

Design for Agile Aging

Winter/Spring 2008

Winter: MED 279Y; CS 379Y, HumBio131

Spring: MED 279Z; CS 379Z

Primary Instructors

Carol H. Winograd, HumBio and Medicine

Terry Winograd, Computer Science and d.school

Anne L. Friedlander, Center on Longevity

Paul Yock, BioDesign

Abby King, Health Research & Policy and Medicine/Stanford Prevention Research Center

Course Assistant

Steve Marmon, Computer Science HCI Group

TTh 3:15-5:05 pm, 4 units per quarter, location Sweet Hall, 2nd Floor

Overview

This two-quarter interdisciplinary sequence is being offered by the d.school (Hasso Plattner Institute of Design at Stanford). It brings perspectives from Computer Science, Design, Social and Behavioral Sciences, and Medicine to develop projects that will address the potential of people to maintain vitality and mobility as they age. The projects will find innovative ways to integrate computer and device technologies with behavioral and social interventions.

In the **Winter** quarter, students will learn about the relevant background from faculty and other experts in the different disciplines, including Computer Science, Physiology, Geriatrics, Psychology, and BioDesign. They will also get experience with design thinking, through doing smaller "trial voyage" projects that give them confidence in the design process.

During the **Spring** Quarter, small teams will do projects that develop their ideas in all dimensions – The technical interventions, social and contextual design, organizational contexts, business and distribution issues. Our goal is for the students to produce designs that can have an impact in the world – through products, programs, and practices that affect people's health on a broad scale. Students can take the first quarter without the second.

Projects

The Winter quarter projects will focus on needfinding and the formulation of initial design concepts. Concepts selected from among these will then be developed further into a series of prototypes and tests during the Spring quarter. Students can take the Winter quarter alone, or both (but not just the Spring). See below for a list of the project activities.

Grading

Grading will be based on both individual and team performance. The breakdown will be as follows:

- Poster Presentation 1/24 (Pairs get one grade) - 15%
- Interview Log - hand in at poster presentation - 5%
- Interim Meeting with Prototype 2/12 (Team grade) - 15%
- Critique of Prototype 2/26 (Individual grade) - 10%
- Final Project (Team) - 35%
- Design log and Group Process Critique (Individual grade) - 10%
- Class Participation (Individual grade) - 10%

Course Sessions and Topics for Winter Quarter

Class 1 (Tuesday 1/8): Introduction and Overview of Course

Aging and function, Design thinking, The design process.

Class 2 (Thursday 1/10): Ageism, Aging, and Mobility (C. Winograd)

Ageism, Physical activity, Disability, Successful aging

Design Day (Saturday 1/12 – all day): The design process (Arna Ionescu, IDEO)

A one-day design workshop at IDEO Palo Alto, with all the phases: Observations, Analysis/synthesis, Ideation, Prototyping, Testing, Presentation, Critiquing.

Class 3 (Tuesday 1/15): Empathy and Interviewing (T. Winograd)

Principles and techniques for Interviewing, Interviewing demonstration, Considerations for working with older people, Exercise on understanding disabilities.

Class 4: (Thursday 1/17): Physiology of Aging & Benefits of Exercise (A. Friedlander)

Changes in functional capacity (Cardiovascular and strength), Impact of exercise on disease risk, Obesity and SEDS. Movement and balance, Is exercise the anti-aging pill?

Class 5 (Tuesday 1/22): Analyzing and synthesizing (T. Winograd, P. Yock)

Principles and techniques for integration and analysis of field data, Zeroing in on a point of view.

Class 6 (Thursday 1/24): POSTER PRESENTATION

Each pair of students will give a brief summary and then we will have discussions in smaller groups about the contents of their posters. This is a presentation of needfinding results and a point of view on the potential for design, not proposed specific solutions at this point

Class 7 (Tuesday 1/29): Strategies to Increase Physical Activity in Older Adults (A. King)

How can we motivate people to exercise? What are the barriers to exercise? How much and what kinds across the lifespan, studies that support exercise and mobility, Pilot Study on Frailty

Class 8 (Thursday 1/31): Prototyping (P. Yock, T. Winograd, and guests)

Principles of prototyping, high fidelity and low fidelity, the prototyping cycle, experience prototypes, use of video in prototyping. Guest demonstrations of prototypes, Craig Milroy, Dainuri Rott, and others.

Class 9 (Tuesday 2/5): Mental Health, Self-Efficacy and Motivation (Guests)

Is motivation a state of mind? Does motivation change with age? What new technologies are available to help motivate people?

Guests: Laura Carstensen, Prof. of Psychology and director of Stanford Center on Longevity

BJ Fogg Director of Stanford Persuasive Technology Lab

Class 10 (Thursday 2/7): Focus on Function: Fix the Fixable (C. Winograd)

Functional abilities, frailty, treatable geriatric conditions

Class 11 (Tuesday 2/12): Project Review

Team project presentations, debrief and discussion.

Class 12 (Thursday 2/14): Health and Health Care of Older Adults (C.Winograd)

Health Promotion, chronic illness, Medicare, and costs.

Class 13 (Tuesday 2/19): Planning effective prototyping/testing (T. Winograd, Arna Ionescu, IDEO)

Planning for effective prototyping and testing, validating needs, testing and feedback

Class 14 (Thursday 2/21): Presentation and critiquing of prototype plans

Discussion of critiquing, Students do critiquing of other projects.

Class 15 (Tuesday 2/26): Practical Implications: Real-life challenges (A. Friedlander, Guests)

Addressing the needs for maximizing independence in the older individual from the perspective of health care providers: functional status, falls, activity modification, driving, assistive devices, loss, and caregiver burden.

Panel: Betty Wexler, RN, MS, CNS, Susan Bass, LCSW, Jean Gurga, MA, OTR/L.

Class 16 (Thursday 2/28): Project work time

Class 17 (Tuesday 3/4): Storytelling (T. Winograd)

Principles of effective storytelling and its role in design presentations, Elevator pitch exercise

Class 18 (Thursday 3/6): Proto-Presentations

Team presentations to teaching team.

Class 19 (Tuesday 3/11): FINAL PROJECT PRESENTATIONS

Followed by a reception. We will bring in external reviewers and the session is open to all.

Class 20 (Thursday 3/13): Reflection and plans for the follow-on

Sharing of critiques, experiences. Initial topic and team plans for next quarter.

Activities for Winter Quarter

Behavior Modification

Some of your designs may have components that are aimed at facilitating behavior change. In order to get a feel for the real difficulties, you will do a behavior change experiment on yourself. Early in the course, you will choose some behavior of your own that you would like to modify. Over the course we will monitor how this is going, what the difficulties and roadblocks are.

Disability Experience

In order to get a feel for what disabilities are like for older people, you will spend several hours at the end of the first week with an artificial disability that we suggest, which limits your mobility, dexterity, perception, or other faculties.

Interviewing

In the second week of the course, students in pairs will interview a volunteer who is representative of the population we are designing for. This will be a wide-ranging interview to gain empathy with people, before you have gotten to the stage of thinking about specific designs. You will create an interview log, which we will review and discuss.

First Design Project

Over the first three weeks of the course, you will work in pairs to come up with an initial project concept based on your interviews, observations, and readings. We'll have a session on Jan 24 to present and discuss posters describing your ideas. These will be the basis for forming teams and project directions for the main design project.

Main Design Project

Teams of four students will be formed after the poster presentation and will work on a design project for the rest of the quarter. Teams will be based on interests and topics from the posters, as well as the desire to have a balance of different disciplines. There will be a series of milestone deliverables for the different design steps, culminating in presentations on Tuesday March 11. Each team will have a coach who is a professional designer, as well as a teaching team member designated for the team.

Questions

For some of the readings and activities, we will ask you to hand in before class a short list of questions that came up for you and that would be fruitful for discussion. We will let you know specifically when these are required.

Team Process Assessment

At the end of the course each student will submit a short critique of their team's (and their own) process. This is an opportunity to reflect both on your own activity and on what makes teams function well.