Research Methods in Environmental Science

Module 7: Research Methods in the Social Sciences

As always, the exact methods that you will use will depend on the characteristics of your research.

In this module, we'll focus on some “big picture” issues that relate to research in the social sciences but also may relate to research in the physical and biological sciences.
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There are five traditions in social science research laid out in the reading:
- Biography
- Phenomenology
- Grounded Theory
- Ethnography
- Case Study

In addition, the reading explores seven data collection activities:
- Locating a site or individual
- Gaining access and creating rapport
- Purposefully sampling
- Collecting data
- Recording information
- Resolving field issues
- Storing data
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While this may not be the only approach to studying social science methods, there are many things we can learn from exploring the seven data collection activities within the context of these five traditions.

Table 7.1 in Creswell lays out a matrix that crosses the 5 traditions against the 7 activities and explains the important features of each. I won’t repeat all of that here but focus on a few points in each activity.

Locating a site or individual

- The first step is to identify which individual or group will be studied
- Obviously they should be interesting, available to the researcher, and have insights or experiences worthy of examination
- Beware of studying a group that you are a part of as objectivity is an issue
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Gaining access and creating rapport

- Getting insight into how people feel and what they believe depends on being able to talk to someone and have a conversation that is open and truthful.
- People will meet with and be open and truthful with those they trust and not with those they don’t trust.
- It’s critical to create rapport and trust.

Purposeful sampling

- Social science research can use the same probability-based sampling methods we’ve discussed or it may involve other types of sampling.
- For example, if the goal of the research is to estimate what proportion of people have a particular attitude or belief, then probability-based surveying would be appropriate.
- If the goal of the research is to examine what range of beliefs about a topic exist and to examine the reasons behind those beliefs, then another type of sampling plan would be used.
- Figure 7.3 in Creswell lists many types of sampling plans.
Purposeful sampling

- An example of a technique you might or might not be familiar with is snowball sampling.
- In snowball sampling, you do preliminary work to identify a person (or people) likely to have beliefs about your topic, interview them, and ask them for names of others that you should talk to.
- You repeat this, each time interviewing the person and asking for the names of others.
- In this way, your sample grows or snowballs.

Purposeful sampling

- It’s not based on probability and it doesn’t allow you to make inferences about what the population believes.
- It’s a process that leads you from person to person so that you can learn about the system of beliefs within that group.
- You may purposefully ask questions that seek out people who have different views on the issue so as to get a range of beliefs (maximum variation).
Purposeful sampling

- There are people within the physical/biological sciences that feel that this type of work isn’t “scientific”
- In my view, there’s nothing inherently superior about probabilistic sampling – methods should be selected that are appropriate for the type of research being conducted.

Purposeful sampling

- For example, let’s say you’re interested in the future of nuclear energy in the U.S.
- One approach is to randomly survey citizens of the U.S. by phone or mail to determine the percentage that agree or disagree with a set of statements (or you could have them rank their agreement on a scale).
- At the end, you have a set of quantitative estimates of the percent of American that agree or disagree with statements about nuclear energy.
- BUT, you don’t know why they feel that way, what are their concerns, how sure are they about their own beliefs or about their understanding of the technology, what their background is in the area, what their experiences have been, etc.
Purposeful sampling

- Other methods that involve interviewing or focus groups or other discussion oriented methods would probe deeper into the feelings behind the statistics.
- Gaining insight at a deeper level requires using methods that are quite different from those in other scientific disciplines.
- There is nothing inherently superior or inferior about the methods; they achieve different ends.

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Collecting data

- There are many kinds of data in social science research. Figure 7.4 lays out 4 main types with variations of each:
  - Observations
  - Interviews
  - Documents
  - Audio-visual materials
Collecting Data

Observations
- The researcher observes the subject(s) and writes notes
- The researcher may participate in activities of the subject(s) to gain insights
- Audio or videotape may be used but it is important to get permission from subjects before taping them (informed consent)
- The ethics of what you do and how you do it are important – Get permission from your Human Subjects committee on campus before beginning

Collecting Data

Interviews
- Ask permission ahead of time
- Have a written set of questions and a form to record answers
- Followup questions not on the form are fine
- Ask if you can record the interview so that you don’t have to write everything down
- Get consent before beginning
- Keep interviews to a reasonable amount of time, be respectful and courteous
Collecting Data

Documents

- Much information can be gleaned from written text
- Examples might be analyzing newspaper articles and letters to the editor to determine how an event was viewed at the time
- There are particular methods for doing this kind of work that you must study and apply

Collecting Data

Audio-visual materials

- Videotape events and analyze the tape as it relates to your research question
- Look at archived television or movie footage
- Use photographs as a historical record
  - You want to see how an area has changed from forest to rural to suburban over time
  - Find photos to document changes
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Recording information

- A protocol needs to be established
- A standardized data collection form, either paper or electronic, should be used
- If audio or videotapes will be used, obtain written permission before beginning

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Resolving field issues

Creswell, Figure 7.7 lays out some field issues that can occur

- Unexpected issues can arise in the field and the research protocol should be flexible enough to accommodate changes
- Equipment can breakdown
- Participants can become uncooperative
- The interviews can take longer than expected if participants are particularly engaged
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Storing data

- Qualitative data is often more difficult to store than quantitative as it can't be as easily summarized or put into electronic format.
- It may involve audiotapes, videotapes, handwritten notes, transcripts, etc.
- As with any research, it's important to organize, label, file, and backup data.
- When you are done, either store the data securely.
- Destroy anything that you promised would be destroyed to maintain confidentiality.

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Social science research can be similar to research in the physical or biological sciences or it can be quite different.

Quantitative research is not fundamentally better or worse than qualitative, they each play a role in information gathering and analysis and are used to achieve different goals.