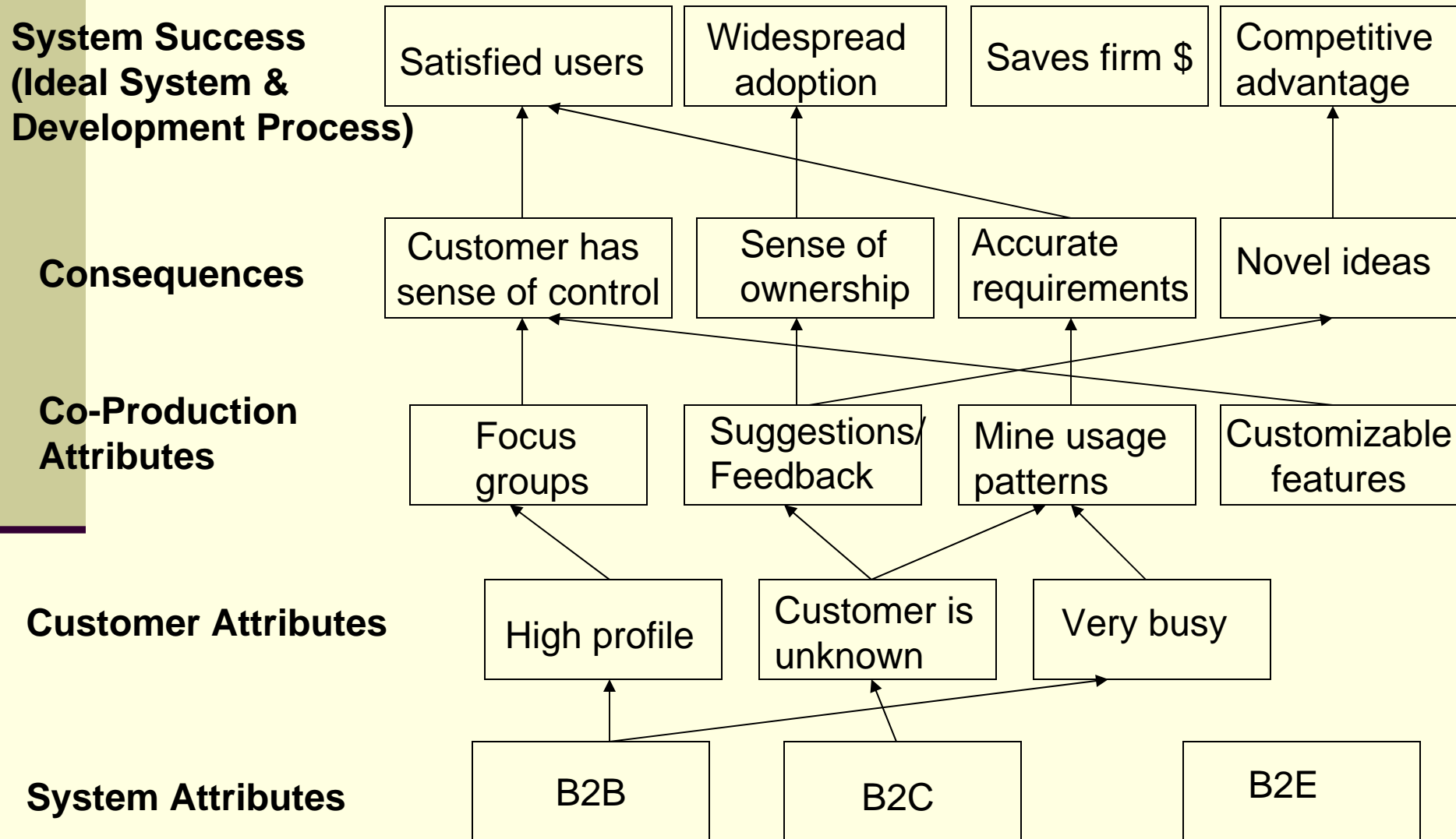
Advantage of Rep Grids

- Efficient
 - 15-25 interviews to generate sufficient constructs to approximate the “universe of meanings,” i.e., no new constructs are added during subsequent interviews

Laddering

- Goes further than repertory grids
 - Pursues causal relationships b/w attributes
 - Means-ends theory
 - Attributes (means) → Consequences → Values (ends)
 - Develops hierarchy of values
 - Individual ladders & aggregated chains

Example of a Hypothetical Ladder



Critical Incident Technique

- Interviewee identifies and recounts an incident that stands out as memorable because it was either exceptionally good or exceptionally bad
 - Example: excellent customer s/v; incident that caused the customer to switch s/v providers
- Incident can be real and based on the interviewee's experience
 - Can be scenario to which the interviewee reacts
- Efficient
 - Multiple incidents per interviewee

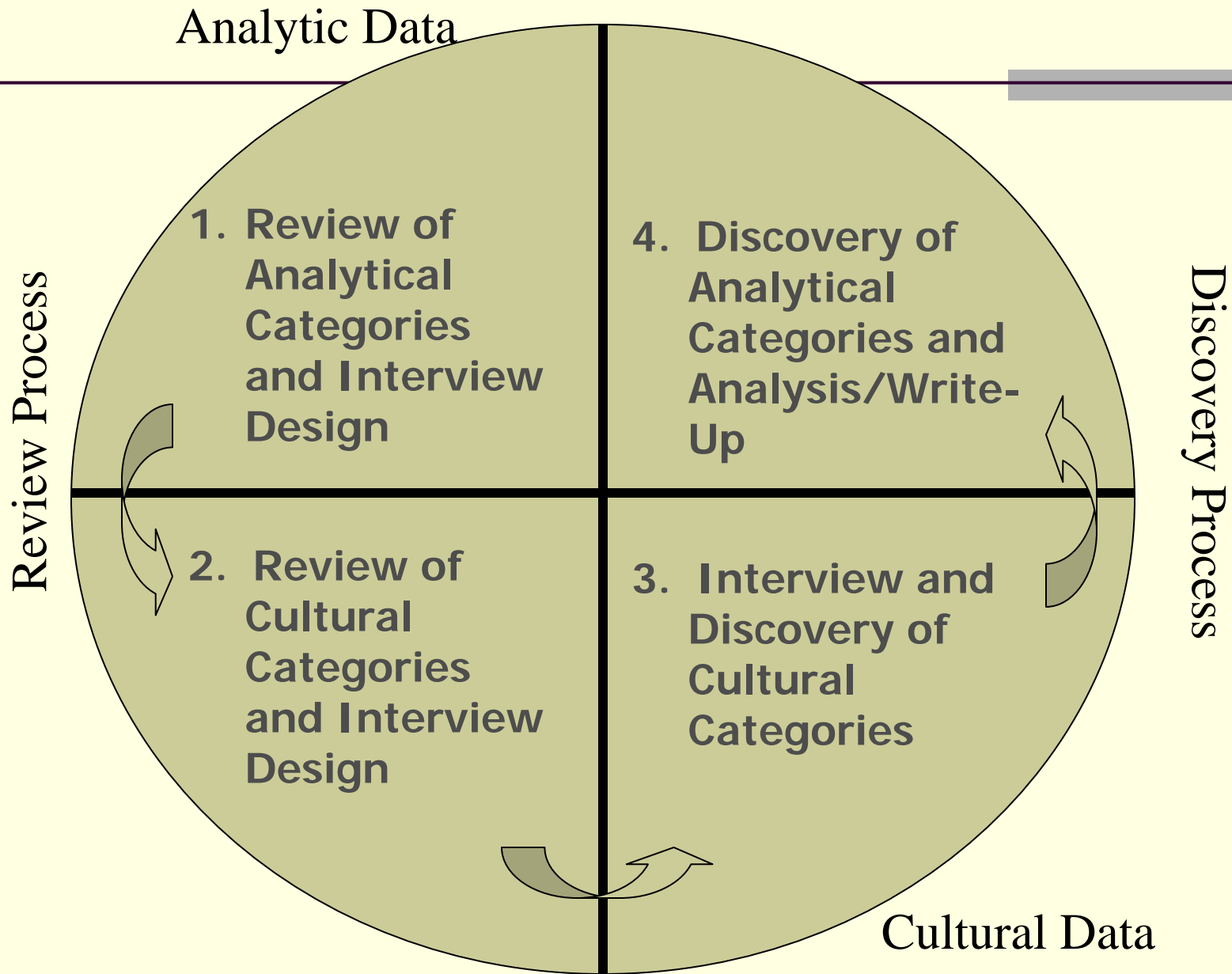
CIT Analysis & Results

- Quantitative
 - Take stories as face value/ fact
 - Develop categories and count occurrences in categories
- Qualitative
 - Analysis of narrativizing, implicit logic
- Concerns
 - Recall, bias
 - Negative experiences are more memorable
 - What is “critical”?

The Long Interview

- Ethnographic interview for situations where full ethnography is not possible
- 2-8 hour interviews with ~8 participants
- Specific sequence of questions
- Focus on a topic of inquiry but give interviewee lots of 'space' to talk freely
- Avoid obtrusive questioning
 - Use floating prompts, e.g., "eyebrow flash" or repetition of key word
 - Use planned prompts, e.g., contrast questions, to get interviewee to elaborate, or present pictures or scenario
- Analysis of transcribed interview

Long Interview: 4-Part Method



Step 1: Review Analytic Categories

- Literature Review
 - Position study in scholarly discourse
 - Become 'master' of domain, not captive of previous scholarship's categories/theories
 - Develop interview questionnaire

Step 2: Review Cultural Categories

- Researcher as instrument of inquiry
 - Exploit familiarity with subject matter
- Minute examination of personal experience with topic
 - Associations, incidents, assumptions that surround the topic in researchers mind
 - Focus on “break-down” in which phenomenon of interest was implicated

Step 3: Conduct Interview

- Four types of Questions
 - Biographical
 - Grand Tour: elicit interviewees' story on phenomenon, e.g., tell me about ...
 - Category: developed from theory
 - Auto-driving: respondent asked to comment on picture, photograph, video
- Unobtrusive prompting preferred

Example From Marketing

- Fournier, 1998, Journal of Consumer Research
- Consumer's Relationships with brands
- 3 interviewees
 - 59-year old, married; 39-year old, single mother of two; 23-year old graduate student
 - Interviewed in their kitchen; opened cabinets and asked "tell me the story about this brand"
- Elicited
 - Interviewees' brand usage history
 - Contextual details concerning the informant's life world

Wrap Up

- Interviews are more efficient than ethnography and action research
- Use interviewing techniques to elicit as many data points (e.g., stories, categories) and as much authentic detail and contextual information as possible from one interviewee
 - Achieve theoretical saturation with fewer interviews (e.g., 3-25)

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