Qualitative data acquisition methods (e.g. Interviews and observations)

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Code: data-quali

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Menu

1. Sampling strategies in qualitative research 2
2. Data gathering techniques (empirical measures) 6
3. Observation and transcription 8
4. Texts 12
5. Interviews 13
1. Sampling strategies in qualitative research

Often you only work with 1-2 big cases (i.e. classes, organizations)
- Qualitative analysis is highly labor intensive

But within each case you also have to think about sampling!

example: organizational study (innovation research)
- informants within the organization
- external experts (domain/subject experts/practitioners)
- clients and other interacting organizations
- observed processes (e.g. workflow analysis)
- texts (e.g. written decisions, files, ...)

example: impact of an initiative on a living area (e.g. publicly accessible computer rooms)
- external decision makers and interest groups
- organized local groups (e.g. parent’s associations)
- population of the area
- events and behaviors associated with this initiative

Sampling is often multi-stage (by waves)
- Research in progress can show new phenomena that need investigation and therefore sampling
### 1.1 General sampling strategies
Miles & Huberman (1994:28)

<table>
<thead>
<tr>
<th>Type of case</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>maximal variation</td>
<td>will give better scope to your results (but needs more complex models !!)</td>
</tr>
<tr>
<td>homogeneous</td>
<td>provides better focus and conclusions will be &quot;safer&quot; since it will be easier to identify explaining variables and to test relations</td>
</tr>
<tr>
<td>critical</td>
<td>exemplify a theory with a &quot;natural&quot; example</td>
</tr>
<tr>
<td>according to theory, i.e. your research questions</td>
<td>will give you better guarantees that you will be able to answer your questions ....</td>
</tr>
<tr>
<td>confirming / infirming</td>
<td>test the limits of an explanation</td>
</tr>
<tr>
<td>extremes and deviant cases</td>
<td>test the boundaries of your explanations, seek new adventures</td>
</tr>
<tr>
<td>typical</td>
<td>Show what is “normal” or “mean” or &quot;typical&quot;</td>
</tr>
<tr>
<td>intense</td>
<td>complete a quantitative study with an in-depth study</td>
</tr>
<tr>
<td>according to dimension</td>
<td>Study of particular phenomena</td>
</tr>
<tr>
<td>“snow ball”</td>
<td>According to information received during study</td>
</tr>
<tr>
<td>“opportun[e]”</td>
<td>Follow new “leads”</td>
</tr>
</tbody>
</table>

**Major strategies**: maximal variation, homogeneous

**Validation**: critical, confirming / infirming, extremes and deviant cases, typical

**Specialization**: intense, according to dimension

**Inductive approach**: “snow ball”, “opportune”
Qualitative data acquisition methods (e.g. Interviews and observations) - 1. Sampling strategies in qualitative research

<table>
<thead>
<tr>
<th>Type of case</th>
<th>Usage</th>
<th>Usage Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>all</td>
<td>(rarely possible)</td>
<td></td>
</tr>
<tr>
<td>quota</td>
<td>selection of subgroups</td>
<td></td>
</tr>
<tr>
<td>according to reputation</td>
<td>recommendations of experts</td>
<td>representativeness</td>
</tr>
<tr>
<td>comparative method</td>
<td>according to operative variables</td>
<td></td>
</tr>
<tr>
<td>according to criteria</td>
<td>according to criteria you want to study</td>
<td></td>
</tr>
<tr>
<td>convenient</td>
<td>those who are willing ...</td>
<td></td>
</tr>
<tr>
<td>political</td>
<td>Exclusion/inclusion for political reasons</td>
<td>bad</td>
</tr>
</tbody>
</table>

Use this big list to think about your own strategy

- The are no general rule!
  - Use this table to think the kind of sampling you need for your research.
- Choose well your cases = avoid trouble later ...
- ... avoid adopting a sampling-by-induction strategy (more difficult)
- Look at your research questions!!
  - can you answer all of them (measure concepts, find causalities, etc.)
- Understand the scope of the sampling task (see next slide)
  - roles (functions organization),
  - groups, organizations, institutions, ....
  - “programs”,
  - processes,
  - ....
Advice for intra-case sampling:
- identify types of informations you need.
- sample all categories (activities, processes, events, dates, locations, agents, ...)
- again: think about your the theory you want to produce and its scope
- reduce your ambitions (research questions) when your sampling lists get to large
- you always can add cases (snow-ball strategy)

Advice for inter-case sampling:
- It’s a good strategy to adopt a kind of similar systems design:
  - select similar cases that have a nice variance within your operative variables (dependant and independent)
  - E.g. to test an e-learning design, select relatively similar domains, or relatively similar target population
- You then can add contrasted (extreme) cases to test the external validity (generalization potential) of your analysis

Remember: qualitative research is very expensive
- 2-3 big cases (e.g. courses, schools, designs) are enough for a master thesis
- 12-30 cases within all cases (e.g. people, processes) are enough for a master thesis
- else complete qualitative strategies with quantitative
# 2. Data gathering techniques (empirical measures)

Overview:

<table>
<thead>
<tr>
<th>activity</th>
<th>medium</th>
<th>principal objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>look</td>
<td>observation</td>
<td>Global observation of an organization, culture, activity, etc.</td>
</tr>
<tr>
<td>examine activities</td>
<td>transcriptions of natural activities</td>
<td>In-depth study of activities and interactions in context</td>
</tr>
<tr>
<td>provoked activities</td>
<td>transcriptions of provoked activities</td>
<td>In-depth study of formal activities you engage somebody in</td>
</tr>
<tr>
<td>study</td>
<td>texts</td>
<td>Written traces of activities (e.g. decision protocols, guidelines)</td>
</tr>
<tr>
<td>ask</td>
<td>interviews</td>
<td>Extraction of information in peoples head</td>
</tr>
<tr>
<td>participate</td>
<td>share</td>
<td>Participatory observation shares research and work</td>
</tr>
</tbody>
</table>
Don’t confuse the technique and approach levels when you talk about qualitative methods.

<table>
<thead>
<tr>
<th>method</th>
<th>quantitative</th>
<th>qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>look</td>
<td>• preliminary work for questionnaire design</td>
<td>• &quot;Deep understanding of an institution’s or culture’s working</td>
</tr>
<tr>
<td>examine activities</td>
<td>• quick studies of work activities and interactions to prepare initial design specifications</td>
<td>• dialogue analysis</td>
</tr>
<tr>
<td>provoked activities</td>
<td>• systematic usability studies</td>
<td>• understanding of reasoning processes</td>
</tr>
<tr>
<td>study</td>
<td>• formal content analysis</td>
<td>• categorization and understanding of concepts</td>
</tr>
<tr>
<td>ask</td>
<td>• fixed questions to systematically gather relatively complex attitudes, opinions and descriptions of behaviors</td>
<td>• open interviews or semi-structured interviews to engage subjects in</td>
</tr>
</tbody>
</table>

- This table is not very complete, but it shows that qualitative designs are more geared towards going in depth whereas mostly quantitative designs put more emphasis on scale or preparation of quantitative studies, ...
3. Observation, transcription and text analysis

3.1 Observation of behaviors in natural contexts

Essential instrument for *in-depth studies* of cultures and/or organizations

- Takes *time* and requires *skills* (see below)
- Needs assessment:
  - of the researcher’s role in the organization, group, culture, ...
  - on investigation methods, research goals (in order to focus observations), etc.
- Needs a good “field notes” technique:
  - notational conventions for sessions
  - notational conventions after session notes
  - a journaling technique
- Example:

<table>
<thead>
<tr>
<th>Marks</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>“...”</td>
<td>verbatim quotations</td>
</tr>
<tr>
<td>‘ ... ’</td>
<td>paraphrases</td>
</tr>
<tr>
<td>( ... )</td>
<td>contextual data (or researchers interpretations)</td>
</tr>
<tr>
<td>&lt; ... &gt;</td>
<td>Analytical categories ) derived from the subject’s conceptual frameworks</td>
</tr>
<tr>
<td>/ ...</td>
<td>Analytical categories ) derived from the researcher’s conceptual frameworks</td>
</tr>
<tr>
<td>____</td>
<td>time elapsed</td>
</tr>
</tbody>
</table>
3.2 Computer mediated transcriptions

- ... are very popular in educational technology
- Media: experimental artifacts, portals, CSCL, CSCW
- Tools are sometimes rigged to register detailed user acts for research purposes
- Types of activities observed:
  - user-machine interactions
  - mediated user-user interactions
- In addition, screen activities can be filmed or electronically registered
  - give extra informations, also allows to register non CMC-mediated user-user communication

Data

- can be enormous amounts
- Analysis of transcriptions take an enormous amount of time
  - either you have to spend days/weeks for manual coding (preferably using specialized software adapted to the media type)
  - or you need high technical skills to write scripts to reduce and "massage" data
- Likely you also have to invent your own data analysis and visualization techniques
- Be sure to search the literature for coding and analysis techniques

Advice

- think very hard about the concepts you need to measure!
3.3 Elicitation of cognitive processes

- The "thinking aloud" method combined with protocol analysis (Ericsson & Simon, 1983) is a popular method in cognitive science and expert system design.
- Used to collect relatively "objective" data about thinking processes, problem solving in particular.
- There can be important experimentation effects:
  - ex-post rationalization of behavior,
  - analytical thinking instead of case-based/pattern matching
  - influence of experimenter
  - subject may become silent and confused ...
- Basic principle: Users are given tasks and are asked to think aloud what they do.

The Ericsson & Simon procedure for elicitation cognitive processes

- Experimenter is completely silent...
- ...except when subject is ± 15s silent
- “Keep talking”

Boren & Ramey: Usability testing practice is different:

- Subjects asks for help,
- Testers ask questions (clarification, opinion, ...),
- ‘Push’ subjects in certain directions.
3.4 Transcriptions of user activities in semi-formal situations

- Usually audio or video recordings
  - Take time to analyze (like above)!
  - Ask permission to use a tape-recorder or a camera if you do this in a work context
  - Can also modify user’s behaviors
    (more details to follow in a next version, sorry ...)

3.5 Texts

- Text analysis (other than "texts" mentioned above) concerns artifacts like official documents, student/teacher paper productions, etc.
- Don’t ask for everything when you start your research
  - People don’t always like to give away written traces of their activities, and therefore you need to establish a confidence relation first.
- There are a large amount of analysis techniques
  - will not be covered in this short "crash course".
## 4. Interviews

<table>
<thead>
<tr>
<th>Type</th>
<th>composition</th>
<th>function / advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information interviews</td>
<td>check-list</td>
<td><strong>Initial studies</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• See 4.2 “The information interview” [13]</td>
</tr>
<tr>
<td>Semi-structured interviews</td>
<td>list of questions</td>
<td><strong>Main interview type in qualitative research</strong></td>
</tr>
<tr>
<td></td>
<td>and “probes”</td>
<td>• subjects are allowed to &quot;talk&quot; and therefore to think</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• difficult to analyze</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• See 4.4 “The semi-structured interview” [15]</td>
</tr>
<tr>
<td>Structured (directive) interviews</td>
<td>list of fixed questions</td>
<td><strong>Semi-quantitative studies:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• easier analysis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• better comparison</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• faster than semi-structured</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• See 4.3 “The structured interview” [14]</td>
</tr>
<tr>
<td>Interviews with a fixed list of questions</td>
<td>list of questions</td>
<td><strong>Quantitative studies</strong></td>
</tr>
<tr>
<td>and closed questions (see quantitative</td>
<td>with response items</td>
<td>• fast interview</td>
</tr>
<tr>
<td>modules)</td>
<td></td>
<td>• reliable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• easy to analyze</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• needs good understanding of the studied phenomenon</td>
</tr>
</tbody>
</table>

Quantitative studies

- fast interview
- reliable
- easy to analyze
- needs good understanding of the studied phenomenon
4.1 General advice for interviews

Interviewing is a well documented technique (in most textbooks)

Interviewees (in natural settings) don’t have time to loose

• focus on the essential
• check if some information is available in other forms (e.g. written memos, rules, etc.)
• learn the “jargon”
• consult all other available information before the interview

4.2 The information interview

• Possible Objectives:
  • determine your research goals, e.g. you need to find out if your potential research subject is of any interest, etc.;
  • prepare your research questions;
  • prepare field research, e.g. you need information about the workings of an organization, process, procedure, about people and their roles, etc.

• Find the person:
  • often you may first interview a domain specialist;
  • sometimes any person that has knowledge on your subject area and time will also do.

• In "natural contexts" avoid to "over-tax" key actors:
  • You must make sure that key actors will agree to in-depth semi-structured interviews in later stages, interviewing twice may not please some of them.
4.3 The structured interview

• Definition: A list of questions and open responses (usually a few sentences)
  • Useful to systematically gather comparable informations about relatively complex variables (beliefs, behaviors, etc.)
• The questionnaire needs a **lot of preparation!**
  • make sure that each concept can reliably be measured and lead to valid indicators.
• To prepare the questionnaire you ought to do 2-3 semi-structured interviews (or at least some information interviews)
• In addition, make **pre-tests** with 2-3 subjects in order to be sure that your questions are understandable
• You have to think about analysis methods beforehand
  • manual or machine coding?
  • code books
  • cost estimations, remember that any sort of text analysis is very costly (!)
  • etc.
• .... Consider surveys with closed response items as cheaper alternative!
4.4 The semi-structured interview

- This is preferred type of interview in typical qualitative research.
- You will get answers for your questions.
- Concurrently, this interview type allows the interviewee to reason.

**General remarks**

- (again): preparation!
- (again): read your research questions and identify the ones that need interviewing

**Usual structure of the interview: 2 layers**

- prepare a list of general question
- for each of these questions you make a "secret" list of points ("probes") that need to be covered
  - during the interview you must "probe" the interviewee for all those points

**Interviewer’s behavior**

- Let the person talk!!!
  - .... and cover your questions and probes later!
- it is important that the interviewee is allowed to develop chains of reasoning (e.g. perceptions of causality, associations between concepts, etc.).
- The goal is to extract "meaning", i.e. so called "deep" or "think" structures.
Carefully word your questions

- Watch out for sensitive questions
  - put them at the end
  - if you are lucky the subject will mention them anyhow.
- Use indirect questions that project the interviewee into a situation
- Example:
  - don’t ask: “do you work well with person A?”
  - but: “do you have frequent contacts with A”, “how do you coordinate”, etc.
  - don’t ask: "do you know how to use this software" ?
  - but: "how frequently do you use this software", etc. ?
- When appropriate, ask about concrete cases
  - e.g. present a hypothetical case and ask how they solve it.
  - e.g. (in usability testing) give them tasks to solve

En résumé:

- rather ask what people do than what they feel
- in many situations, it is useful to present the interviewee with a scenario and use it also to let people reflect on more general issues