Lecture 5

Contextual Inquiry

UNIVERSITY OF AUCKLAND
SOFTENG 350
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Notes from

The UX Book Chapter 7

Heim Chapter 4

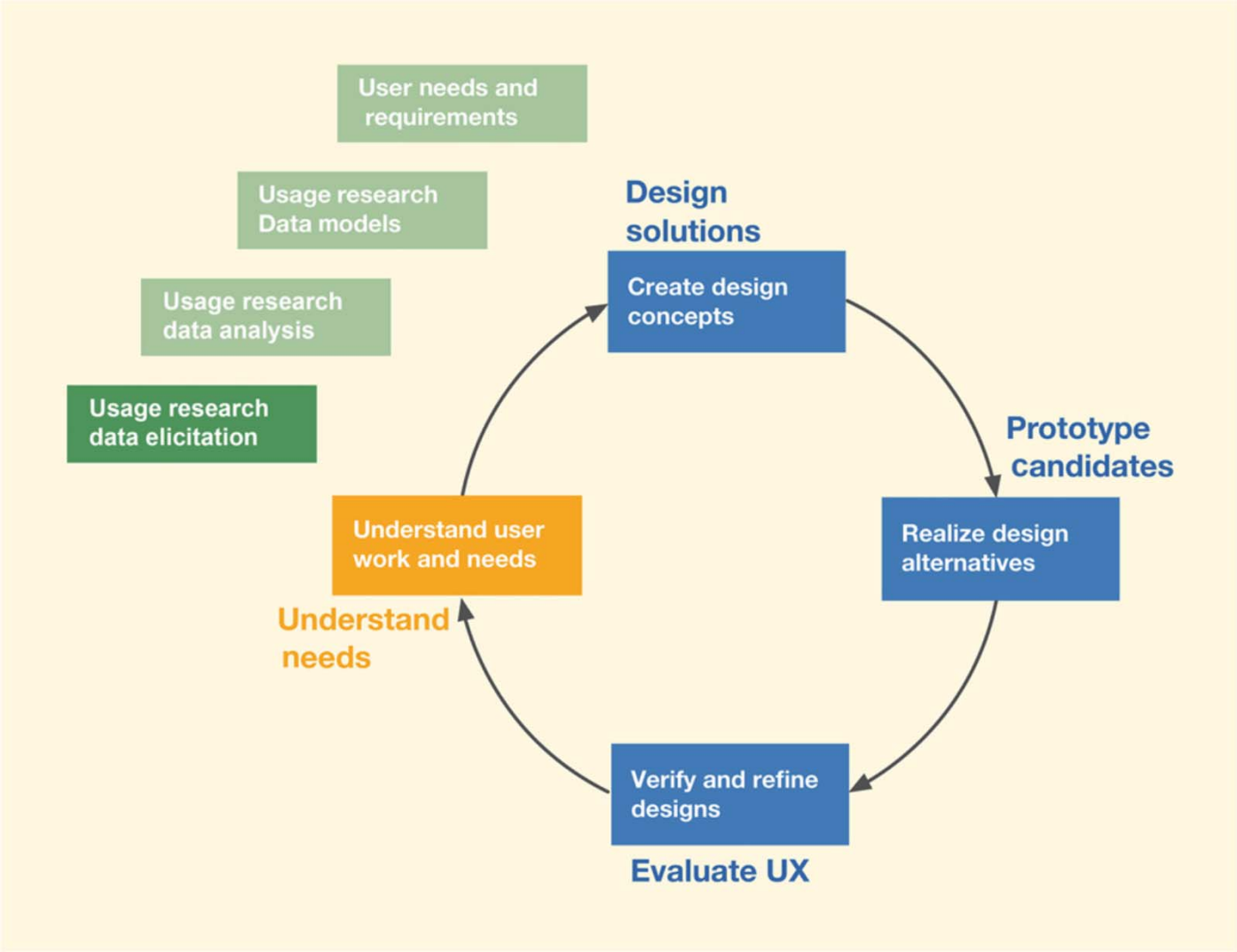
Education robots

DARPA

Learning Objectives

- The practice of usage research
- To cover a set of skills for systematic analysis of a problem domain to discover HCI issues and requirements
- To understand perspectives on data collection including types of stakeholders
- To be able to collect data by interviews, focus groups and questionnaires
- To be able to create user profiles

You Are Here

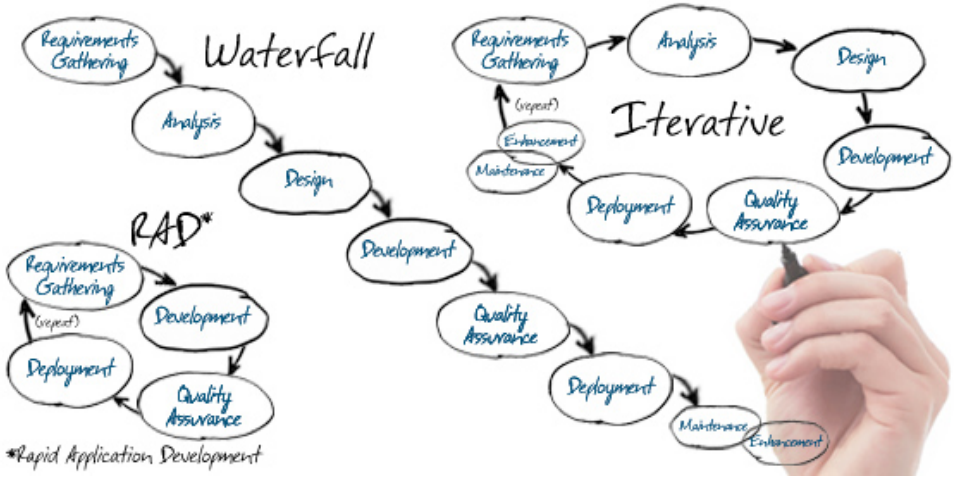

User needs and requirements
Usage research Data models
Usage research data analysis
Usage research data elicitation
Design solutions
Create design concepts
Prototype candidates
Realize design alternatives
Verify and refine designs
Evaluate UX
Understand user work and needs
Understand needs

Usage Research

- Not about asking what users want
- What users require from the system
  - Understand work practice
    - User work / user goals
    - User work practice
    - Work domain
  - You deduce design needs

When?

- At the beginning.
  - Of the software development lifecycle - regardless of life cycle



  - When writing new software
  - Or when evaluating software products

Understand Work Practice

- A prerequisite to understanding needs
- A prelude for requirements
- UX designers need to develop this understanding
- Deep investigation of people's work

- Usually needs to be anonymous

Scenario

- You have been asked to investigate the User Requirements for a new automatic ticket vending system for the Event Cinema group

  - What would you do?
  - Who would you talk to?

- Discuss with your neighbours for a few minutes

Requirements collection processes

- During the collection phase you will formally identify:
  - People involved
  - Things they use
  - Processes involved
  - Information required
  - Constraints imposed
  - Inputs required
  - Outputs created

Requirements collection processes

- You will then model the information by:
  - Creating descriptions of the people who do the work
  - Documenting the main use-cases
  - Creating different stories about how the various aspects of the work are done
  - Creating formal diagrams of the interaction

Discovery Phase

The frame of reference must come from the observation and not be imposed on it

- Finding out about the work that people do
  - Visit their work context
  - Challenges and hurdles they face
  - Workarounds
- Defined methodology to gather and interpret
  - Needs detective work

Exploring the Domain

- Identify all stakeholders
- There are four types of stakeholders:
  - **Primary—**A person who uses the design directly
  - **Secondary—**A person who either supplies input or receives output from the design
  - **Facilitator—**A person who maintains or develops the design
  - **Indirect—**A person who is affected by the use of the design but has no contact with it, such as the user's superior or coworkers and the client who is paying for the project (the client may or may also be the primary stakeholder)

Exploring the Domain

- The primary stakeholders should have the most impact on the eventual design.

  All stakeholders should be considered during the design

- A new system that is not designed to be integrated with the work practices of people in the organization may cause needless disruptions

Data Elicitation Steps

- Conduct a field visit to the customer
  - Observe and interview people while they use the existing product or system
  - Write research data notes as you encounter research data points
  - Gather artefacts associated with the work practice
  - Make sketches, diagrams, or photos of the product or system in its physical environment
- Provides evidence of an approach

Preparation Prior to the Visit

- Learn about the subject domain
  - Culture of the work domain
  - Vocabulary, technical terms, slang, etc
- Learn about the company
  - Business goals, online presence for ethos, competition, best practice in domain, legacy systems
- Learn about the proposed product or system
- Decide on data sources
  - Subject matter experts, focus groups, user surveys, competitive analysis, become a domain expert
- Visit parameters
  - How many visits, how many users, what user roles

Exploring the Domain

- Understand the competition
  - Learn from other design solutions
  - Assess both the positive and negative aspects
  - Respect copyrighted material and intellectual property
- Often times the goal is not to build a new system but to buy a system that best fits

Collection - *Elicitation* – *Direct – Interviews*

Be polite and courteous during interviews (people will judge the eventual software product by how you treat them at this stage! And people can be quite threatened that automation will take their job!)

- **Interviews**
  - On-site interviews: may help people remember aspects of the job
  - Away from job site interviews: not interrupted by normal work related events

Collection - *Elicitation* – *Direct – Focus Groups*

- **Focus Groups**
  - Require a moderator/facilitator to keep discussion on track
  - Maintain spontaneity
  - Have clearly defined outcomes
  - Provide participants with a context for the project
  - Work best if the participants have a 'peer' relationship
    - If line workers won't speak freely in front of line supervisors, then put them in two separate focus groups

Collection - *Elicitation* – *Direct – Focus Groups*

- The advantages of focus groups:
  - They are relatively inexpensive and easy to set up.
  - They can be used early in the design process to help to identify and prioritize features.
  - They help you to gain insight into people's attitudes and motivations.
  - They make it clear an opinion is an 'outlier'
  - Can help sell a new solution
- The disadvantages of focus groups:
  - They only represent the views of one particular group.
  - A strong voice can capture the group
  - They are not statistically significant.
  - They do not provide information about usability.

Collection - *Elicitation* – *Indirect*

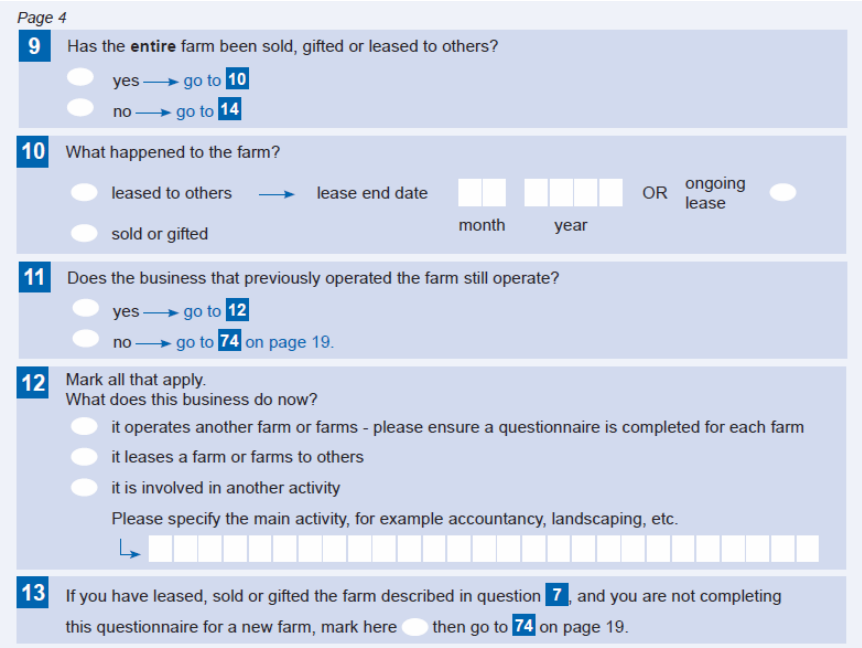
- **Corporate Documentation**
  - Policies and procedures.
- **Logs and Notes**
  - Ask people to keep a log of specific activities
  - Collect (or photograph) the notes people make to remind them of procedures and policies
    - sticky notes tacked onto a computer
    - reminders stuck on a corkboard
  - Examining electronic logs

Collection - *Elicitation* – *Indirect – Questionnaires*

- Questionnaires are familiar
- Questionnaires can contain open and closed questions
- Questionnaires can include the following:
  - Mutually exclusive choices (radio buttons)
  - Non–mutually exclusive choices (checkboxes)
  - Ranges (overlapping, open-ended)
  - Scales (Likert scales, semantic differential scales)
  - Short-answer fill-ins
  - Comments

Survey form from www.stats.govt.nz

- Really good questionnaires
- IRD forms/ questionnaires also excellent



Page 4

9 Has the **entire** farm been sold, gifted or leased to others?

- yes → go to **10**
- no → go to **14**

10 What happened to the farm?

- leased to others → lease end date month year OR ongoing lease
- sold or gifted

11 Does the business that previously operated the farm still operate?

- yes → go to **12**
- no → go to **74** on page 19.

12 Mark all that apply.
What does this business do now?

- it operates another farm or farms - please ensure a questionnaire is completed for each farm
- it leases a farm or farms to others
- it is involved in another activity

Please specify the main activity, for example accountancy, landscaping, etc.

13 If you have leased, sold or gifted the farm described in question **7**, and you are not completing this questionnaire for a new farm, mark here then go to **74** on page 19.

Collection - *Elicitation* – *Indirect – Questionnaires*

- Advantages of questionnaires:
  - They do not involve face-to-face contact and can be administered remotely.
  - They can be used to supply information for primary stakeholder profiles.
  - They can be used to ascertain whether proposed solutions will meet with acceptance as well as to elicit new ideas.
  - They can also be used to double-check the feedback obtained from one-on-one interviews.
  - They can reach a large audience with relatively little expense.

Collection - *Elicitation* – *Indirect – Questionnaires*

- Disadvantages of questionnaires:
  - Vague questions will return ambiguous responses that will serve no useful purpose or the design.
  - People do not like to fill out long questionnaires.
  - Closed-ended questions can restrict responses.
  - Open-ended questions can be hard to quantify.

  - Total Survey Error – you can introduce errors into your survey very easily

Preparation Prior to the Visit

- Organise a data elicitation team
- Recruit participants
  - Rely on client to help
  - Recruit locally for consumer products
  - Good coverage of work roles
- Identify setting for study
- Observe users in their work context
- Ensure no influence by management
- Prepare initial questions

During the Visit

- Set the stage
  - Rapport with client, explain purpose, explain approach
- Observation versus interviewing
- Successful data elicitation
  - Listen to what the user says is needed
  - Partner with users
  - Be a good listener and good detective
  - Avoid interjecting your own views
- What to look for – specific information
  - User work roles, User personas, Input to user stories and requirements, Work practice artefacts, Flow of information and artefacts, User tasks, Physical work environment, Information architecture, photo ops

Collection - *Observation*

- Concerns about Ethnographic Observations
  - Your presence will affect the people you observe
    - 'Hawthorne effect'
  - Your presence can become annoying
  - It can raise questions with the 'consumer'
    - E.g. in health care – who's that person in the corner?
- Distributed Cognition - the tendency to off-load cognitive tasks to objects in the environment (e.g. post-its, calendar, whiteboard) or to distribute them among team members or coworkers

During the Visit

- What to look for – general information
  - Surprises, Emotional and social aspects

Remember the SnakeLight example?

- Capture the data
- Connection to data sources (using IDs)
- Write good raw data notes

Organizing the Discovery Process

- **Filters**
  - **Physical**
    - Describe the physical aspects of the activity.
  - **Cultural**
    - Relationships among the people involved.
  - **Functional**
    - What actually happens.
  - **Informational**
    - Information that is involved.

Documentation

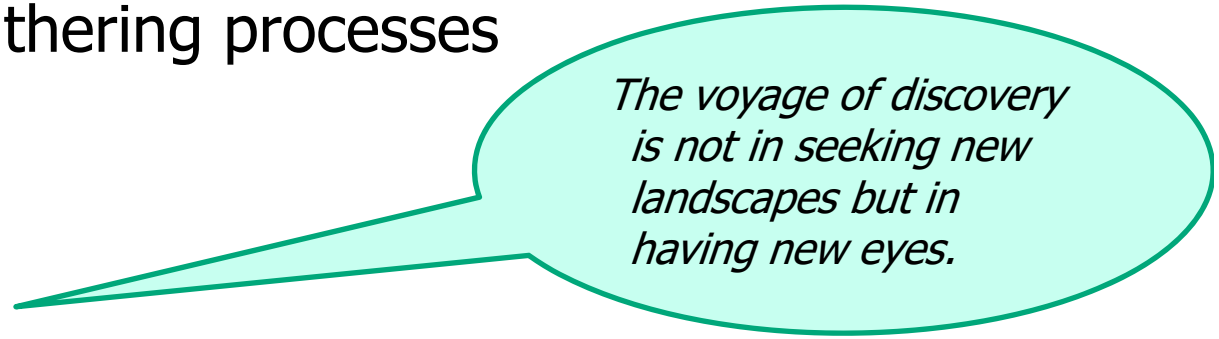
- Mission Statement
  - Project goals:
    - What is the value proposition?
    - What needs will the new system address?
    - How will it address these needs?
  - Project scope
    - What does the proposed design include or exclude?
    - What are the external constraints such as time and finances?
    - How will you decide when it satisfies the design proposal?

Documentation

- Requirements
  - Users
    - Who are the users of the system?
    - What are they like?
    - What tasks will they perform?
  - Requirements
    - Functional – what features must be present?
    - Information – what information is needed to carry out the functions? And what outputs are required by the stakeholders?
  - Input/output mediums – desktop, mobile, special environments?
  - Constraints – physical, financial, time, data storage, networking, etc.

Summary

- Usage research is practiced early
- Research data gathering processes
- Stakeholders
- Data collection:
  - Observations
  - From people (interviews, focus groups and questionnaires)



Multi-choice

You are developing an advanced tele-meeting system. As a first step, you gather knowledge of 'normal' face-to-face meetings. The people in the 'normal' face-to-face meetings are examples of:

a) Primary stakeholders
b) Secondary stakeholders
c) Facilitator stakeholders
d) Indirect stakeholders