4 – Participatory Design

Viktoria Pammer-Schindler

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Days and Topics

March 1	Administrative Stuff, Intro to Designing Interactive Systems
March 8	Understanding Context of Use – **Assignment 1 Handed Out**
March 15	Prototyping and Iterative Evaluations **– Assignment 1 Deadline (before/in lecture)** **– Assignment 2 Handed Out**
April 12	**Participatory Design (Theory and Workshop)** **– Assignment 2 Interviews with Tutor (throughout the day)**
April 26 (10-13)	Evaluations Workshop (Cognitive Walkthrough, Observation and post-hoc discussion of prototypes – **Assignment 3**) **– Assignment 4 Handed Out**
April 28 (9-14)	Android Sensing / Context-Aware Interactive Systems Tutorial Day **(different room)**
May 3	Ubiquitous Computing, particularly Ubiquitous User Interfaces
May 10	Questions on Programming to Tutor
May 24 (10-13)	Presentations 1 **(Assignment 4)**
May 31 (10-13)	Presentations 2 **(Assignment 4)**

Learning Goals

After today's lecture and workshop you should

1. Know about participatory design's history
2. Know about key challenges / concerns in participatory design
3. Be able to plan and carry out selected participatory design activities

Today

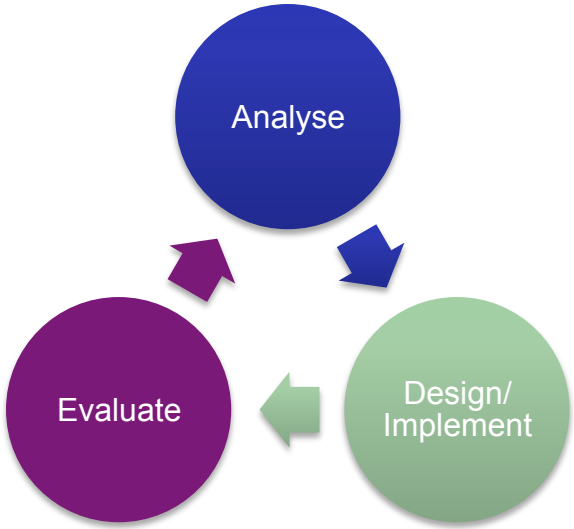
Recap:

- User Centered Design
- Prototyping
- Evaluations, specifically Cognitive Walkthrough

Participatory Design – Theory and Practice

Recap – User Centered Design

1. Principles
   - Understand users, their tasks and environment
   - Involve users in design
   - Evaluations are part of the design process
2. Consequences
   - Iterative design process
   - Complete user experience
   - Design team is interdisiplinary
3. Basic Process Steps: Analyse
   - Design/Implement - Evaluate



Recap - Prototypes

1. Types
   - Vertical vs Horizontal
   - Low fidelity: Paper, Wireframes, Text, Manuals…
   - High fidelity: Photoshop, Powerpoint-Clickable, Partly programmed…
2. Prototype with users – then with experts – then with users again

Recap - Evaluations

1. Evaluation goals
   - Does system match user needs?
   - Which effects will system have on users and their activities?
2. Summative vs formative evaluations
3. Cognitive walkthrough
   - Define key activity (goal of interaction)
   - Define sequence of steps
   - For each step ask:
     - Does the step fulfill the goal?
     - Does the user see that the action for the step is available?
     - Can the user recognise that the action is the right one?
     - After the action, can the user understand the system feedback?

Participatory Design – in short

Ideal: End users are full participants in the design process

- Including decision making, inventing new designs, gathering field data…

Rationale:

- Users' knowledge as resource for design (overlap with UCD)
- Ideological – those affected by design should have a say
- Reduce resistance to change / increase technology acceptance

Extreme, but extremely useful to at least try – not only in design of custom software, but also for software re-design, or choosing amongst off-the-shelf systems, and custom adaptation.

Participatory Design History: Utopia I

Utopia project 1981-1985

- Content: Design tools for graphic workers
- Goal was ‘to give users a voice in design’
- Started at the initiative of the Nordic union of graphic workers
- Followed in the wake of numerous projects in which researchers and unions had already attempted to influence the use of technology at work

Participatory Design History: Utopia II

- Technology laboratory: Tools to simulate different software designs like
  - coloured slide mock-ups
  - wooden mouses and cardboard-printers
  - a box of cards for playing with work organisation
  - graphic workstation for illustrating paper prototypes

- Principles in Utopia
  - Workers can craft technology
  - Active design exercises / design-by-doing
  - Relate IT design and use
  - Design thinking for software development

Participatory Design History: Florence I

Florence project: 1984 – 1987

- Professional domain: nursing
  - Mixes manual and knowledge work
  - Not productive (in the sense of nothing is “produced”)
  - Female dominated
- Carried out in two wards
- Due to being situated in wards, other occupational groups were also involved: physicians, therapists…
- Pilot system was used beyond the end of the project; but was not integrated with other hospital information systems

PD Principles I

1. Participation
2. Project management (setup e.g., design team and steering committee)
   - Project process:
     a) Establish project
     b) Strategic analysis
     c) In-depth analysis of selected work domain(s)
     d) Visions for overall change
     e) Anchoring (instantiation) of vision

PD Process II

3. Design as a communication process
   a) Users' present work
   b) New system
   c) Technological options

From Kensing et al., 1996 – MUST – A Method for Participatory Design

	Users' present work	New system	Technological options
Abstract knowledge	Relevant structures on users' present work	Visions and design proposals	Overview of technological options
Concrete experience	Concrete experience with users' present work	Concrete experience with the new system	Concrete experience with technological options

Figure 2. Six areas of knowledge in user-IT professional communication.

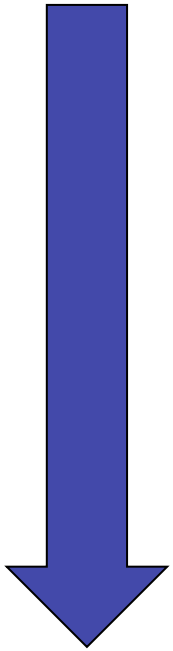
PD Principles III

4. Combining ethnography and intervention
   - Iterations between observation and intervention highlight discrepancies between “reality” and “plans”, “wishes”, “explicitly stated requirements or conditions”
5. Co-development of IT, work organisation, and users’ qualification
6. Sustainability
   - Resources, economic expectations, continued project ownership, etc.

Participatory Design (PD) in practice I – Challenges for PD at work

- Work not only with users, but also with management, IT department…
- Stakeholders may have conflicting goals
- Do co-designers get compensation for the time they put into the design project?
- Local vs global solutions (e.g., how flexible is standard software available in the organisation?)

PD in practice II: Varying Degrees of User Involvement



- User: Uses final system
- Tester: Tests intermediate versions
- Informant: Helps during design process (participates in interviews, focus groups, is being observed, critiques designs…)
- Co-Designer: Full design partner in the sense of PD

PD in practice III

Computers/systems are tools for work (activities); they can be understood only in the context of use

- Focus on design and evaluation “in the field”

Participatory design with vulnerable user groups: Children, elderly, mentally handicapped…