

Creating Assistive Technologies

Understanding The Problem

Lecture	The Problem: The What, Why and How Tools: Interview & Observation
Exercises	Reflection & Inquiry
Discussion	Your ideas, your questions

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SAMPLE PROJECT

Improved Pooper Scooper

Background:

The intended user is an older adult who relies on her powered wheelchair and service dog for mobility.

Problem:

Current products are bulky, difficult to operate, and are not designed for wheelchair users.

Aim:

Explore designs for a device that will allow a wheelchair user to effectively clean up after their service dog while remaining active in their community.

Design Criteria: [Requirements]

Compact to facilitate storage

Aesthetic design

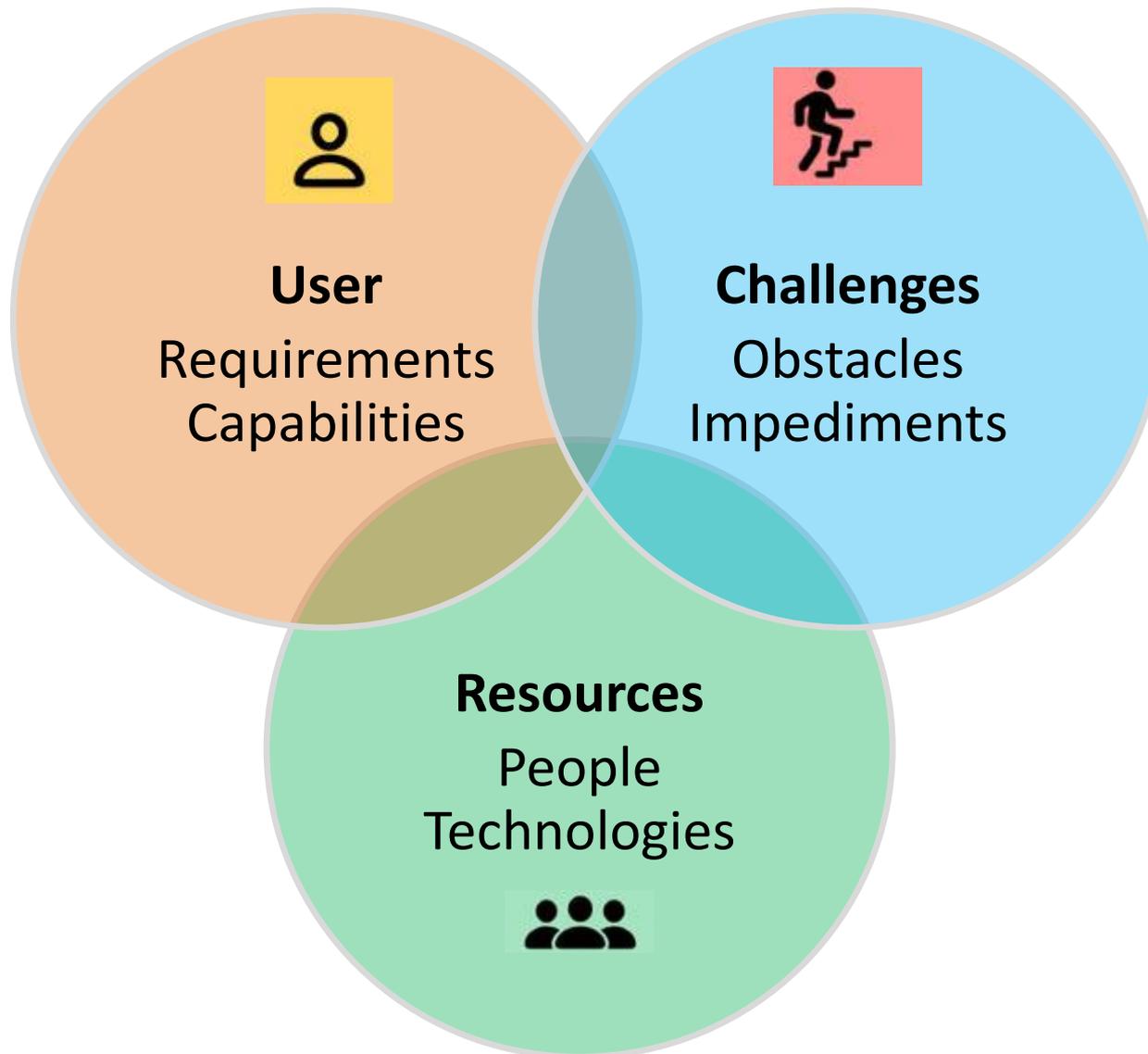
Easy to retrieve and store

Integrated waste disposal bag

Easy to dispose bag

Easy to clean

Parts of the problem



Requirements, aspirations, desires – Needs

Independence

Self-actualization

Desire to become the most that one can be

Esteem

Respect, self-esteem, status, recognition, strength, freedom

Love and belonging

Friendship, intimacy, family, sense of connection

Safety needs

Personal security, employment, resources, health, property

Physiological needs

Air, water, food, shelter, sleep, clothing, reproduction

Exercise – Reflect: How you got here today

Think about what it took for you to be here today –
From the time you woke up, or from your last class.

Make a list of ~10 things you had to do

The things you had to do in order to be here today ...

Make note –

1. What things were important for your journey?
2. Why was it important to be done in that way?
3. Tools / enablers you used
4. Blocks / challenges you managed

5 min

What we want to learn about the challenge

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?

Capabilities

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

Constraints

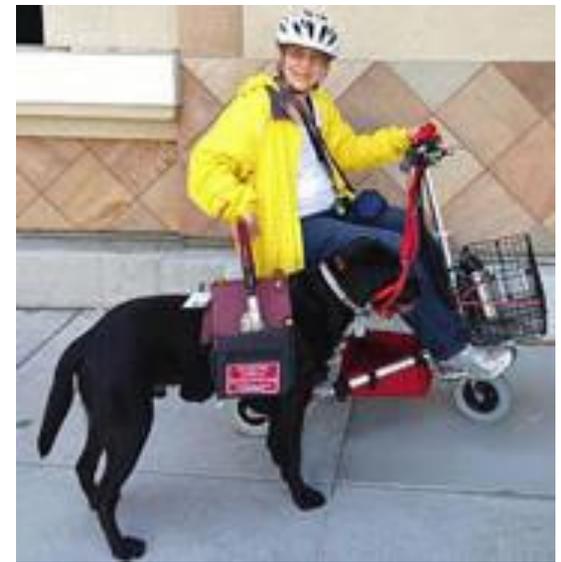
What kinds of obstacles, limitations, or deficits are at work in the situation?

How do we do it?

Interview – Talk to people

Observation – Watch their activity, in context

Prototype – Make something and see what they do with it



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Then what?

CRITICAL THINKING

Facts

Assumptions

Inferences

DESIGN THINKING

Ideate

Sketch

Prototype

Test & Analyze

Iterate

Interviewing

TIPS

Ask about goals & what's important

Avoid leading questions

Ask them to show as well as tell



- + We get information directly from the person – the user
We get their perspective, how they feel about it
- Time and skill intensive
Must be careful when generalizing
What people say is 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 the activity



Look for –

Resources used to accomplish

Hindrances that get in the way

Group exercise – How they got here today

Work with others at your table

One person volunteers to be ‘interviewee’

Class or community member

Ask about how *they* got here today

Activity | Materials | Gear | Challenges

See what you can learn about their:

Goals – why they wanted to be here – their purpose in coming

Values – what was important about the way they got here

Capabilities – what resources were available or used

Constraints – what blocks stood in the way

