

Week 10

Identifying Needs & Establishing Requirements (Part 1)

Aims

- Discuss how to plan and run a successful data gathering program.
- Enables you to plan and run an interview.
- Empowers you to design a simple questionnaire.
- Enables you to plan and carry out an observation.

Five key issues

1. Setting goals
 - Decide how to analyze data once collected
2. Identifying participants
 - Decide from whom to gather data
 - How many participants are needed
3. Relationship with participants
 - Clear and professional
 - Informed consent when appropriate
4. Triangulation
 - Look at data from more than one perspective
 - Collect more than one type of data, for instance, qualitative data from experiments and qualitative data from interviews
5. Pilot studies
 - Small trial of main study

Data recording

- Notes, audio, video, and photographs can be used individually or in combination:
 - Notes plus photographs
 - Audio plus photographs
 - Video
- Different challenges and advantages with each type of data recording

Interviews

Unstructured: Not directed by a script. Rich but not replicable.

Structured: 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.

Focus groups: A group interview

Interview questions

- Two types:
 - 'Closed questions' have a predetermined answer format, for example, '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, for example, why do you like ...?
 - Unconscious biases, for instance, gender stereotypes

Running the interview

Introduction: Introduce yourself, explain the goals of the interview, reassure about the ethical issues, ask to record, and present the 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, for example, switch recorder off.

Other forms of interviews

Digital conferencing systems such as Skype, Zoom, email, and smartphones can be used to conduct interviews. Some advantages are:

- Participants are in their own environment so are more relaxed
- Participants don't need to travel
- Participants don't need to worry about what to wear
- For interviews involving sensitive issues, it is easier for interviewees to be anonymous

Enriching the interview process

Props: Devices for prompting interviewee, for example, use a prototype, scenario



Questionnaires

- Questions can be closed or open
- Closed questions are easier to analyze, and may be distributed and analyzed by computer
- They can be administered to large populations
- Disseminated by paper, email and the web
- Sampling can be a problem when the size of a population is unknown as is common online evaluation

Questionnaire design

- The impact of a question can be influenced by question order.
- You may 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.
- Avoid very long questions and questionnaires
- Decide on whether phrases will all be positive, all negative, or mixed.

Question and response format

- 'Yes' and 'No' checkboxes
- Checkboxes that offer many options
- Rating scales
 - Likert scales
 - Semantic scales
 - 3, 5, 7 or more points
- Open-ended responses

Encouraging a good response

- Make sure that the purpose of study is clear
- Promise anonymity
- Ensure that 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, or letters
- Provide an incentive
- 40 percent response rate is good, 20 percent is often acceptable

Advantages of online questionnaires

- Relatively easy and quick to distribute
- 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

Example of an online questionnaire

World Summit on the Information Society - Microsoft Internet Explorer
File Edit View Favorites Tools Help Back Search Favorites Folders
Address <http://www.itu.int/wsis/stocktaking/scripts/q.asp> Go

D. Internationally-agreed development goals outlined in the Millennium Declaration :

Is this activity relevant to achieving the MDGs listed below? (see www.un.org/millenniumgoals/ and the targets for each goal) ☒ Yes ☐ No
If yes, please tick all goals that apply

- ☐ 1. Eradicate poverty and hunger
- ☐ 2. Achieve Universal Primary Education
- ☐ 3. Promote gender equality & empower women
- ☒ 4. Reduce child mortality
- ☐ 5. Improve maternal health
- ☐ 6. Combat HIV/AIDS, Malaria and other diseases
- ☐ 7. Ensure environmental sustainability
- ☐ 8. Develop a global partnership for development

E. More Information :

Please provide a website for this activity
Website (URL) :

F. Geographical Coverage* :

Please tick a box to indicate the geographical coverage
☐ Local ☐ National ☐ Regional ☒ International
Please specify coverage :

G. Timescale* :

Please tick a box to indicate the timescale of the activity
☐ Completed ☐ Planned for future ☐ Ongoing

Specify dates using the format day/month/year (dd/mm/yyyy) :
From: To:

H. Activity Type* :

Please tick one or more boxes to indicate the type of activity described above
☐ Project ☐ Programme ☐ WSIS Thematic Meeting ☐ Conference ☐ Publication ☐ Training initiative
☐ Guidelines ☐ Tool-kit ☐ Website ☐ Database
Other (please specify) :

Questionnaire shows check boxes, radio boxes, and pull-down menus

Problems with online questionnaires

- Sampling is problematic if population size is unknown
- Preventing individuals from responding more than once can be a problem
- Individuals have also been known to change questions in email questionnaires

Deploying online questionnaires

- Plan the timeline
- Design offline
- Program/complete online template
- Test the survey to make sure that it behaves as you would expect
- Test it with a group that will not be part of the survey to check that the questions are clear
- Recruit participants

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
 - Video and photographs collected remotely by drones or other equipment

Observation



Figure 8.8 Mars Exploration Rover

Source: Reproduced by permission of NASA Jet Propulsion Laboratory (NASA-JPL).

Structuring frameworks to guide observation

- Three easy-to-remember parts:
 - The person: Who?
 - The place: Where?
 - The thing: What?
- A more detailed framework (Robson, 2014):
 - Space:** What is the physical space like and how is it laid out?
 - Actors:** What are the names and relevant details of the people involved?
 - Activities:** What are the actors doing and why?
 - Objects:** What physical objects are present, such as furniture
 - Acts:** What are specific individual actions?
 - Events:** Is what you observe part of a special event?
 - Time:** What is the sequence of events?
 - Goals:** What are the actors trying to accomplish?
 - Feelings:** What is the mood of the group and of individuals?

Planning and conducting observation in the field

- Decide on how involved you will be: from passive observer to active participant
- How to gain acceptance
- How to handle sensitive topics, for example, culture, private spaces, and so on
- How to collect the data:
 - What data to collect
 - What equipment to use
 - When to stop observing

Ethnography

- 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
- Analyzing video and data logs can be time-consuming
- Collections of comments, incidents, and artifacts are made

More on Ethnography

- 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

More on Ethnography (*continued*)



(a)



(b)

Figure 8.9 (a) The situation before MERboard; (b) a scientist using MERboard to present information

Source: J. Trimble, R. Wales and R. Gossweiler (2002): "NASA position paper for the CSCW 2002 workshop on Public, Community and Situated Displays MERBoard.

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 of results are different

Observations and materials that might be collected (Crabtree, 2003)

- Activity or job descriptions
- Rules and procedures that govern particular activities
- Descriptions of activities observed
- Recordings of the talk taking place between parties
- Informal interviews with participants explaining the detail of observed activities
- Diagrams of the physical layout, including the position of artifacts
- Other information collected when observing activities:
 - Photographs of artifacts (documents, diagrams, forms, computers, and so forth)
 - Videos of artifacts
 - Descriptions of artifacts
 - Workflow diagrams showing the sequential order of tasks
 - Process maps showing connections between activities

Direct observation in a controlled environment

- Direct observation
 - Think aloud techniques
- Indirect observation – tracking users' activities
 - Diaries
 - Interaction logs
 - Web analytics
- Video, audio, photos, and notes are used to capture data in both types of observations

Choosing and combining techniques

Depends on the:

- Focus of the study
- Participants involved
- Nature of the technique(s)
- Resources available
- Time available

Summary

- Data gathering sessions should have clear goals
- An informed consent may be needed
- Five key issues of data gathering are: goals, choosing participants, triangulation, participant relationship, pilot
- Data may be recorded using handwritten notes, audio or video recording, a camera, or any combination of these
- Interviews may be structured, semi-structured, or unstructured
- Focus groups are group interviews
- Questionnaires may be on paper, online, or telephone
- Observation may be direct or indirect, in the field, or in controlled settings
- Techniques can be combined depending on the study focus, participants, nature of technique, and available resources and time