DCGI
DEPARTMENT OF COMPUTER GRAPHICS AND INTERACTION

PUR – General Topics & Research Methods

3rd lecture
User research

Lecture topics:
- General topics
- Methods of data collection I
- Methods of data collection II
- User Studies Facilitation
- Personas
- Current Trends

Practice:
- User Research Project

Selected topics - mostly cognitive psychology
General Topics Finalisation

Sampling
Research Biases
Research Ethics
Statistics

Then we will finally start collect data!
Sampling

Credit: bestchoiceuniform.com
Research Sample

Population – sampling frame - sampling – sample

Issue of data generalization

2 parameters

Size (diversity of users)

Representativeness (validity)
Sampling Strategies

Random
Simple (lot)
Systematic

Non-random
Quota – screening process, screener
Snow ball
Self–selection
1. Experienced in Java

   For how many years have you been developing in Java?
   
   (Target: >3 years)
   Do you currently develop in Java?
   
   (Target: Yes)

2. User of NetBeans / other IDEs

   What IDE do you primarily use?
   Target: 4 NetBeans users / 2 Eclipse users / 2 IDEA users
Sampling Bias

Difference in distribution of surveyed variables between population and sample

Certain subgroups or views overrepresented or shortchanged

Screening candidates

Non-responder bias

Timing bias

Invitation bias
Timing Bias - An Example From E-Comm

Percent of Subscribers' Optimal Send Times by Hour of Day

0% 1% 2% 3% 4% 5% 6% 7%
0:00 2:00 4:00 6:00 8:00 10:00 12:00 14:00 16:00 18:00 20:00 22:00
Biases

! Highly important to consider them when interpreting data!

Researcher bias
Respondents' expectations
External influences (even social)
Duration bias
Instrument bias
Hawthorn effect vs. Double blind
# Sample Size

Assumed normal distribution, confidence 95%

<table>
<thead>
<tr>
<th>Population</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 000</td>
<td>150</td>
</tr>
<tr>
<td>10 000</td>
<td>300</td>
</tr>
<tr>
<td>100 000</td>
<td>800</td>
</tr>
</tbody>
</table>
## Controlled Experimental Design

<table>
<thead>
<tr>
<th></th>
<th>Independent variable</th>
<th>Dependent variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental group</td>
<td>X</td>
<td>?</td>
</tr>
<tr>
<td>Control group</td>
<td>-</td>
<td>?</td>
</tr>
</tbody>
</table>
Ethical Issues in Data Collection

Briefing
Contract
Debriefing

Principles:
Non-maleficency (no harm done to the participant)
Beneficience (participants' benefit)
Personal data protection / privacy
Statistics

Descriptive
Frequency of occurrence
Central tendency – mean, median, mode
Measures of dispersion – standard variation, range
Shape of distribution - skew, kurtosis (truncation)

Inferential
Hypothesis testing (Fischer test, Wilcoxon test, t-test, chi square test)
Data correlation
Statistics

Meta analysis
Combination of quantitative results of several studies that address a set of related hypotheses

Factor analysis
Technique used to explain variability among observed variables in terms of fewer unobserved variables called factors
Elementary Methods of Data Collection

Observation
Interview
Survey
Content analysis
Experiment
What Methods Will Be Covered Today?

Observation
Ethnographic research
Interview
Usability testing
Focus group
Survey
Observation

Introspection (including Cognitive walkthrough)

Extrospection

Credit: Chris D Rea
Ethnographic Research

Customer visit, Contextual inquiry
Monitoring day-to-day activities using observation and interviews or diaries
Holistic (complex, elements, mutual relations)
Common Settings

Home
Work
Educational
Mobile and Ubiquitous systems
Virtual Ethnography
(Diary studies)

Credits: reelingreviews.com
Ethnographic Research

Requires 'long-term' stay in the field
Flexible strategy
Recording (notes, sketches, photos, audio and video recordings, company artifacts)

Credits: yale.edu
Ethnographic Research

Ethnocentrism – using own values for evaluating other groups
Interview

Structured
Semi-structured
Free

Cannot be used for hypothesis testing!
Interview - Evaluation

Advantages
High response rate
Allows researcher to ask follow-up questions
No self-selection

Disadvantages
No anonymity
Bias of interviewer's presence
Expensive
Interview Principles

Goal, maintain rapport, integrate knowledge gained during the interview
Anonymity
Length of interview (30 – 90 minutes)
Interview Principles

Behavioral approach - concentrate on immediate experience, not extrapolations
Interview Principles

!Restate, but do not interpret!
Stay non-judgmental!
Never say the participant is wrong
Be aware of your own expectations
Interview Principles

Words are not the only source of information

Credits: aolaswers.com
Keep Questions Open-Ended

I keep six honest serving-men
(They taught me all I knew);
Their names are What and Why and When
And How and Where and Who.

*Rudyard Kipling, Just So Stories, 1902*
Interview Questions

Do not force opinions
No leading questions
Avoid binary questions
Focus on stories and emo
Be curious!
Interview Questions

Projective questions
“people's attitude”
Technique of unfinished sentences
Metaphors

Credits: stavangerphotobytanty.blogspot.com  layoutparks.com
What Is Wrong?

Which of these 3 pictures do you like most?
Is this the best car in its class?
Is everyday autoupdate important for you?
Will you use this product next year?
This is cool, right? Do you find it cool too?
Will people buy it?
Wanna learn more?

Mike Kuniavsky: Observing The User Experience
Lazar et al.: Research Methods in Human-Computer Interaction

http://www.userfocus.co.uk/articles/going-beyond-the-obvious.html
http://www.producttalk.org/2016/03/customer-interview-questions/
https://medium.com/@InVisionApp/dont-design-what-users-want-827d9ce9223d#.awesy0ftji
http://userfocus.co.uk/articles/ethnography.html
https://feedbackguru.com/articles/why-i-prefer-expert-reviews-over-usability-testing/
https://medium.com/designing-atlassian/three-tips-for-great-research-conversations-ecd08d0c0632
Thank for your attention
See you after the break

myname.mysurname@gmail.com