

Universal Design (UD)

Developing Assistive Technology

Fall, 2016

Origins of the Concept of Universal Design

- Ron Mace

- Architect, Product designer, Advocate, Polio survivor
- He coined the term "universal design" to describe **the concept of designing products and the built environment to serve the needs of people regardless of their age, ability, or status in life.**

(<http://www.udinstitute.org/mace.php>)

- As part of the project "Studies to Further the Development of Universal Design" (funded by the National Institute on Disability and Rehabilitation Research), The Center for Universal Design led the development of the Principles of Universal Design.



Benefits include, but are not limited to:

- availability of more usable products at regular prices and from existing local commercial sources
- unprecedented accessibility to public and commercial facilities
- improved access to services including services offered electronically
- a recognition that disability is part of the natural human condition- people with disabilities become customers and participants, not just patients, clients or service recipients

7 Principles of UD

1. Equitable use. The design is useful and marketable to people with diverse abilities.
2. Flexibility in Use. The design accommodates a wide range of individual preferences and abilities.
3. Simple and intuitive. Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level. Perceptible information.
4. The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

5. Tolerance for error. The design minimizes hazards and the adverse consequences of accidental or unintended actions.

6. Low physical effort. The design can be used efficiently, comfortably, and with a minimum of fatigue.

7. Size and space for approach and use. Appropriate size and space is provided for approach, reach, manipulation, and use regardless of the user's body size, posture, or mobility.

Examples

- HEWI railing system
 - https://projects.ncsu.edu/project/design-projects/sites/cud/content/Industrial_Design/HEWI_Railing_System/index.html
- Barrier free kitchen
 - https://projects.ncsu.edu/project/design-projects/sites/cud/content/Interior_Design/Barrierfree_Kitchen/index.html

Universal Design Process

- <http://www.washington.edu/doit/universal-design-process-principles-and-applications>