Understand Your Users: Exploratory Studies

Exploratory Study

Motivational system
- Goals and tasks (“need”)
- Desirability (“want”)
- Emotional charge (“fears”, frustration, pleasure, etc.)

Contextual knowledge & beliefs
- A cognitive representation (understanding) of how something works / organised
- Based on previous experience & believes; defines reasoning

Cognitive (Mental) model
Translating Needs Into Functionalities

- Make data actionable
- Identify right time and place
- Turn problems into tasks
Translating Needs Into Functionalities

Make data actionable
- Adjust personas
- Affinity diagrams
- Breakdowns
- Cultural model
- Artifact models

Identify right time and place
- Physical model
- Sequence model
- Flow model

Turn problems into tasks
- Thinking
- Memory
- Attention
- Motivations
- Habituation
Translating Needs Into Functionalities

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Turn problems into tasks
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- Habitation
Translating Needs Into Functionalities

Make them more colorful and detailed based on the generalized characteristics of your participants you did not account for previously

(likely there several)

Make data actionable

Adjust personas

- Affinity diagrams
- Breakdowns
- Cultural model
- Artifact models
Translating Needs Into Functionalities

Make data actionable

Adjust personas

Affinity diagrams

Notes on cards → Review the cards → Sorting & grouping

Sub - groups → Themes in Data

A sense-making tool for qualitative data
(see lecture IV)

Breakdowns
Cultural model
Artifact models
Translating Needs Into Functionalities

Make data actionable

Adjust personas

Affinity diagrams

Breakdowns

Cultural model

Artifact models

Translating Needs Into Functionalities

Make data actionable

- Adjust personas
- Affinity diagrams
- **Breakdowns**
- Cultural model
- Artifact models

Where and when things go wrong in individuals work practice

Points in time or space when individuals have a problem accomplishing the task that should otherwise be easy given the tools that they are using

Unpacking the tacit dimension for possible design solutions
Translating Needs Into Functionalities

External influences - because:
“Work takes place in a culture, which defines expectations, desires, policies, values, and the whole approach people take to work”

*Contextual design: defining customer-centered systems.*

Includes:
- Influencers (represented as bubbles)
- Extent of influence (overlap of bubbles)
- Influences (as arrows - mind direction)
- Breakdowns

Make data actionable

Adjust personas
Affinity diagrams
Breakdowns
Cultural model
Artifact models
Cultural Model

Cultural Model

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)
- 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

Base technology group

Cultural Model (Consolidated)

Translating Needs Into Functionalities

Make data actionable
Adjust personas
Affinity diagrams
Breakdowns
Cultural model
Artifact models

Translating Needs Into Functionalities

Make data actionable

Physical objects that support the work (created and/or used in the process) - because you want to know what objects people need and interact with

Adjust personas
Affinity diagrams
Breakdowns
Cultural model
Artifact models

Sketch or photo
Complete with comments and notes on:
- Structure
- Related purpose and tasks
- Functionality
Artifact Model

Artifact Model

Intent: Make shopping trip efficient by planning the order to shop.

Artifact Model (Consolidated)

Consolidated Shopping List

**Family Shopping List**

Usage:
- List is usually built over time
- Items are added together using available white space
- Items can be more detailed with brand name and quantity where needed
- Items are grouped by store name or store section (e.g., food or household goods)
- Head chef reviews the final list and decides what to buy

Intents:
- Capture needs for multiple family members
- Instruct shopper what to purchase for all family members when the shopper is not head chef
- Make sure to get healthy, quality items family members need and match their expectations

**Personal Shopping List**

Usage:
- Usually organized like the house, built just prior to shopping
- Items are added randomly, not grouped
- List is concise, usually only capturing generic name (e.g., toothbrush, lunch meat)
- List is often for one specific store

Intents:
- Create mental trigger to get item when you see it in store (without necessarily needing to look at list)
- Remind head chef to recall details about the item to buy when looking at list

Translating Needs Into Functionalities

- Make data actionable
- Adjust personas
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Translating Needs Into Functionalities

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Turn problems into tasks
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- Habituation
Physical work environment (plan) - because you want to know how people adapt their environment to accomplish work

Includes:
- Structures that limit and define space
- Walls, desks, file cabinets, etc.
- Hardware, software, communication tools
- Artifacts and their location in relation to each other

Complete with comments and notes
Physical Model

Physical Model, P1  DLP Forum, Spring 2004
Michelle Dalmasso, "Reviving DIDO," Indiana University

Ballentine Hall
*far away
*not wired
*less than ideal presentation quality
Physical Model

Physical Model (Consolidated)

Translating Needs Into Functionalities

- Identify right time and place
- Physical model
- Sequence model
- Flow model
Translating Needs Into Functionalities

Identify right time and place

Sequence model

Sequence of work steps and the intention behind steps - because you want to know how work is organized in stages

Includes:

- Intent behind step
- Triggers, that initiate sequence
- Steps, at a high level of details (actions, not movements)
- Loops and branches showing order and iteration
- Breakdowns (where things go wrong)

Physical model

Flow model
<table>
<thead>
<tr>
<th>Intent: Needs to prepare 4 lectures for A214: Life and Art of Ancient Rome – Roman Religion</th>
<th>Trigger: Class meets tomorrow afternoon, need to have first lecture ready</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Note:</strong> In progress: PPT, Netscape 4.x and file Finder windows open before we arrived. Loyal MAC (OS 9.x) user.</td>
<td>Prompted by syllabus – topic for this week, Roman Religion</td>
</tr>
<tr>
<td><strong>Intent:</strong> Recycle PPT – use a base PPT rather than start from scratch</td>
<td>Find existing PowerPoint (PPT) lecture on similar topic</td>
</tr>
<tr>
<td><strong>Note:</strong> Keeps all the existing images/PPT slides</td>
<td>Copies (Saves As) PPT as A214 for Roman Religion Lecture</td>
</tr>
<tr>
<td><strong>Intent:</strong> Colleague normally teaches this class (A214)</td>
<td>Goes to Classical Art Historian’s course web page (A210) – Bookmarked</td>
</tr>
<tr>
<td><strong>Intent:</strong> Colleagues usually has good images (from DIDO)</td>
<td>Browses “Roman Gods” link (see Artifact A210 home page)</td>
</tr>
<tr>
<td><strong>Note:</strong> Image quality assessment is automatic and very subjective</td>
<td>Identifies desired image /assesses quality</td>
</tr>
<tr>
<td><strong>Intent:</strong> Expand lecture with reliable resource</td>
<td>*Downloads image (CTRL+Click) to “Download Image to Disk”</td>
</tr>
<tr>
<td><strong>Note:</strong> Knows keyboard shortcuts</td>
<td>*Saves image to “Roman Art” folder</td>
</tr>
<tr>
<td><strong>Intent:</strong> Dynamically builds own image collection</td>
<td>No sub-folders – many, many unique images in one folder</td>
</tr>
<tr>
<td><strong>Note:</strong> Steps identified with * are done fluidly and repetitively while preparing lecture. Steps will not be represented for every image found as such but in shorthand: Integrates image</td>
<td>*Renames image (long, descriptive names)</td>
</tr>
<tr>
<td></td>
<td>*Copy and Paste image into PPT slide</td>
</tr>
<tr>
<td></td>
<td>*Resizes/Positions image in PPT</td>
</tr>
</tbody>
</table>

*Reviving DIDO*, DLF Spring 2004,
Michelle Dalmau, Indiana University
### U2 Sequence -- Grocery Shopping

**INTENT:** Collect groceries needed to feed family and plan what they'll eat.

**TRIGGER:** Weekend and there's time to shop.

Invites husband to go along as a shared activity

**INTENT:** Balance doing tasks with family time

Husband had 3 other things planned and is overwhelmed

Argument

Husband agrees to come along

Go to favorite grocery store -- it's closed

Decide to get only the things that are really needed right now (Passover, breakfast, ricotta, fruit); helper will buy produce later

Go back to second-choice store

Walk to produce

Decide it's no good -- will get canned fruit

Decide to go straight to canned fruit instead of walking aisles

H leaves, gets detergent, comes back

U walks down end of aisles, trying to read signs saying what aisles have -- can't find canned fruit

End up in front of Passover items

Discuss with H what they need, how many boxes Matzo

Look at gefilte fish without sugar, decide how much to get

Look at new cereal to try, decide to get

Discuss whether kids will like pancakes, decide to get

Can't find chocolate; H finds elsewhere

Decides not to buy any of the normal items; helper will buy the next day

Look at safflower oil, okay for Passover, buy it

Look at chocolate covered Matzos, say it's expensive, buy it

Walk aisles again for canned fruit -- still can't find

H separates and goes off looking on his own

H returns and says found fruit, hidden by promotion al sign

Go to checkout counter

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## Translating Needs Into Functionalities

### Identify right time and place

- **Physical model**
- **Sequence model**
- **Flow model**

### Table: Example of Needs Translation

<table>
<thead>
<tr>
<th>Intent</th>
<th>Needs</th>
<th>Functionalities</th>
</tr>
</thead>
<tbody>
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</tr>
<tr>
<td><strong>Notes:</strong> Preparing PPT, need to find new slides, especially for the next week.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sequence model:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Flow model:</strong></td>
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</tr>
</tbody>
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*Revised DIDC*, DLF Spring 2004, Michelle Dalmu, Indiana University
Translating Needs Into Functionalities

Directions of communication and coordination
Defines how work is broken up across people and how people coordinate
Includes:
- Interviewee (in the middle - circle)
- Other groups/people (circles)
- Physical/virtual places (usually rectangles)
- Artifacts as they pass between people
- Breakdowns (where things go wrong)
Translating Needs Into Functionalities

- Identify right time and place
- Physical model
- Sequence model
- Flow model
Translating Needs Into Functionalities: Preparation

- **Cultural Model**
  - External influences

- **Artifact Model**
  - Physical objects

- **Flow Model**
  - Communication and coordination

- **Affinity Diagram**

- **Work Models**

- **Physical Model**
  - Physical work environment

- **Sequence Model**
  - Work steps

- **Personas**