Assignment 3

Contextual Inquiry and Results Representation
Contexts in design

- Users in context: Contextual Design Methodology
  - Contextual inquiry
  - Modeling
- Case study
  - Ethnography of web site design practice
From human to group & context

- Early HCI focused on a human interacting with a computer. But practices are social, and tools are used in a social context.

- Some alternative approaches:
  - Distributed cognition
  - Cognitive Work Analysis
  - Activity theory
  - Social psychological theory
  - Ethnomethodology

- Example: Amazon or UPF library?
How - What - Why

Why? — be goals (activity - motives)
What? — do goals (action - goals)
How? — motor goals (operation - condition)
Contextual Design

- We discuss a part of the **Contextual Design** methodology which has some aspects of this approach
  - Based on the idea that systems have to support context (perhaps with new methods)
  - This can only be done through understanding practice
  - Designers have to develop a context response, structuring a system supporting the redesign of the whole context

- It includes engineering (methods)

Contextual Design: phases

- **Contextual inquiry**: understand users
- **Work modeling**: to represent practice
- **Consolidation**: integrating results
- **Environment redesign**: vision implemented through storyboarding
- **User environment design**: making it explicit
- **Mock-up and test with customers**: early tests with prototypes
- **Putting into practice**: implementation process
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Contextual Inquiry (1/4)

- Adaptation of ethnographic research methods to fit engineering constraints
- Get data from users *in context*: while they are in context
- Observe users; take an *apprenticeship relationship* with them
Contextual Inquiry (2/4)

- Seeing the work reveals what matters. People are not aware of everything they do.
- Seeing the work reveals details. Avoid generalizations, summary.
- Seeing the work reveals structure. Strategies and techniques of work through the examples.
- The apprentice can learn from the master's experience. Save observation time through discussing experience.
Contextual Inquiry (3/4)

- Avoid other models of relationship.
  Interviewer/interviewee, Expert/novice, Guest/host.

- Develop a partnership relationship.
  Alternate watching and probing.

- Develop interpretation. Share interpretation with users.
Contextual Inquiry (4/4)

- **Focus is key.** Steers conversation, reveals detail (but conceals unexpected).

- **Expand focus:** challenge assumptions instead of trying to validate them.

- **Contextual interview structure:** conventional, transition, the proper one, wrap-up.

- Prepare carefully the implementation
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Models help seeing context and reveal important distinctions.

Several models:
- Flow, communication and coordination
- Sequence, detailed steps
- Artifact, physical things
- Cultural, constraints
- Physical, structure of the environment
Flow Model (1/2)

- Defines how work is broken up across people and how people coordinate to get the job done
  - Identifies individuals, groups and responsibilities
  - Highlights communication paths, and corresponding actions or topics
  - Identifies communication artifacts used
  - Communication places and breakdowns
Flow Model (2/2)

- Graphical representation
  - Individuals as **bubbles** including a list of responsibilities
  - Paths as **arrows** linking bubbles
  - Artifacts as **small boxes**
Flow Model: example 1
Flow Model: example 2

**Test user**
- Run software and use documentation
- Report all problems

**Documentation**

**U2 (Documentation writer)**
- Create documentation from specifications and the actual product
- Validate documentation with developers and the actual product
- Test all examples

**Drafts for review**
- Discussion of assignments
- Discussion of review

**Editor**
- Check drafts for accuracy, consistent layout, grammar, and terminology
- Assign writing tasks

**Problem reports**

**marked-up drafts**

**Product versions**

**Specifications**

**Developer**
- Write the software
- Review documentation for accuracy and completeness
Flow Model: example 3

- **Slide Library**
  - Holds slide catalog
  - Provides tools for lecture prep (carousels, light boxes, etc.)

- **Graduate Student**
  - Designs/maintains unofficial course website
  - Digitizes 35mm slides for course site

- **P2 Professor (Studio Art)**
  - (Advanced Jewelry & Metalsmithing)
  - Prepare lectures in 35mm slides format
  - Present lectures in 35mm slides format

- **Classroom**
  - Meeting place for lecture presentation
  - Contains cart with slide projector

- **Course Website**
  - Student resource
  - Reference select course materials

- **Students**
  - Attend lectures
  - Complete assignments

**Syllabus**

- **User**
  - Groups/Person
  - Physical/Virtual Places
  - Artifacts
  - Breakdowns

Work Flow Model, "Reviving DIDO", DLF Spring 2004, Michelle Dalmau, Indiana University
Sequence Model

represents the steps for actions to take place; low-level info for detailed design decisions

- intents, primary and secondary
- triggers, for actions
- actual steps
- order (and loops, branches)
- breakdowns
Sequence Model: example 1

Intent: Plug in
- Trigger: Return to the office
  - Scan message list for important message—Use sender, subject

Intent: Handle emergencies
- Choose urgent message
  - Read message about unhappy user
  - Decide more info needed
    - Make phone call
    - Leave phone message
      - File in phone folder
      - See list of messages
        - Choose message 9: subject indicates university news relevant to department
          - Read message
          - Delete message
          - See message 10 automatically
            - Read message 10

Had to put off issue of unhappy user
## Sequence Model: example 2

<table>
<thead>
<tr>
<th>Intent: Place on light box for better viewing and arrangement</th>
<th>Trigger: Pulled enough slides</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note: Approximately 40 slides were already on the light box – she added another 30 or so to the box</td>
<td>Walks across the way to light box with stack of slides</td>
</tr>
<tr>
<td></td>
<td>Places slides right-side up on box</td>
</tr>
</tbody>
</table>

| Note: Moves slides around like a puzzle . . .                  | Begins to arrange slide first by US artists and then by European |
|                                                             | Creates new rows of slides while arranging when necessary (~15 across) |

<table>
<thead>
<tr>
<th>Note: Light box is approximately 4 feet wide and 1.5 to 2 feet tall.</th>
<th>Then arranges by date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note: No real procedure for slides with unknown dates – guesses or fits them in where they look good</td>
<td>Some slides not dated, guesses time period</td>
</tr>
<tr>
<td></td>
<td>Sets aside a couple of “No” slides</td>
</tr>
</tbody>
</table>
Artifact Model (1/2)

- Artifacts tell a story about the work; they reveal
  - Assumptions, Concepts, Strategy, Structure

- Walk through artifacts with users

- Collect copies of used artifacts
The model represents

- Information presented
- Parts and its Structure
- Annotations (denote informal usage)
- Presentation (colour-shape-fonts)
- Usage
- Breakdowns or problems
- Additional conceptual distinctions
Artificial Model: Example
Ecology of navigation artifacts in taxis
Inside the workplace culture defines a whole approach including
- expectations, desires, policies, values

Cultural context is both pervasive and invisible (water for the fish)

With the model we make influences appear explicitly (and they mean constraints, alter choices ...)

The model represents

- **Influencers**, individuals or groups that affect or constrain work
- **Extent** of the effect on the work practice
- **Influences**
- **Breakdowns**
Cultural Model (3/3)

- Relevant influences are usually
  - Standards and policy
  - Power
  - Values
  - Group identity
  - Emotions
  - Style, Preferences
Cultural Model: example

Marketing

Our new features are top priority.

If I say do X, you figure out what that means

Competitors

We have 50 new features; catch up

U9 (Developer)

Base technology group

You aren’t our primary user; we’ll fix bugs for you in our own time.

Our technology is standard; use it even if it doesn’t work

Customer support

Our bug reports are top priority
Physical Model (1/2)

- Examines how space supports or hinders work
- Model both site and workplace
- Physical environment reflects work
Physical Model (2/2)

- The model represents
  - **Places** in which work occurs
  - **Structures** that limit and define space, like walls or desks
  - **Usage** and **Movement**
  - **Network** of tools and artifacts, **artifacts** themselves
  - **Layout** of tools, artifacts, structures
  - **Breakdowns**
Physical Model: example
Contextual Design revisited

- What we have discussed
  - Contextual inquiry: understand users
  - Work modeling: to represent ‘work’

- What is left
  - Consolidation
  - ‘Work’ redesign
  - User environment design
  - Mock-up and test with customers
  - Putting into practice
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Ethnography of web site design practice

- Mark W. Newman and James A. Landay: *Sitemaps, storyboards, and specifications: A sketch of Web site design practice* DIS ’00 263 - 274

Who was interviewed

We interviewed eleven designers involved in the web site design process ... We also collected and studied many artifacts of the design process, including sketches, prototypes, written documents, presentations, finished web sites, and several other types of artifacts ... All interviews were conducted in the designers’ offices, which facilitated the observation of artifacts and allowed us to observe their working environments.

What was asked

Each participant was asked to choose a recently completed or nearly completed project, and to walk the interviewer through the entire project, explaining what happened at each phase ... At the end of some of the interviews, the designer was asked to give us copies of the documents discussed during the interview.
Web design disciplines

corresponding specialisations

Figure 1: Different specialties within web site design.
Ethnography of web site design practice: processes

The design process phases

- **discovery**
  determine and clarify the scope of the project, the desires of the client, and the characteristics and/or needs of the intended users; interviews with the client, competitive analysis, ...

- **design exploration**
  possible solutions are generated and explored. Information design, navigation design, and rough graphic design are performed ... multiple rough design ideas and variations are generated.

- **design refinement**
  aspects as precise typeface of labels and body text, exact sizes and appearances of images, color schemes and palettes are determined ... classes of pages represented by an example or template

- **production**
  creation of an artifact or set of artifacts delivered to the client to embody and represent the design ... may include interactive prototypes, written descriptions, guidelines, and specifications
Ethnography of web site design practice: artifacts

Products of the design process

- site maps
  diagram showing the structure of a site ... consist of labeled blocks and lines, with some additional features to indicate certain kinds of groupings ... blocks represent individual pages and contain brief descriptions of contents ... lines and arrows represent navigational paths ... just the “primary ” navigational paths are reflected

- storyboards
  representation of a particular interaction sequence ... accompanied by a narrative about the task the user would be trying to accomplish via the particular sequence depicted

  - schematics, mockups, prototypes, specifications, guidelines, presentations, written documents

Current tools of the process

- sketching on paper, computer based tools (do not support specifically the work)
Above: At a Silicon Valley design firm specializing in the customer service portion of web sites

Left: Collaborating on a project schedule at Hanna Hodge  http://www.enteract.com/~marc/rettig.walls.72dpi.pdf
Ethnography of web site design practice: implications?

- New design tools?
  - informal user interface
  - support multiple representations
  - focus on early design phases
  - integrate with other tools
  - manage history and variations
A designer’s outpost