Evolution of the Desk

Data Gathering Techniques

Lecture 7, Week 4
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CSC318H1S
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Announcements

Assignment 2 is due <u>Friday</u> at 6 pm.

Photos were due by e-mail to me by Wednesday at 11 am.

Elevator pitches on Wednesday:
"What is your reseach plan: where will you find potential users and what will you ask them?"

Groups: Make sure your group rosters are accurate on Blackboard. If anyone still does not have a group, please raise your hand.

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Data Gathering

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3. Ethics

Here's a question:

How long can a human being last in freezing cold water before they die?

There are clear and significant issues with finding the answer.

Essential principles of ethical research:

- Do no harm
- Respect for participants
- Informed consent
- Voluntary participation and right to withdraw
- Right to privacy

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3. Ethics: Informed Consent

Typically only adults 18+ are able to give consent.

Elements:

- Disclosure: experimenter explains the purposes of the study and the procedure truthfully
- Capacity: the participant should be able to understand the study and form a reasonable judgment with the information provided
- Voluntariness: free of coersion, manipulation, or bias, non-conditional compensation (!)

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3. Ethics Gone Wrong

- Nazi medical experimentation (1940s)
- Tuskegee, syphillis experiment (1932 - 1972)
- The Milgram experiment (1961)
- The Stanford prison experiment (1971)

Accidental awesomeness:
- Phineas Gage (projectile iron rod, 1848)
- H.M. (epilepsy treatment, 1957)
- K.C. (motorcycle accident, 1981)

4. Triangulation

Probing the same phenomenon using multiple experimental and observation techniques to obtain greater confidence in the results.

5. Pilot Testing

Before you deploy your study to your actual users, make sure you have thoroughly tested all the instruments (questionnaires, scripts, prototypes, etc.) you are using.

Participant time is valuable to them.

Their data is valuable to you.

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Data Gathering

Evaluation Methods

Sample survey

Obtain a representative sample of a population in order to understand population-wide trends and preferences. Great for **generalizability**.

Laboratory Experiment

Perform fine measurements of user performance in tightly controlled laboratory conditions. Great for **precision**.

Field Study

Understand underlying user needs in the wild by observing them in their environment. Great for **realism**.

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Field Study Techniques

Naturalistic observation: no involvement, observation only

Questionnaires: wide distribution, many responses

Interviews: great detail, adapt to responses

Focus groups and workshops: multiple participants, consensus

Studying documentation: existing process/system

Diaries/logging: details on duration of usage and performance

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Questionnaires

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Questionnaires

Administered to large samples to answer clear and concise questions: what they're doing, how much they like something, etc.

Can be administered in person or over the phone/Web/e-mail

Advantages: precision and comparability across a wide range of users.

Disadvantages: inflexible, does not adapt to individual variations or specific situations.

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Questions

Questions should be clear, brief and concise.

Questions should be few in number to avoid fatigue.

Questions should avoid unecessary jargon, biases, leading questions and making assumptions.

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Checkboxes, Boxes and Ranges

Checkboxes provide a quick and easy way for participants to select one or more of a set of options that are already known.

☐ Male ☐ Female

Known quantities such as age can be asked for in a simple answer box.

Age: ☐

If the exact age is not required or to avoid reluctant responders we can use ranges:

0-17	18-30	31-50	51-70	71+

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Rating Scales

Rating scales are used to elicit information about an attribute along a continuum.

1	2	3	4	5

Excellent	Good	Average	Poor	Terrible

Strong reject	Weak reject	Weak accept	Strong accept

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Scales

The Likert scale is used to indicate the level of agreement with a series of statements (Likert items).

"Velian is a mindboggling genius."

Strongly disagree	Disagree	Undecided	Agree	Strongly agree

Semantic differential scales explore a range of bipolar attitudes about an item.

Attractive ◻◻◻◻◻◻◻◻◻◻◻◻◻◻◻◻◻◻◻◻ Ugly

Exciting ◻◻◻◻◻◻◻◻◻◻◻◻◻◻◻◻◻◻◻◻ Dull

Clear ◻◻◻◻◻◻◻◻◻◻◻◻◻◻◻◻◻◻◻◻ Confusing

Open-ended Questions

Hard to analyze.

Give participants a chance to expand on their answers.

Should be free of bias.

Explain why Velian is a mindboggling genius:

Questionnaires Can and Cannot ^{©IP}

Questionnaires **can** measure:
- data about users (demographics, cognitive abilities, personality traits)
- prior knowledge (task domain, technical expertise)
- attitudes and experiences (user satisfaction, frustration, **perceptions** of user experience)

Questionnaires **cannot** measure:
- speed, response time, errors and error rates
- how users learn commands or interfaces
- anything the user is unaware of

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Common Questionnaire Issues

1. How many televisions do you own?

0-1	1-2	2-4	4-8	8+

2. Which do you prefer: being able to call people while riding the subway, or having to wait?

3. Do you feel tired while driving because your children are noisy?

Always	Sometimes	Sometimes, but not important	No, I don't	No, they are quiet as a mouse

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Interviews

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Interviews

Interviews can give you detailed information about how each individual participant feels about complex issues.

Advantages: flexible and adaptable, rich data

Disadvantages: expensive, impossible to compare respondents

Types: structured, semi-structured or unstructured.

Open-ended questions:
   Tell me about the last time you underlined text.

Closed ended questions:
   Do you underline text?

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Interview Components

Introduction

- introduce yourself
- explain the goals of the interview
- reassure participant about ethical issues
- ask to record
- present informed consent form

Warm-up

- first questions should be easy and non-threatening

Main body

- present questions in a logical order
- follow ideas but keep interviewee on track

Cool-off period

- Include a few easy questions to defuse tension at the end

Wrap-up / Closure

- Thank interviewee
- Signal the end of the interview

Challenges

- Building trust

- Following the script but

- Allowing digression

- Avoiding repetition

- Timekeeping

- Capturing (notetaking, audio, video)

- Multitasking: talking, listening, filtering, notetaking

- Bias

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Questions?

This lecture is based on slides and content by:
ILONA POSNER
Materials from:
Interaction Design: Beyond Human-Computer Interaction. Rogers, Sharp and Preece. 2011