

Knowledge Integration: Qualitative and Quantitative Research Methods

Mary Hayden

IAI-NCAR Colloquium C2012

Knowledge Integration at the Science-Policy Interface

14 November 2012

NCAR



Presentation Outline

- Why social science
- Distinguishing Qualitative and Quantitative Approaches
- Qualitative and Quantitative Methods –
 - ❖ Types of qualitative methods
 - ❖ Advantages vs. disadvantages
- Methodological Challenges
- IRB

Why Social Science?

- Physical science + social science gives the complete picture
- Social science helps us better understand human behavior
- Social science helps us determine if there are intervenable factors and what they are
- Social science helps us understand community driven adaptation and response instead of just top down approaches that are usually not sustainable

Qualitative and Quantitative Approaches

Qualitative	Quantitative
Non-generalizable	Generalizable
Answers Why? How?	Answers How many? When? Where?
Formative, earlier phases	Tests hypotheses, latter phases
Data are “rich” and time-consuming to analyze	Data are more efficient, but may miss contextual detail

Methods

NCAR



Interviews

- Informal – researcher is required to recollect discussion
- Unstructured – e.g. ethnographic interviewing – researcher allows interview to proceed at respondent's pace and subjects to vary by interviewee (to an extent)
- **Semi-structured** – researcher uses an interview guide
- **Structured** – researcher uses identical stimuli and adheres to interview schedule

Semi-structured Interviews

NCAR



Focus Groups

- Recruited to discuss particular topic
- One focus group is ONE unit of analysis
- Complement surveys – often the 1st step in tapping critical questions to be used in a survey
- Identify why people feel certain way and elucidate steps in their decision-making process

Focus Group Methods

- Ideal size: 6 – 12 people and a moderator/note taker
- Series of groups is necessary for validity
- Homogeneity and anonymity in selection of groups
 - people may open up with others who are perceived to think along similar lines **AND** whom they may never see again

Focus Group Methods, cont.

- Often segment according to expected meaningful differences (e.g. disease status, gender...)
- Running a focus group – fine line between leading too much and not getting people to contribute
- Important to keep discussion on topic w/o shutting people down
- No right or wrong answers

Focus Group Methods, cont.

Coding/ Analyzing

- Tapes are usually transcribed verbatim
- Text is sorted into emergent themes by at least 2 researchers to ensure validity using pile-sort method or computerized version such as CDC's EasyText (free!)
- Themes are compared with field notes taken by second researcher

Structured Interviews

NCAR



Questionnaires

Three methods:

1. Face-to-face interviews
2. Self-administered surveys
3. Telephone

Face-to-Face Interviews (and intercept interviews)

Advantages:

- Can be used with respondents who wouldn't be able to provide information in another format – bedridden, low literacy, etc.
- Researcher can elicit more in-depth response or fill in information if participant doesn't understand the question
- Different data collection techniques – open-ended questions, visual aids, etc.
- Certainty about who answered the questions

Face-to-Face Interviews, cont.

Disadvantages:

- Intrusive and reactive
- Cost time and money
- Possible safety issues

Self Administered Questionnaires

Advantages:

- Everybody gets the same questions
- Researcher can ask more complex questions
- No response effect (willing to divulge more info w/o face-to-face contact; less likely to try to impress interviewer)
- Can be inexpensive, computer-based such as SurveyMonkey

Self Administered Questionnaires, cont.

Disadvantages:

- No control over participant interpretation
- Low response rates
- Uncertainty about who actually answered the survey
- Useless with non-literate or low literate populations (same problem with English language sampling) or hard-to-reach populations

Telephone Interviews

Advantages:

- Combination of face-to-face personal quality with impersonal self-administered questionnaires
- More convenient (maybe)
- Safe for interviewers

Telephone Interviews, cont.

Disadvantages:

- Changing demographics – more cell phones - difficult to acquire cell phone numbers/reach people in the area of research
 - May miss certain population segments
- Survey must be short or people will hang up especially if it's on a cell phone in the US where we have to pay for incoming calls.
- Connection is often bad, and there are many dropped calls.

Focus Groups AND Surveys – a mixed methods approach

- Focus groups offer content insight – the **why** of what people think and are often used to inform survey development
- Surveys offer quantitative measurements based on a representative sample but can include open-ended questions to help contextualize responses

Summary

- Qualitative data gathering is a rich and important tool in some settings
- Variety of methods available
- May overcome limitation of closed survey questions and assist in development of better instruments

References

- Bernard, HR. (2002) *Research Methods in Anthropology: Qualitative and Quantitative Approaches*. Walnut Creek: AltaMira Press
- Krueger, RA and Casey, MA. (2000). *Focus Groups: A Practical Guide for Applied Research*. Thousand Oaks: Sage Publications
- Puchta, C. and Potter, J. (2004) *Focus Group Practice*. London: Sage Publications
- Zielinski-Gutierrez EC and Hayden MH. (2006) A model for defining West Nile virus risk perception based on ecology and proximity. *EcoHealth* 3(1): 28-34

IRB – Institutional Review Board

- Based on National Research Act of 1974
 - Designed to protect people from abuse
 - Nazi experiments during WWII
 - Tuskegee syphilis project
 - Study conducted between 1932 and 1972 by the US Public Health Service on black men in rural Alabama. The poor black men thought they were receiving free health care when in actuality they were never told they had syphilis and researchers wanted to investigate the natural progression of the disease, so left the syphilis untreated

IRB

- Most commonly focus on studies based on clinical trials of new drugs or devices; human behavior; and provision of and access to health care
- IRB board reviews the study protocol to determine whether there will be risks to study participants i.e., whether special populations have been singled out, whether children or prisoners are involved, and whether the informed consent is adequate

IRB

- Every study in which humans are involved, even talking to humans, must go through an IRB process. Sometimes, studies are considered **exempt** because we are not asking questions that might place people at risk (psychologically, e.g.). Other studies are designated **expedited** because there may be uncomfortable questions asked. Yet others are in need of **full** review; these are often studies like clinical trials for new drugs or invasive studies where blood is drawn

IRB

- Our studies often have to go through multiple IRBs; in Ghana, we needed to go through the local, regional and national IRB to get our study underway

Thank you!

