

DCGI

DEPARTMENT OF COMPUTER GRAPHICS AND INTERACTION

NUR – User Research

JAKUB FRANC

Lecture Outline

General introduction / motivation

Research strategies

Sampling

Biases

Ethics

Research methods

Running an Interview



User Research

Applied interdisciplinary subject

Cognitive Psychology

Interaction Design

Methodology of Social Sciences

Computer Science



User Research

Acquiring, maintaining a presenting information
about users'

needs

habits

experience

skills

Even potential users

Providing information for ID, production teams

SW development, web, design, consumer goods..



User Research and Market Research

are similar...

Methods

Background

...but quite different

Focus

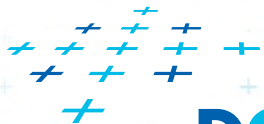
Sample size

Attitudinal vs. behavioral



User research Benefits

Our **assumptions** about how users use the product
might **differ** from its **real usage**
resulting in **frustration** of the user



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PUR – Introductory lecture
Credit: webdesign.com



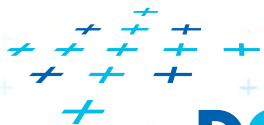
User research Benefits

Significantly **reduces** development and service costs

More efficient discussions and planning



Credit: Sonia Paz, missphones.co.uk



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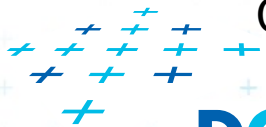


User Research Benefits

Essential for product success on current market



Credit: businessweek.com



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PUR – Introductory lecture



Research Approaches

Qualitative

Quantitative

Mixed



Qualitative Approach

Why? How?

Holistic picture

Small sample, lots of information, in depth

Less structured

Researcher investigates by her/himself

Interviews, ethnographic studies, observations,
case-studies..



Qualitative Approach – Evaluation

Advantages

Provides insight and detailed description

Helps with initial exploration, broadens view

Investigates phenomena in their natural environment

Allows formulation of the hypothesis

Disadvantages

Not always possible to generalize

Time consuming

Vulnerable to researcher bias

Quantitative Approach

Reductionist - narrows scope

Large sample, little information

Structured

Surveys, tests, observations



Quantitative Approach – Evaluation

Advantages

Allows hypothesis testing - allows generalization about the whole population

Quick data collection

Provides exact numeric data

Disadvantages

Marginalizes phenomena that are not direct subjects of the investigation

Knowledge gained could be too abstract for application in real conditions



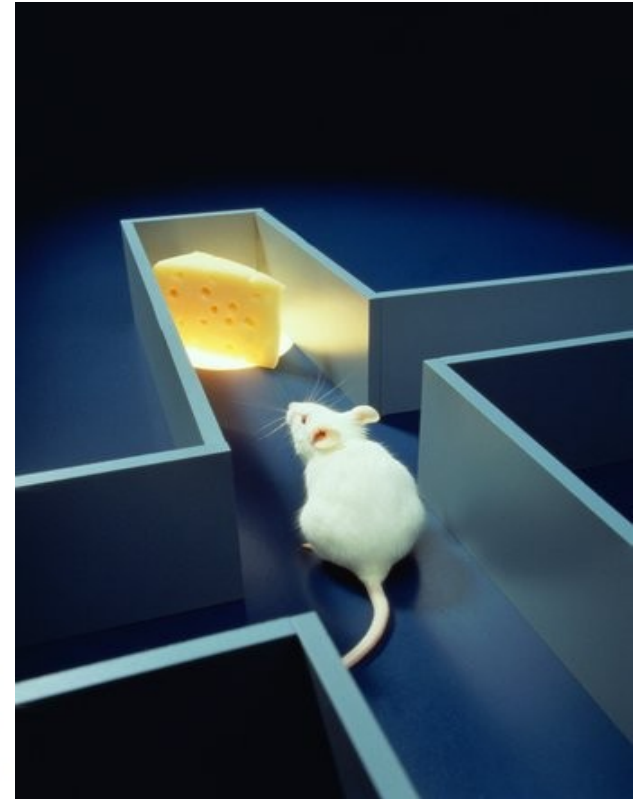
Research Properties

Validity – does it measure, what it is supposed to measure?

Reliability – does the measurement remain consistent over repeated measurements?

Systematic error

Random error



Credits: T. Twynam



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

Snow ball

Self-selection

Screening process - screener



Screenner Questionnaire – An Example

Experienced in Java

For how many years have you been developing in Java?

(Target: >3 years)

Do you currently develop in Java?

(Target: Yes)

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



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



Ethical Issues in Data Collection

Briefing

Contract

Debriefing

Principles:

Non-maleficency (no harm done to the participant)

Beneficence (participants' benefit)

Personal data protection / privacy



Observation

Introspection (including Cognitive walkthrough)

Extrospection



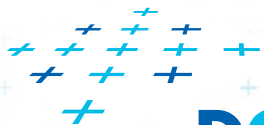
Credit: Chris D Rea

Ethnographic Research

Customer visit, Contextual inquiry

Monitoring day-to-day activities using observation and interviews or diaries

Holistic (complex, elements, mutual relations)



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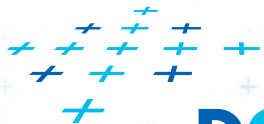


Ethnographic Research

Requires 'long-term' stay in the field

Flexible strategy

Recording (notes, sketches, photos, audio and video recordings, company artifacts)



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Credits: yale.edu



Survey Evaluation

Advantages

Low costs

Anonymity

Ability to hear from wide range of people

Disadvantages

Low response rate (nonrespondent bias)

Respondent's uncertain identity

Self-selection

Complicated follow-up

Cognitive – verbal – behavioral dissonance

Forces opinions



Instructions

What is its importance and how does it relate to the respondents

Personal data privacy (no marketing abuse)

Reward, acknowledgement

Contact



Questionnaire Design Principles

No chance to intervene – need maximum precision and clarity

Specific

Exhaustive

Mutually exclusive

Does the question really relate to what we intend to find out?

Is it necessary?

Is it understandable to everyone?



Questionnaire Design Principles

Use scales (Likert is popular)

Do not ask 2 questions at once

Avoid suggestive questions

Are all the possible categories listed?

Stick to closed questions (Use open-ended question only when absolutely necessary)

GIGO principle



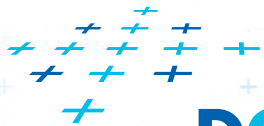
Survey Difficulties

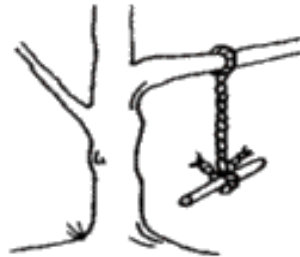
People want everything (cheap, fast, reliable...)

People exaggerate

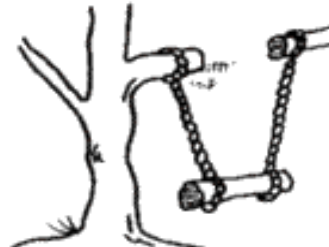
People answer despite their uncertainty (social pressure to have an opinion)

People lie!

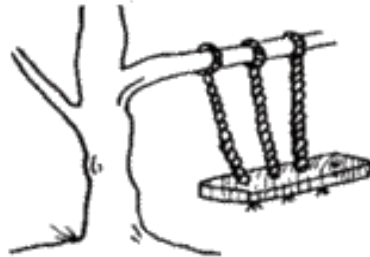




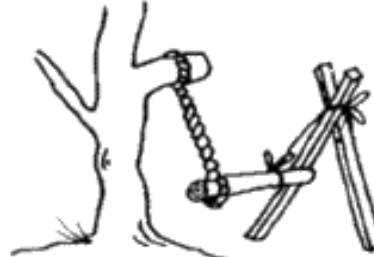
What the user asked for



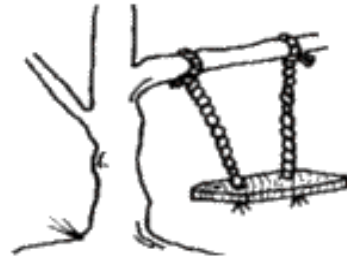
How the analyst saw it



How the system was designed



As the programmer wrote it

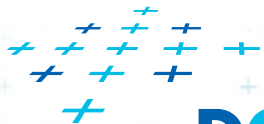


What the user really wanted



How it actually works

Credits: codejunkie.net



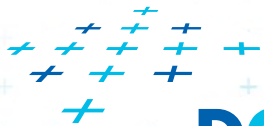
Interview

Structured

Semi-structured

Free

Cannot be used for hypothesis testing!



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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

Interview Questions

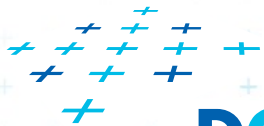
Keep questions open-ended

Do not force opinions

No leading questions

Avoid binary questions

Be curious!



Interview Questions

Projective questions

“people's attitude”

Technique of unfinished sentences

Metaphors



Credits: stavangerphotobytanty.blogspot.com

layoutparks.com



Wanna learn more?

Mike Kuniavsky: Observing The User Experience

Lazar et al.: Research Methods in Human-Computer Interaction



Thank for your attention

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