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 & beliefs; defines reasoning

Cognitive (Mental) model
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
- Habitation
Translating Needs Into Functionalities

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

(most likely there are several)
Translating Needs Into Functionalities

Make data actionable

Adjust personas

Affinity diagrams
- Breakdowns
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A sense-making tool for qualitative data

Notes on cards → Review the cards → Sorting & grouping

Sub-groups → Themes in Data
Translating Needs Into Functionalities

Make data actionable

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

Adjust personas
Affinity diagrams
Breakdowns
Cultural model
Artifact models
Translating Needs Into Functionalities

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

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

U2 Cultural Model

Grocery Store Culture
- Be open when I want to shop late
- Support my holiday needs
- Make it easy to find things
- Entertain me while I wait
- I’m torn between tasks

Product Maker
- Packaging and size helps determine what I buy
- Bew with me

U2 (Mom)
- Don’t plan meals, we can’t easily get the ingredients for
- I just won’t cook if I can’t make what I want

Daughter

Husband

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

Base technology group

Customer support
Our bug reports are top priority

Cultural Model

Contextual design: defining customer-centered systems.
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

Sketch or photo

Complete with comments and notes on:

- Structure
- Related purpose and tasks
- Functionality

Adjust personas
Affinity diagrams
Breakdowns
Cultural model
Artifact models
Artifact Model

Artifact Model

Artifact Model (Consolidated)

Translating Needs Into Functionalities

Make data actionable

- Adjust personas
- Affinity diagrams
- Breakdowns
- Cultural model

Artifacts models

Translating Needs Into Functionalities

Make data actionable
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- Artifact models

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

Turn problems into tasks
- Thinking
- Memory
- Attention
- Motivations
- Habitation
Identify right time and place

Physical model

Sequence model

Flow model

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 (Consolidated)

Translating Needs Into Functionalities

Identify right time and place

Physical model
Sequence model
Flow model
Translating Needs Into Functionalities

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)
<table>
<thead>
<tr>
<th><strong>Intent:</strong> Needs to prepare 4 lectures for A214: Life and Art of Ancient Rome – Roman Religion</th>
<th><strong>Trigger:</strong> Class meets tomorrow afternoon, need to have first lecture ready</th>
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<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>
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<td>Find existing PowerPoint (PPT) lecture on similar topic</td>
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<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>Note: 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>*Copy and Paste image into PPT slide</td>
<td>*Resizes/Positions image in PPT</td>
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"Reviving DIDO", DLF Spring 2004, Michelle Dalmau, Indiana University
Sequence Model

**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

Translating Needs Into Functionalities

Identify right time and place

Physical model

Sequence model

Flow model

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*Reviving DIDO*, DLF Spring 2004, Michelle Dalmau, Indiana University
Identify right time and place

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)

Physical model
Sequence model
Flow model
Flow Model

Hard Drive (Mac) - Stores groups of images

Internet - Allows access to large collections of images

Slide Library - Hold necessary equipment (laptop and projector) for presenting lectures in Fine Arts building

Colleague Professor (Ancient Art Historian) - Prepare lectures - Present lectures

P1 Lecturer (Art History) (Medievalist) - Prepares lectures in digital format - Presents lectures in digital format

Media Services - Deliver equipment (laptop) to classrooms in Ballantine Hall - Fix equipment problems

OnCourse - Holds course materials: lecture presentations (ppt) and course syllabus

Classrooms - Meeting place for lecture presentation; 1 is wired; 1 is not

Students - Attend lecture - Review materials on OnCourse - Complete assignments and exams

Digital images - Searches for and retrieves images

Equipment does not always work or classroom is not always properly equipped

Syllabus - Retrieve materials

Post images and metadata to study guides

Images/Content

PPT

Presentations have to be smaller than 20 megs in size

Work Flow Model, "Reviving DIDO", DLF Spring 2004, Michelle Dalmau, Indiana University
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)
- **Physical Model** (Physical work environment)
- **Sequence Model** (Work steps)
- **Flow Model** (Communication and coordination)
- **Affinity Diagram**
- **Work Models**
- **Personas**