Chapter 7

Data Gathering

Overview

- Five key issues of data gathering

- Data recording

- Interviews

- Questionnaires

- Observation

- Choosing and combining techniques

Five key issues

1. Setting goals
   - Decide how to analyze data once collected
2. Identifying participants
   - Decide who to gather data from
3. Relationship with participants
   - Clear and professional
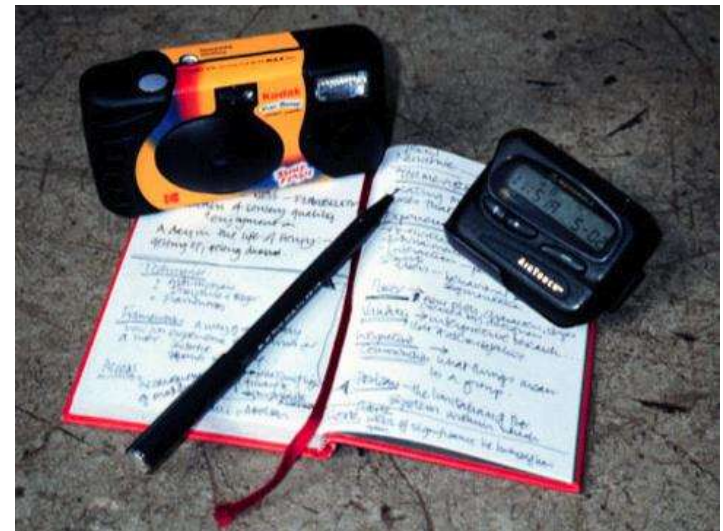   - Informed consent when appropriate
4. Triangulation
   - Look at data from more than one perspective
5. Pilot studies
   - Small trial of main study

Data recording

- Notes, audio, video, photographs

- Notes plus photographs
- Audio plus photographs
- Video

Interviews

- Unstructured - are not directed by a script. Rich but not replicable.

- Structured - are tightly scripted, often like a questionnaire. Replicable but may lack richness.

- Semi-structured - guided by a script but interesting issues can be explored in more depth. Can provide a good balance between richness and replicability.

Interview questions

- Two types:
  - 'closed questions' have a predetermined answer format, e.g., 'yes' or 'no'
  - 'open questions' do not have a predetermined format
- Closed questions are easier to analyze
- Avoid:
  - Long questions
  - Compound sentences - split them into two
  - Jargon and language that the interviewee may not understand
  - Leading questions that make assumptions e.g., why do you like …?
  - Unconscious biases e.g., gender stereotypes

Running the interview

- *Introduction* – introduce yourself, explain the goals of the interview, reassure about the ethical issues, ask to record, present any informed consent form.

- *Warm-up* – make first questions easy and non-threatening.

- *Main body* – present questions in a logical order

- *A cool-off period* – include a few easy questions to defuse tension at the end

- *Closure* – thank interviewee, signal the end, e.g, switch recorder off.

Enriching the interview process

- Props - devices for prompting interviewee, e.g., a prototype, scenario

Questionnaires

- Questions can be closed or open
- Closed questions are easier to analyze, and may be done by computer
- Can be administered to large populations
- Paper, email and the web used for dissemination
- Sampling can be a problem when the size of a population is unknown as is common online

Questionnaire design

- The impact of a question can be influenced by question order.

- Do you need different versions of the questionnaire for different populations?

- Provide clear instructions on how to complete the questionnaire.

- Strike a balance between using white space and keeping the questionnaire compact.

- Decide on whether phrases will all be positive, all negative or mixed.

Impact of question order

- Priming: The idea at the top of your head affects your judgment of subsequent questions.

- A poor economic performance news followed by questions about the Prime Minister's performance, has primed you to think poorly of the PM.

  e.g., "What is the most important problem facing the nation? " question followed by "Do you approve or disapprove of the way the PM is handling his job", the subsequent answer will be influenced by how the PM handles the issue raise by the first question.

Impact of question order

- Gauge sentiment for a class rugby team
- You may be tempted to ask as an opener, "what is your favourite sport?"
- The next question is, "How interested are you in playing for the class rugby team?"
- The subject may rate the subsequent question lower if rugby is not high in the previous answer than if the subject had been asked about joining the team first.

Principles on question order

- Most important items in the first half of the questionnaire – people often don't finish questionnaires.

- Don't start with awkward or embarrassing questions: people will give up

- Start with easy questions – people are likely to continue

- Go from general to particular; factual to abstract; closed to open questions.

- Leave demographic and personal questions until last.

General Principles

- Avoid leading questions: "Is it not correct to say …"

- Be specific: Avoid words such as "often", "locally" as what is often and local could be very different for the population.

- Ask for one piece of information at a time: "Do you enjoy walking and hill climbing?"

- Avoid double negatives: Instead of asking the respondents whether they agree with the negative statemetn that "Smoking in cars should not be abolished.", use the positive "Smoking in cars should be abolished.".

General Principles

- Minimise bias: Word questions carefully so that it makes it easy for respondents to answer awkward questions.

"How may times have you broken the speed limit because you were late?" could be rephrased as two questions:

"Have you ever felt under pressure to drive over the speed limit in order to keep an appointment?" followed by,

"How many times have you prioritised the appointment over keeping the speed limit?"

General Principles

- An explanation as to why you need to know a piece of information will encourage a greater response to a difficult or personal question.

"It would help us put your answers in context if you could give us some information about yourself."

- Ensure answers are mutually exclusive:"How many years have you worked in this school: 0-5, 6-10, 11-15, over 15." Not "0-5, 5-10, 10-15…"

Open or closed questions

- Open questions allow the respondents to use their own words to answer: "What do think are the main causes of …… ?"

- Closed questions give pre-defined options: "Which of the following are the main causes of …..? (i), (ii), (iii), (iv)."

Open questions

- Rich qualitative answers
- Encourages thought and freedom of expression
- May discourage responses from less confident/literate ones
- Takes longer to answer and may put people off
- More difficult to analyse
- Responses can be easily misinterpreted

Closed questions

- Elicits quantitative answers
- Can encourage less thoughtful replies
- Easy for any one
- Takes longer to amay put people off
- Best response rate as it is quicker
- Easier to analyse automatically

Encouraging a good response

- Make sure purpose of study is clear
- Promise anonymity
- Ensure questionnaire is well designed
- Offer a short version for those who do not have time to complete a long questionnaire
- If mailed, include a stamped addressed envelope
- Follow-up with emails, phone calls, letters
- Provide an incentive
- 40% response rate is high, 20% is often acceptable

Advantages of online questionnaires

- Responses are usually received quickly
- No copying and postage costs
- Data can be collected in database for analysis
- Time required for data analysis is reduced
- Errors can be corrected easily

Problems with online questionnaires

- Sampling is problematic if population size is unknown

- Preventing individuals from responding more than once

- Individuals have also been known to change questions in email questionnaires

Observation

- Direct observation in the field
  - Structuring frameworks
  - Degree of participation (insider or outsider)
  - Ethnography
- Direct observation in controlled environments
- Indirect observation: tracking users' activities
  - Diaries
  - Interaction logging

Structuring frameworks to guide observation

- - *The person*. Who?
  - *The place.* Where?
  - *The thing.* What?

- The Goetz and LeCompte (1984) framework:
  - *Who* is present?
  - What is their role?
  - *What* is happening?
  - *When* does the activity occur?
  - *Where* is it happening?
  - *Why* is it happening?
  - *How* is the activity organized?

Ethnography (1)

- Ethnography is a philosophy with a set of techniques that include participant observation and interviews

- Debate about differences between participant observation and ethnography

- Ethnographers immerse themselves in the culture that they study

- A researcher's degree of participation can vary along a scale from 'outside' to 'inside'

- Analyzing video and data logs can be time-consuming

- Collections of comments, incidents, and artifacts are made

Ethnography (2)

- Co-operation of people being observed is required
- Informants are useful
- Data analysis is continuous
- Interpretivist technique

- Questions get refined as understanding grows
- Reports usually contain examples

Online Ethnography

- Virtual, Online, Netnography
- Online and offline activity
- Interaction online differs from face-to-face
- Virtual worlds have a persistence that physical worlds do not have
- Ethical considerations and presentation issues are different

An ethnographic project for you …

- Join www.ActiveWorlds.com or go to another chat room of your choice

- ActiveWorlds is a 3-D chatroom environment in which you can visit different environments and chat with the people that you meet there

- To use ActiveWorlds you will need to check the instructions that they provide and download the appropriate software to run on your computer

- Select one of the worlds to visit and choose an avatar (a graphical personification) to represent you.

- Spend one to two hours doing an ethnographic study.

- Use one of the frameworks discussed in the previous slides to guide you and write a one or two page report about your study.

- Also notice and report on any usability issues you encounter and on user experiences in this environment.

Direct observation in a controlled environment

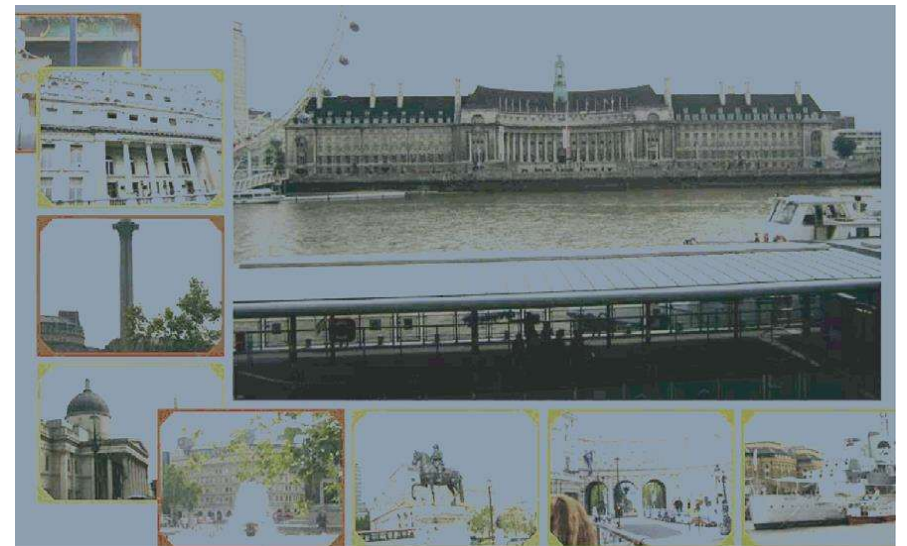- Think-aloud technique

Indirect observation

- Diaries
- Interaction logs
- Web analytics

Choosing and combining techniques

- Depends on
  - The focus of the study
  - The participants involved
  - The nature of the technique
  - The resources available

Summary

- Three main data gathering methods: interviews, questionnaires, observation
- Five key issues of data gathering: goals, choosing participants, triangulation, participant relationship, pilot
- Interviews may be structured, semi-structured or unstructured
- Questionnaires may be on paper, online or telephone
- Observation may be direct or indirect, in the field or in controlled setting
- Techniques can be combined depending on study focus, participants, nature of technique and available resources