Needfinding and context discovery for assistive technologies

Lecture  Needfinding – what, why and how
Exercise  Discover by Interviewing
Discussion  Your ideas, your questions
           Project dynamics

Gayle Curtis   E110/210   12 January 2016
### Three things...

<table>
<thead>
<tr>
<th>Things don’t have needs; people do.</th>
<th>Define the need in experience terms</th>
<th>What is it like when the need is satisfied?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Look at all the people in the problem space</td>
<td>How does the person experience the need?</td>
<td>What changes when the person experiences satisfaction?</td>
</tr>
<tr>
<td>What are their needs related to the problem and the person?</td>
<td>What about the other people in the picture?</td>
<td>How are the other key people affected?</td>
</tr>
</tbody>
</table>

Walking Stick Project  
Improved Walker Project  
Power for Veterans Project  
Authoring Grade School Lessons on Disability and/or Assistive Technology  
Information Support System to Destigmatize Mental Health in the Black Community  
Knee Brace Project  

Art Tools Project  
Aesthetic Brace Fairing Project  
Educational Design Challenge Kit for Children with Disabilities  
PDA and Me Project  
Horseback Riding at Home Project
Four things to learn about needs & context

**WHAT**

**Goals**
What does the person want to do, have, or accomplish?

**WHY**

**Values**
What’s important about what they want or the way they achieve it? What does it mean for them?
WHAT

Goals
What does the person want to do, have, or accomplish?

Values
What’s important about what they want or the way they achieve it? What does it mean for them?

HOW

Capabilities
What resources, skills or abilities does the person have or bring to the situation?

Constraints
What kinds of obstacles, limitations, or deficits are at work in the situation?

WHY

Why

Four things to learn about needs & context
How do we do it?

We have ways to learn

Interview – talk to people

Observation – watch people’s activity, in context

Prototype – make something and see what they do with it
How do we do it?

We have ways to learn
Interview – talk to people
Observation – watch people’s activity, in context
Prototype – make something and see what they do with it

Then what?
Critical thinking
Facts
Assumptions
Inferences

Design thinking
Ideate
Sketch
Prototype
Iterate
Interviewing

Tips

Avoid leading questions
Ask them to show as well as tell

We get information directly from user
We get their perspective, how they feel about it

Time and skill intensive
Must be careful when generalizing
What people say often different than what they do
Observing

Tips
Observe *actual* activity
Approximate the design target
Immerse yourself in context
Shadow, record, review
Collect a rich description of activity

Look for
Resources used to accomplish
Hindrances that get in the way
Exercise – How you start your day

**Work** in groups of 2-4

One person volunteers to be the ‘interviewee’ – or –
Work with a community member here today

**Ask** about what they do to start their day

Activity
Materials
Gear

**See what you can learn** about their

Goals – what they want/need to do
Values – what’s important about how they do it
Capabilities – what resources are available
Constraints – what blockers are there too
Project dynamics

**USER**
Requirements & Capabilities

**TEAM**
Capabilities & Limitations

**TECHNOLOGY**
New & Existing
Project dynamics – the people

WHAT
WHY
HOW
BLOCKS

USER

TEAM

WHAT
WHY
HOW
BLOCKS
Project dynamics – a working system
Six things to remember when observing what people do

1. Cast aside your biases, listen and observe

Let subjects tell their own story, and listen for the things that elicit emotion, cause them concern or frustration.

"If you want to find out what people really need, you have to forget about your problems and worry about their lives."

2. Note the contradictions between what people say and what they do

Opportunities for innovation lie within the disconnect between action and words.
Six things to remember when observing what people do

3. Listen to people's personal stories
Let them relate their successes and failures.
Stories encompass the implicit rules that govern and organize peoples lives and reveal what they find normal, acceptable and true. They reveal moral codes, sources of pride, shames, shoulds and should-nots.

4. Watch for "work arounds"
People make do and work around the shortcomings of products and situations.
In everyday life, we all come up with "work arounds," clumsy or clever, that we usually are totally unaware of.
You must take note.

hci.stanford.edu/courses/cs447/docs/NeedFindingCribSheet.pdf
Six things to remember when observing what people do

5. Distinguish between needs and solutions.

Needs open up possibilities, solutions constrain them.
If you start with a solution then you may overlook the possibility of coming up with an entirely new and revolutionary product or service.

6. Look beyond the obvious.

Your research may seem so routine and familiar that you feel there is nothing new to be learned.
Boredom and frustration easily set in. Stay alert.
The epiphanies and insights emerge from the nuances.

hci.stanford.edu/courses/cs447/docs/NeedFindingCribSheet.pdf
Resources

hci.stanford.edu/courses/dsummer/handouts/NeedFinding.pdf
  What to do in Need Finding

hci.stanford.edu/courses/cs247/2012/readings/dschool-observing.pdf
  Observant Observing

hci.stanford.edu/courses/agile/handouts/Interviewing-observing.pdf
  Interviewing and Observing – Agile Aging

hci.stanford.edu/courses/cs447/docs/NeedFindingCribSheet.pdf
  Need Finding Tools