R.K. Yin: Case Study Research Design and Methods - chapters 4&5

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Outline of presentation

• Chapter 5: Collecting the evidence
  - 6 sources of evidence
  - 3 principles of data collection
• Chapter 6: Analyzing case study evidence
  - Analytic strategy
  - Analytic techniques
  - High quality analysis

Six sources of evidence

• Most commonly (Yin) used sources
  1. Documentation
  2. Archival records
  3. Interviews
  4. Direct observations
  5. Participant-observation
  6. Physical artifacts

Some other sources of evidence

• Films
• Photographs
• Videotapes
• Street ethnography
• Diaries, life histories
• Logs
• etc

Documentation as a source of evidence

• Relevant to every case study topic
• Many types of documentation like
  - Letters, memoranda, and other communication
  - Agendas, announcements and meeting minutes & other written reports of events
  - Administrative docs – proposals, progress reports & other internal records
  - Formal studies or evaluations of the same “site” under study
  - Newspaper clippings & other articles appearing in the mass media or in community newsletters
  - Web sites, discussion forums, emails etc (by Heli)

Reasons for use of documents

• To corroborate and augment evidence from other sources
  - Helpful in verifying the correct spellings and titles or names of organizations mentioned
  - Provide other details to confirm info from other sources
  - If contradictory, need to pursue the problem by inquiring further into the topic
  - Inferences from docs, but only as clues for further investigation
• Overall value – systematic search for relevant docs important
On document usage

• Criticism on potential overreliance on docs
  - Documents do not contain the whole truth
  - Written for specific purpose and audience
  - Reflection of communication to achieve some other objectives
  - Need to try to identify objectives, so that less likely to be misled by documentary evidence
  - Be critical in interpretation

Archival records

• Often computer files and records
  - Service records (nr of clients served over period of time)
  - Organizational records (charts, budget over period of time)
  - Maps and charts (layout)
  - Lists of names and other relevant items
  - Survey data (census records or data about a "site")
  - Personal records (diaries, calendars, telephone listings)

  • Find out the conditions under which produced and accuracy (specific purpose & audience…) for interpretation

Interviews

• Important for case study
• Guided conversations
  - Follow your own line of inquiry
  - Ask “conversational”, friendly and non-threatening questions in an unbiased manner
  - Why questions to HOW to reduce defensiveness
• Ask about facts and opinions
• Also ask insights into certain occurrences, and let suggest other persons for interview and other sources of evidence.
• Respondent -> informant by assisting
• Key informants important, avoid overly dependency

Interviews cont.

• Focused interview
  - Respondent interviewed for a short period of time (e.g. 1 hour)
  - Conversational, but follows certain set of questions derived from a case study protocol
  - Purpose e.g. to confirm certain facts
  - Carefully worded questions to be able to appear naive and allow respondent to provide fresh commentary.
  - Report contradictory views

Interviews cont.

• Structured interview (resembling survey)
  - Produces quantitative data
  - Follows sampling procedures and instruments used in regular surveys and analyzed in similar manner
  - Difference is the survey’s role in relation to other evidence – result used for evaluation
• Record if needed, but remember ethics

Direct observation

• Field visit to the site
• Behaviors or environmental conditions available for observation
• Formal & casual data collection
• Provides additional information
• To increase reliability, common to have more than one observer making observation
Physical or cultural artifacts

• Technological device, tool or instrument, work of art, some other physical evidence
• Collected or observed as part of field visit

Participant-observation

• Researcher may assume a role and participate in the events being studied
• Often in anthropological studies
• Gain access to inaccessible events or groups
• Perceive reality from the viewpoint of someone inside
• Ability to manipulate minor events
• Problems with
  - being external observer,
  - becoming supporter of group,
  - taking too much attention from observing,
  - being at the right place at the right time

Source of evidence | Strengths | Weaknesses
--- | --- | ---
Documentation | - stable – can be reviewed repeatedly
- unobtrusive – not created as a result of the case study
- Exact – contains exact names, references, and details of an event
- broad coverage – long span of time, many events, and many settings
- Retrievalability – can be low
- biased selectivity, if collection is incomplete
- Reporting bias – reflects (unknown) bias of author
- Access – may be deliberately blocked | |

Archival Records | - Same as for documentation
- precise and quantitative | - Same as for documentation
- accessibility due to privacy reasons | |

Interviews | - Targeted – focuses directly on case study topic
- insightful – provides perceived causal inferences | - Bias due to poorly constructed questions
- response bias
- Inaccurate due to poor recall
- reflexivity – interviewee gives what interviewer wants to hear | |

Direct observations | - Reality – covers events in real time
- contextual – covers context of event
- Time-consuming
- selectivity – unless broad coverage
- Reflexivity – event may proceed differently because it is being observed
- cost - hours needed by human observers | |

Participant observation | - Same as above
- insightful into interpersonal behaviour and motives
- Same as above
- bias due to investigator’s manipulation of events | |

Physical artefacts | - Insightful into cultural features
- Insightful into technical operations
- Selectivity
- availability | |

Summary of sources of evidence

• Procedures for collecting each type of evidence need to be developed and mastered independently
• Choose relevant sources
• Need to be able to use all types or have colleagues that master ones you don’t
Three principles of data collection

Principle 1: Use multiple sources of evidence
- Strength
- Triangulation in doing evaluations
  1. Of data sources (data triangulation)
  2. Among different evaluators (investigator triang.)
  3. Of perspectives to the same data set (theory triangulation)
  4. Of methods (methodological triangulation)
- Construct validity (multiple sources – multiple measures of same phenomenon)

Convergence and nonconvergence of multiple sources of evidence

Fact
- Archival records
- Open-ended interviews
- Focus interviews
- Structured interviews & surveys
- Convergence of evidence (single study)
- Site visits — findings — conclusions
- Survey — findings — conclusions

Principle 2: Create a case study database
- Data or evidentiary base
- Report of the investigator, whether article, report or book form
- Formal, presentable database for other investigators to review (increases reliability)
  - Case study notes
  - Case study documents
  - Tabular materials
  - Narratives – open-ended answers to the questions in the case study protocol

Principle 3: Maintain a chain of evidence
- To increase reliability of information
- External observer (reader of case study) allowed to follow the derivation of any evidence (from initial research questions to conclusions)
- Presented evidence should be the same as the collected
- No original evidence should be lost

Maintaining a chain of evidence

Case study report
  ↓
Case study database
  ↓
Citations to specific evidentiary sources in the case study database
  ↓
Case study protocol (linking questions to protocol topics)
  ↓
Case study questions

Summary on three principles of data collection
- Data collection for case study more complex than for other types of study
- To ensure quality control during collection, formal procedures need to be followed
  -> 3 principles
- To ensure that final results reflect a concern for construct validity and for reliability to be worthy of further analysis
Analyzing case study evidence (ch. 5)

- Analysis consists of
  - Examining
  - Categorizing
  - Tabulating
  - Testing
  - Otherwise recombining
  Of quantitative and qualitative evidence to address initial propositions
- Strategies and techniques have not been well defined for case study
- Define priorities for what to analyze and why

Three general analytic strategies

1. Relying on theoretical propositions
2. Thinking about rival explanations
3. Developing a case description

1. Relying on theoretical propositions
- Original objectives and design of case study based on propositions which reflect
  - Research questions
  - Reviews of literature
  - New hypotheses or propositions
- Focus attention on certain data
- Helps to organize the study and define alternative explanations

2. Thinking about rival explanations
- Define and test rival explanations
- Craft rivals
  - The null hypothesis, threats to validity, investigator bias
- Real life rivals – think in advance and during study
- The more rivals analysis addresses and rejects, more confidence on findings

3. Developing a case description
- Develop descriptive framework
- Use when difficulty making either of previous work
- Especially for descriptive studies
- May help to identify causal links to be analyzed

Analytic techniques

1. Pattern Matching
2. Explanation building
3. Time-series analysis
4. Logic models
5. Cross-case synthesis
1. Pattern matching
   - Compare an empirically based pattern with a predicted one (or several)
   - If matches – strengthens internal validity
   - If explanatory study, patterns may be related to dependent or independent variables of the study
   - If descriptive study, relevant if predicted pattern defined prior to data collection

2. Explanation building
   - Special type of pattern matching
   - Goal to analyze data by building an explanation about the case
   - For explanatory studies
   - Stipulate a presumed set of causal links of phenomenon
   - Iterative process
   - To avoid drifting away
     - refer constantly to original purpose of inquiry
     - Use case study protocol (what data to be collected)
     - Establish a case study database for each case
     - Follow a chain of evidence

3. Time-series analysis
   - Lays foundation for conclusions
   - Simple time series
     - single dependent/undependent variable
     - Match between trend of points compared to
       - Theoretically significant trend specified before onset of investigations
       - Some rival trend, specified earlier
       - Any other trend based on some artifact or threat to internal validity
   - Complex time series
     - Trends more complex or multiple set of variables
     - Strong evidence when predicted matches actual time-series
   - Chronologies – descriptive and analytic technique
   - How and why questions about the relationship of events

4. Logic models
   - Stipulates a complex chain of events over time
   - Events staged in cause-effect-cause-effect patterns
   - Match empirically observed events to theoretically predicted events
   - Four types of logic models:
     - Individual level logic model (individual person)
     - Firm or organizational-level logic model
     - Alternative configuration for an organizational-level logic model
     - Program-level logic model
   - Define logic model prior to collecting data and "test" how well collected data supports it

5. Cross-case synthesis
   - Specifically for multiple cases (at least 2)
   - Each case study treated as separate study
   - Aggregate findings across a series of individual studies
   - Analogous to cross-experiment interpretations

Four principles of high-quality analysis
1. Analysis shows that you attended to all the evidence
   - Exhaustive set of analytic strategies including rival hypotheses
   - As much relevant evidence as possible, no loose ends
   - Otherwise vulnerable to alternative interpretations
2. Address all major rival interpretations
   - Make alternative explanations into rivals, evidence?
Four principles of high-quality analysis cont.

3. Address most significant aspect of your case study
   - demonstrates analytic skill
4. Use your own prior, expert knowledge
   - demonstrate awareness of current thinking and discourse about the case study topic

Summary of analyzing case study evidence

• Potential analytic difficulties can be reduced if you have a general strategy for analyzing results
• Within general strategy, use analytic techniques
• No cookbooks available for analysis – most difficult stage of case study
• Begin with simple and straightforward case studies to gain experience (two-case design)

More info