Advanced Design of Interactive Systems

Lecture 4: Participatory Design

Professor: Wendy Mackay mackay@lri.fr
TA: Yi Zhang yi.zhang@inria.fr
Web: Nicolas Taffin nicolas.taffin@inria.fr

ExSitu lab, Inria & Université Paris-Saclay

10 February 2020

THE DO DESIGN OF IT INTERACTIVE THINGS

Chapter 5: Participatory Design

Participatory Design lecture

Introduction
Participatory Design workshops
Technology probes
Creativity methods
Field study
Interactive thread
Structured observation
Conclusion

Participatory Design

Participatory Design

… focuses on situated interaction between users and technology
… involves users throughout the design process
… is fundamentally generative not evaluative
… values iteration and rapid redesign
… explores breakdowns and the unexpected
not just perfection

Participatory Design

Good User Experience design involves (at least):
user interviews, focus groups & user testing

Participatory design actively involves users throughout the design process

Participatory Design

Why involve users throughout?
costs time and effort …

But: users can als:
save time
prevent making major errors
contribute to new insights
generate context-tested user innovations

Participatory Design

Users are expert at:
the ***experience*** of the design probelm
but ***rarely*** the design solution

Don't ask users to design
Do ask them to participate!

Participatory Design

Compare 'subject matter experts' and ordinary users

Subject matter experts:
- provide expert advice on content
- often want to design solutions for you
- may not take the 'ordinary user' perspective

You need both!

Example: Boeing test pilots

Participatory Design

Key challenge: How to get access to users?

Some users are hard to get:
- Fragile: children, elderly, handicapped
- Busy experts: pilots, doctors, lawyers
- Location: waste water plant, air traffic control room

Participatory Design

How do you talk to them?
- They come to you
  - great if you can do it, lacks context: Lab, office, café; Workshop setting
- You go to them
  - more trouble; worth it: Their workplace; Their home; Class; Conference; Reception; Museum

Participatory Design

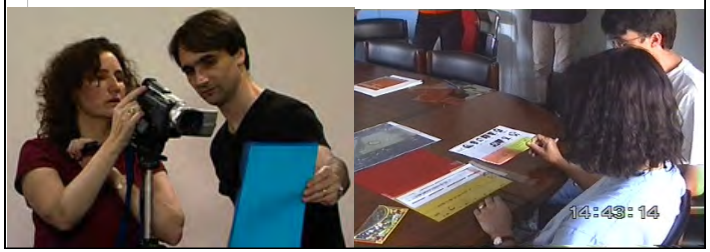
How do you manage their expectations?
- Context may be:
  - Educational vs. Research vs. Corporate

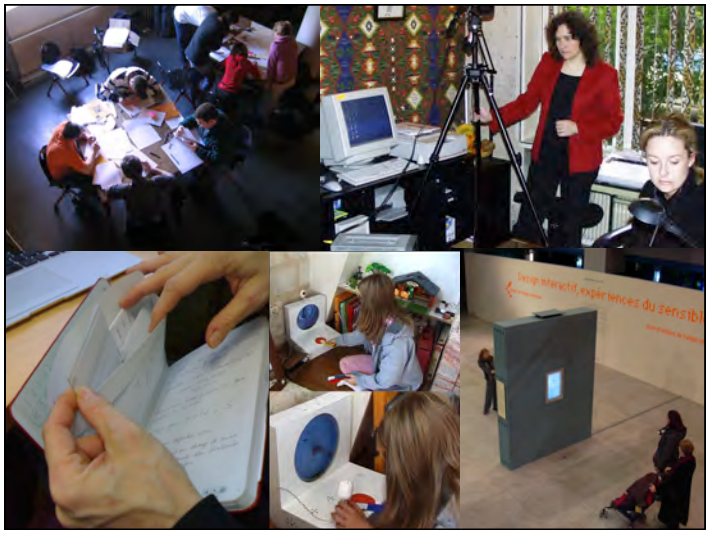
Be careful what you promise:
- Exploring ideas vs. building them a custom product

Be careful of their backgrounds:
- example: 'yellow family'

Participatory Design

Paper and video prototyping
lets everyone participate on an equal basis





Why participatory design?

Asking users ≠ letting them show you

It is hard to figure out what the user experiences…
especially if you are not one of your own users.

Your instincts are not enough and often wrong
… and get worse as you delve deeper into the design.

You will understand the system more
… but the user less.

Examples:

General Motors executives thought GM quality was great.
Every morning, their cars went to the shop
Experts tuned them, cars rarely broke down

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BUT GM customers had a very different experience
- No daily tune-ups – poor reliability

Executives had no clue about what was wrong

Examples:

California Department of Motor Vehicles was very, very slow
- Executives skipped the lines
- All other drivers forced to wait with regular customers

Innovation: Make all executives wait in line
- Result: Many innovations and reduced lines

Your design instincts are not good
- if you lack the user's 'lived' experience

Set up the environment so users experience real conditions

Cultural Probes

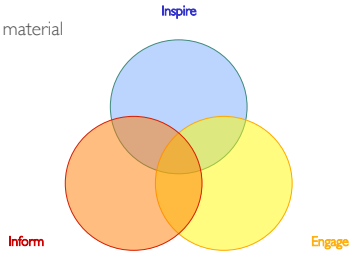
Cultural probes

Purpose

- Exploration of Research/Design Space
- Challenge assumptions
- Validate predictions
- Look for unexpected
- Gather subjective, intimate material
- Dialog with users

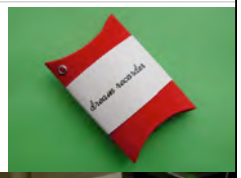
Deployment

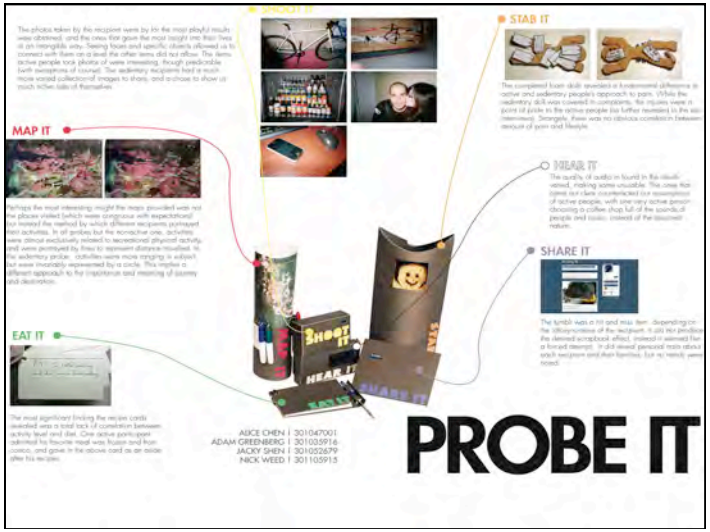
- Involve users
- Consider privacy
- Required resources
- Length of time



Classic probes:

disposable camera with questions
diaries
dream recorder





Cultural probes for InterLiving project

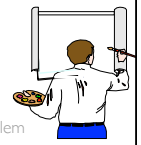
"Probe kit" sent to users
with stamped envelopes to return materials

Technology Probes

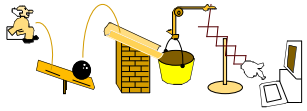
Perspectives on understanding users

Scientific view
- Collect data about users
- 'Objective' analysis
- Inform designers

Design perspective
- Seek design inspiration
- Redefine the design problem
- Generate innovations



Engineering perspective
- Address a given problem
- Make technical trade-offs
- Ensure that it works "in situ"



Technology probes

Goals:
- Inspire users and designers to generate new design ideas
- Understand how a technology is used in a real world setting
- Study emergent behavior patterns around new technologies
- Create common ground for subsequent design

Combine three perspectives:
- *Scientific:* collect data about users *in situ*
- *Engineering:* test technical infrastructure
- *Design:* inspire new ideas

Technology probes

Three phases:
1. Introduce technology to users
2. Observe and interpret use in situ
3. Participatory design to explore alternatives and new ideas

Compare:

	Technology probes	Prototypes
Simplicity:	Single function	Multiple functions
Usabilty:	Not the focus	Major focus
Logging:	Major focus	Secondary focus
Flexibility:	Open-ended	Specified purpose
Originality:	Unusual, provocative	Relevant to needs
Design cycle:	Early-middle	Middle-end
Longevity:	Throw away	Evolvable
Concept:	Still unclear	Mostly defined

Example: InterLiving

Goals:
- learn about family communication
- discover real-world technological constraints
- spark new ideas

Technology probe, not a prototype:
- Simple, single function technology
- Installed in home settings over time
- Open to reinterpretation by users
- Instrumented to log data
- Follow-up prototyping in participatory design workshops

Participatory design with families

Design methods:

Cultural probes
Design workshops
"Home" work
In situ observation




80

Example: MessageProbe

Hand-written notes on a tablet screen
Synchronous or asynchronous
Zoomable interface
All notes shared among all households
Temporal or selected order

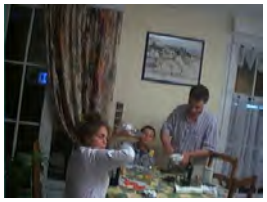
Example: MessageProbe

conversations between
grandpa and grand children

message?
conversation?
game?

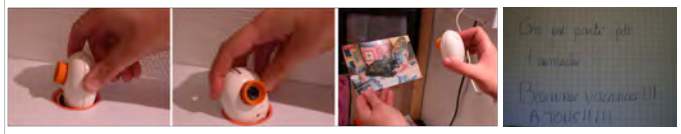
Example: VideoProbe

Images from a video camera
No motion 3 sec. = 1 image
Image archive
shared between households
View images with a remote control
Images fade unless explicitly save



We're going away for a week

Happy Vacation to everybody!!



Example: VideoProbe

Testing in the home:

Must work for families

and sisters in tiny Paris apartments

Example: Marker Clock

Peripheral awareness for seniors at home
- Monitoring vs. Peer-care
- Implicit sharing: movement on clock face
- Explicit sharing: leaving markers

Field tested with seniors in France
- Easily interpretable by people who know each others' rhythms and routines

Example: MirrorSpace

Instead of a high-resolution video image
Blur the image according to the distance:

Far away: blurry image
Approach: crisp image

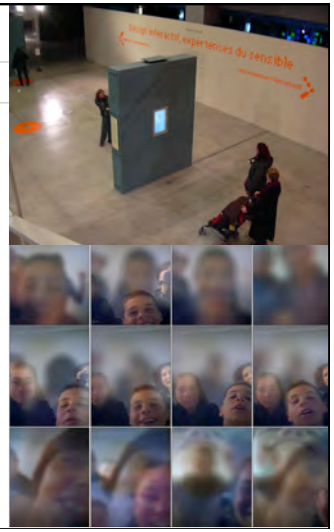
Users control their privacy simply by moving in space

Example: MirrorSpace

Exhibited at:
- La Villette
- Pompidou Centre

We notices the people who know each other approach and play with each other's faces ...

Strangers immediately step back



How to design a probe

Decide what you would like to find out about your users

Choose an existing device that can:
- capture relevant information from them
- provide a new experience for them
- inspire ideas relevant to your project

Cultural probes: Discover user characteristics
Technology probes: Inspire new designs

Interactive Thread

Weaving an interactive thread

Participatory research methods

DIS 2004

Interactive Thread at DIS 2002

Goal: Create a dynamic, interesting event that:
increases audience participation?
shares multi-disciplinary design methods?
collects data for the interLiving project?

Solution:
An 'interactive thread' of 10 design exercises woven through the 3-day conference

15-minutes at the end of each 90-minute session

Interactive Thread at DIS 2002

Begin with a focal point:

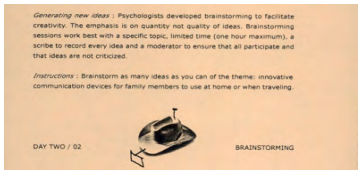
Henrik Färling's 3 meter long poster included drawings of real stories collected from the interLiving project

Ten10-minute exercises built on each other

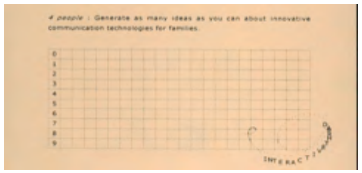
Interactive Thread at DIS 2002

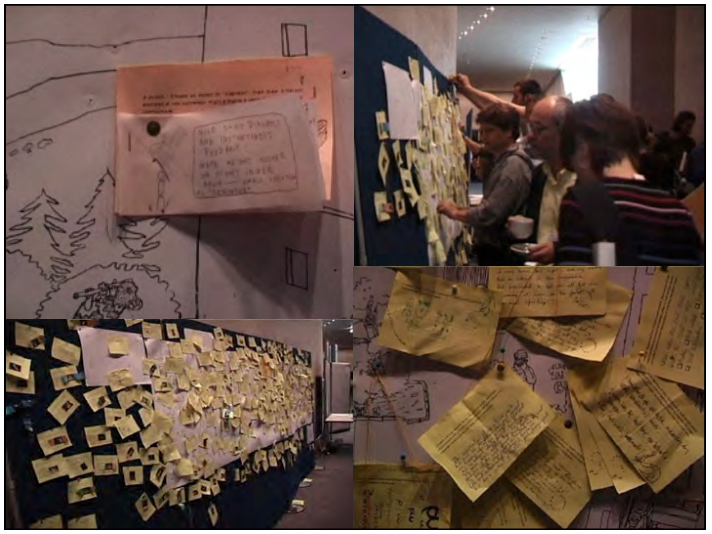
One method card per exercise:

Front: Describe goal and instructions



Back: Specific task and workspace

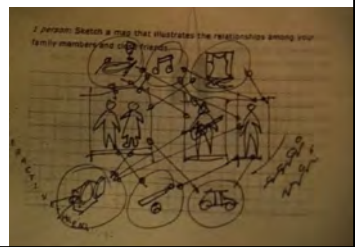




Interactive Thread at DIS 2002

What worked well:
- Poster as focal point
- Early, short exercises
- Data gathering exercises
- Participant interaction

What worked less well:
- Removing poster after day 1
- Longer exercises
- Too many exercises
- Stress from linked exercises



Interactive Thread at UIST '07

Two exercises:

Conference activity: Timeline to capture key influences from the past

Banquet activity: Brainstorm new ideas from old publications

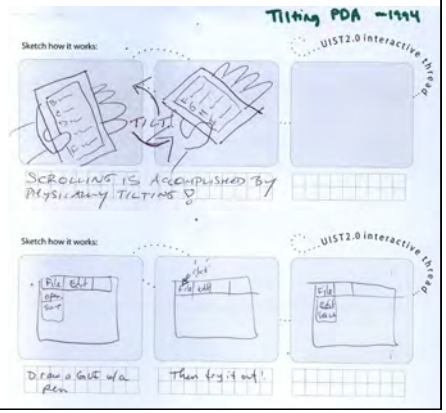
Interactive Thread at UIST '07

Capture the past on a timeline

Create interaction point cards

Participants fill in the history of interactive technology

Place them on the timeline



Interactive Thread at UIST '07

Brainstorm the future

Create cards with images from previous work

Participants generate new ideas, inspired by earlier work

Possible interactive thread events

Post-class exercise
- students perform exercises just before the bell rings

Experiment debriefing
- subjects interview each other after a session

Corporate meetings
- expose everyone to interactive design techniques

Seminars or conferences (sessions or banquets)
- get specialized interviews from doctors, air traffic controllers, fighter pilots and other hard-to-access users

Participatory design Workshop

Participatory design workshops

Bring together users and designers
Create an environment for collaborative exploration of ideas

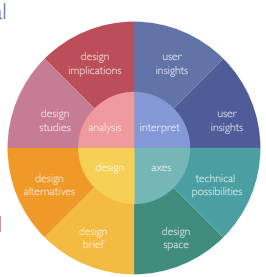
Activities can:
- capture experiences
- create scenarios
- brainstorm ideas
- explore ideas

Do not ASK users what they think

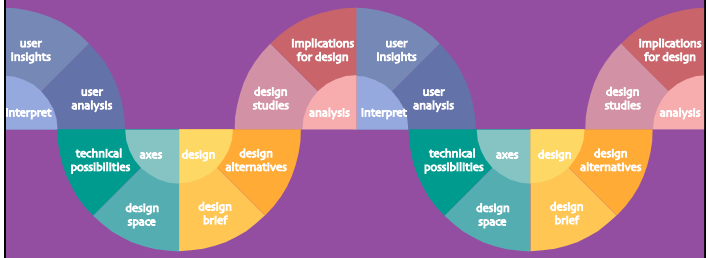
Instead, help them show you

Borrow design activities from class

About users:	Interviews, current scenario, persona, cultural probe, technology probe
Create ideas:	Brainstorming, video brainstorming, web links
Prototype:	Future scenario, storyboard, video prototype, design concept, design diagram
Evaluate:	Design walkthrough, field studies, experiments
Redesign:	Generative walkthroughs, structured observation



Homework



For Tuesday, 11 February

Each group should have:
- Concept
- Intial storyboard
- Feedback on Collaborative Video Clipper
- Design Method Poster

Wednesday: Design a participatory design workshop

Decide on: participants, setting, schedule, activities
- Ratio of team members to users?

Preparation:
- Materials? Pre-workshop activities?

Workshop activities:
- Which activities from class are appropriate?
- Can you think of any others?

Follow-up activities:
- What do participants get as a result of participating
- (Need not be money or gifts … but they should benefit)