Universal Design

INF 2260 Interaction Design
September 26, 2011
Jo Herstad
Overview

• Why Universal Design?

• How to UD?

• What is UD?
Universal Design of...

• The Environment
  – Fx. Homes, roads, office building

• Products
  – Fx. Furnitures, lock

• Services
  – Fx. Banking

• IKT
  – Fx. Smartphone, insurance
Environment

Body
UD and Assistive Technology

- Assistive technology

- Gap model Triangle
  - Personal assistance
  - Individual facilitation
  - Group facilitation
  - Universal Design
Assistive technology

• “Hjelpemiddel”

• Perspective on “what is normal”?

• Footwear?
Universal Design and IKT

- HW
- SW
- Services
- Network
- Content (and tools for creating content, and tools for creating tools for creating tools etc....)
Actors - Interests

• User groups
  – Visual impaired, dyslectics +++

• Legislation - Society
  – National, International

• Standards
  – Fx WAI, WCAG

• Research Projects
  – Here: RHYME.no and e-me.no
Universal Design

• Universal Design
  – *universal* late 14c., from O.Fr. universel (12c.), from L. universalis "of or belonging to all," from universus "all together, whole, entire" (see *universe*). In mechanics, a universal joint (1670s) is one which allows free movement in any direction; in theology universalism (1805) is the doctrine of universal salvation (universalist in this sense is attested from 1620s). Universal product code is recorded from 1974.
And we are at a.....

• University
  – university c.1300, "institution of higher learning," also "body of persons constituting a university," from Anglo-Fr. université, O.Fr. universitei (13c.), from M.L. universitatem (nom. universitas), in L.L. "corporation, society," from L., "the whole, aggregate," from universus "whole, entire" (see universe). In the academic sense, a shortening of universitas magistrorum et scholarium "community of masters and scholars;" superseded studium as the word for this.
Universal Design and.....

• Inclusive design
• Barrier free design
• Design for all
• Access for all
• Design for diversity

• Participatory Design
• User centered Design
• Human centered Design
Principles of UD

The Center for Universal Design at North Carolina State University expounds the following principles:

1. Equitable use
2. Flexibility in use
3. Simple and intuitive
4. Perceptible information
5. Tolerance for error
6. Low physical effort
7. Size and space for approach and use
5 minutes....

- In Your project; what changes would happen if you include deaf, visual impaired and motor impaired uses?

- List 5 challenges and 5 opportunities
Rhyme, research project

- Co-creation through music and tangible interaction
- Users
- Situation
- Technology
- Rhyme.no
E-Me, research project

• Identity management

• Logging in/logging out

• e-me.no
Interaction with computers and telephones for all

• History of the telephone; Graham Bell

• The ”power” of the computer – multimodal/redundancy/mixed dialog systems

• Special products v.s general products
Redundant

- **redundant** 1590s, from L. redundantem (nom. redundans), prp. of redundare "come back, contribute," lit. "overflow," from re-"again" (see **re**) + undare "rise in waves," from unda "a wave" (see **water**).
Legislation

• International and National

• **Antidiskrimineringsloven: § 11 Obligation for the universal design of information and communication technology (ICT)**
  
  – Information and communication technology (ICT) refers to technology and systems that are used to express, create, convert, exchange, store, reproduce and publish information, or otherwise makes information useful. New ICT solutions that support the organization's normal functions and the main solutions directed at or made available to the public, should be universally designed from July 1st 2011, but no earlier than twelve months after the existence of standards or guidelines for the content of the obligation. For existing IT solutions, the duty from January 1st 2021. The duty does not include ICT solutions in which the design is regulated by other laws (…) (Lovdata.no, 2008).
Standards

• W3C: The social value of the Web is that it enables human communication, commerce, and opportunities share knowledge. One of W3C's primary goals is to make these benefits available to all people, whatever their hardware, software, network infrastructure, native language, culture, geographical location, or physical or mental ability: http://www.w3.org/Consortium/mission#vision, [downloaded 21.09.2011]).

• General applications – native

• How to measure against standards?
5 minutes...

• Think about criteria for ensuring universally designed services.

• Make a list of 5 criteria.
Idea - Practice

• At UiO for example?

• Why is it challenging?

• Developing services
  – Political campaigns on the net – for all?
History

• Developing of something for “extreme user groups” - benefit for all....

• Using IKT while driving – with speech recognition and speech interface?
Inspiration

Next to a leisurely walk I enjoy a spin on my tandem bicycle. It is splendid to feel the wind blowing in my face and the springy motion of my iron steed. The rapid rush through the air gives me a delicious sense of strength and buoyancy, and the exercise makes my pulse dance and my heart sing.

- Helen Keller, author and blind-rights advocate
Summary

• Why UD
  – Participate in society – for all
  – Democracy

• How
  – Legislation
  – Standards
  – Including users in research and development

• What
  – Services that can be used for most people/all
References:

• RHYME.no
• E-me.no
• Master Thesis at DUO
• PhD thesises at DUO