

Universal Design and the ICF

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**LIVING IN OUR ENVIRONMENT:
The Promise of ICF**

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Related Activities of the Rehabilitation Engineering Research Center on Universal Design and the Built Environment, 2005 – 2010

- **Develop low cost methods for measuring universal design (UD) effectiveness**
- **Develop benchmarks for effectiveness**
- **Develop evidence based guidelines and tie them to the ICF**
- **Survey state of the art in selected areas**
- **Involve stakeholders in developing guidelines**

Outline

- **An introduction to UD**
- **The relationship of the ICF to UD practice**
- **A “crosswalk” between the ICF and UD**
- **A method for developing that crosswalk**
- **The need to build a community of practice**

Key Points

- **UD is the new paradigm for environmental facilitation of preferred outcomes related to function, activity and participation**
- **UD is highly compatible with the ICF model**
- **A body of evidence for practicing UD needs to be assembled**
- **The ICF can be used to provide that body of evidence and guide research**
- **A crosswalk is needed to link the ICF and UD**
- **Participation of all stakeholder groups is desirable in developing the body of evidence**

Universal Design Defined



Kneeling low floor bus with ramp

The design of products and environments

- **...to be usable by all**
- **...without the need for adaptation or specialized design**

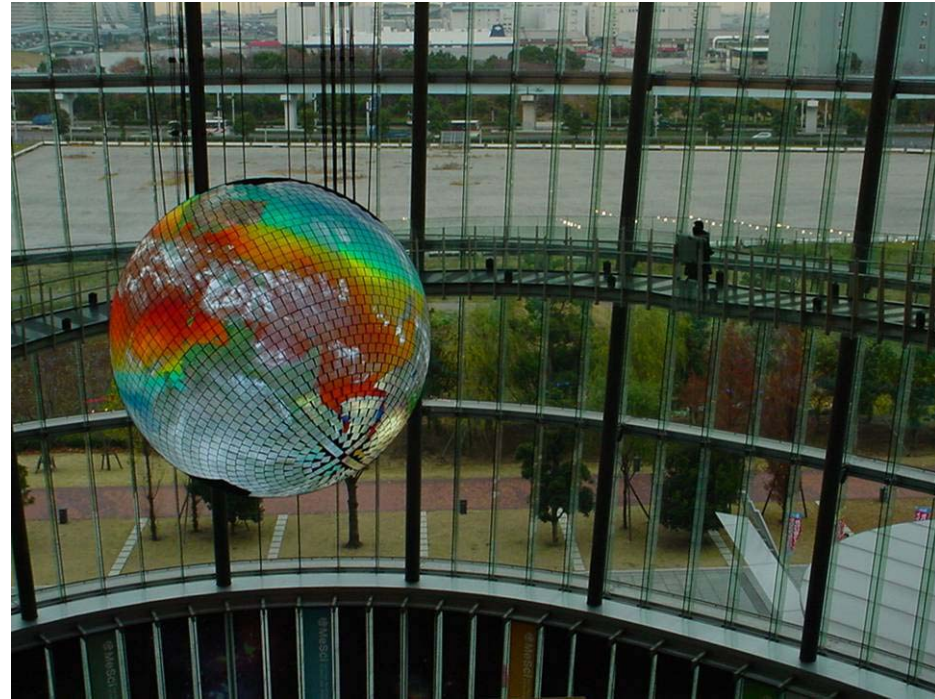
(Connell et al., 1997)

Recognizing Universal Design



- Not assistive technology and barrier free design
- Not just support of function
- Must address social participation – social identity, social roles, cultural fit
- Evolutionary approach that approaches the ideals of UD asymptotically

Recognizing Universal Design



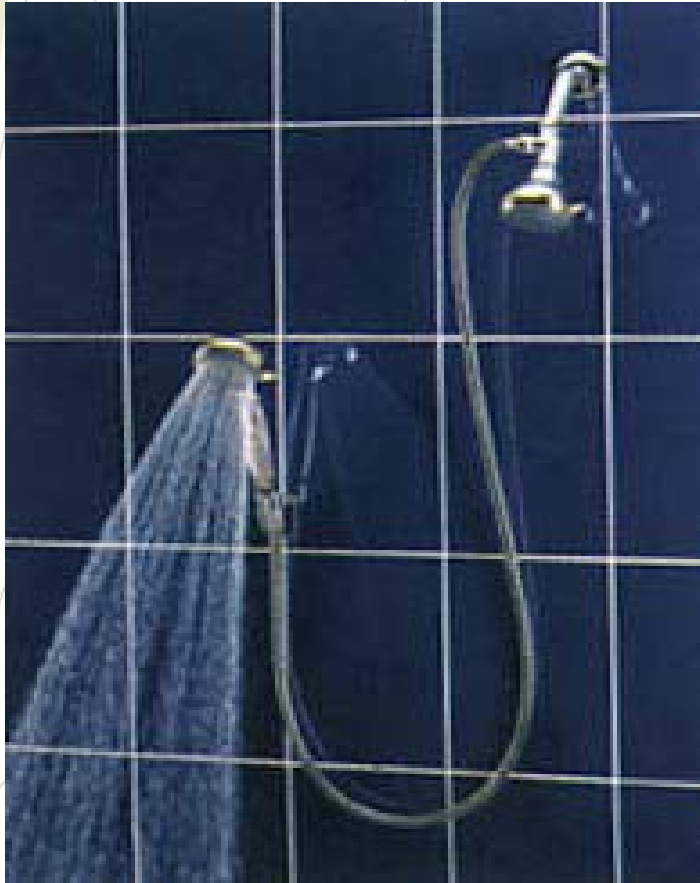
- **Evolutionary approach recognizing differences in context and resources**

Principles of Universal Design



1 Equitable Use

Principles of Universal Design



2 Flexibility in Use

Principles of Universal Design



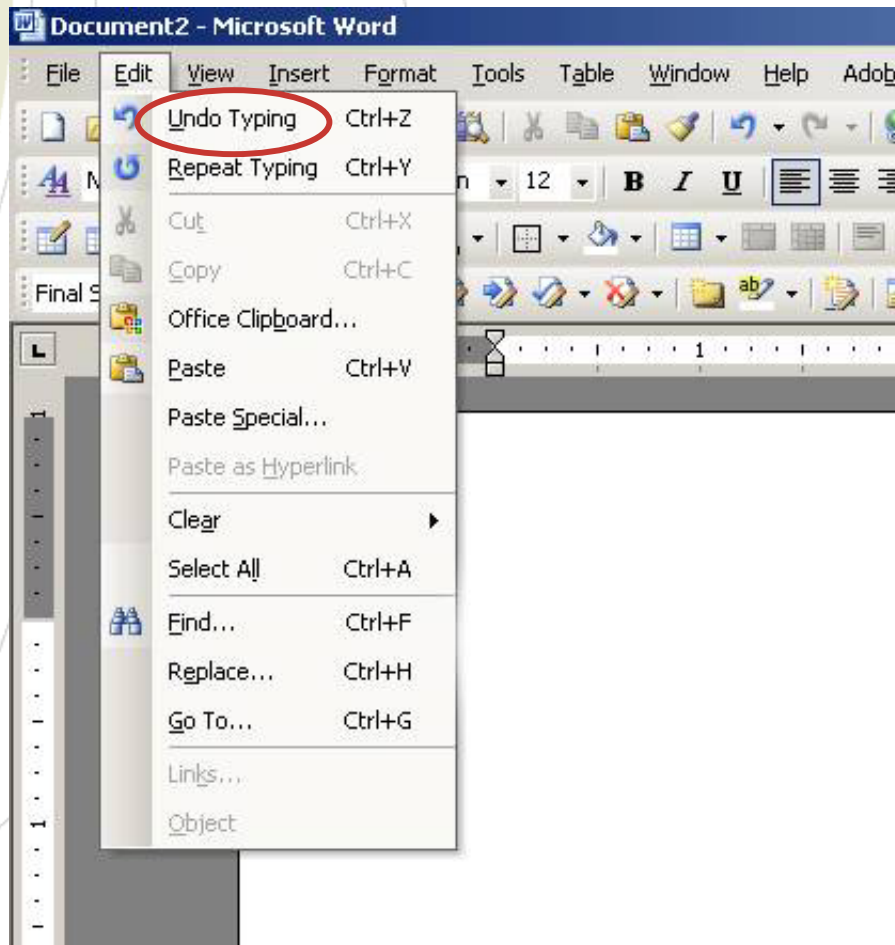
3 Simple and Intuitive Use

Principles of Universal Design



4 Perceptible Information

Principles of Universal Design



5 Tolerance for Error

Principles of Universal Design



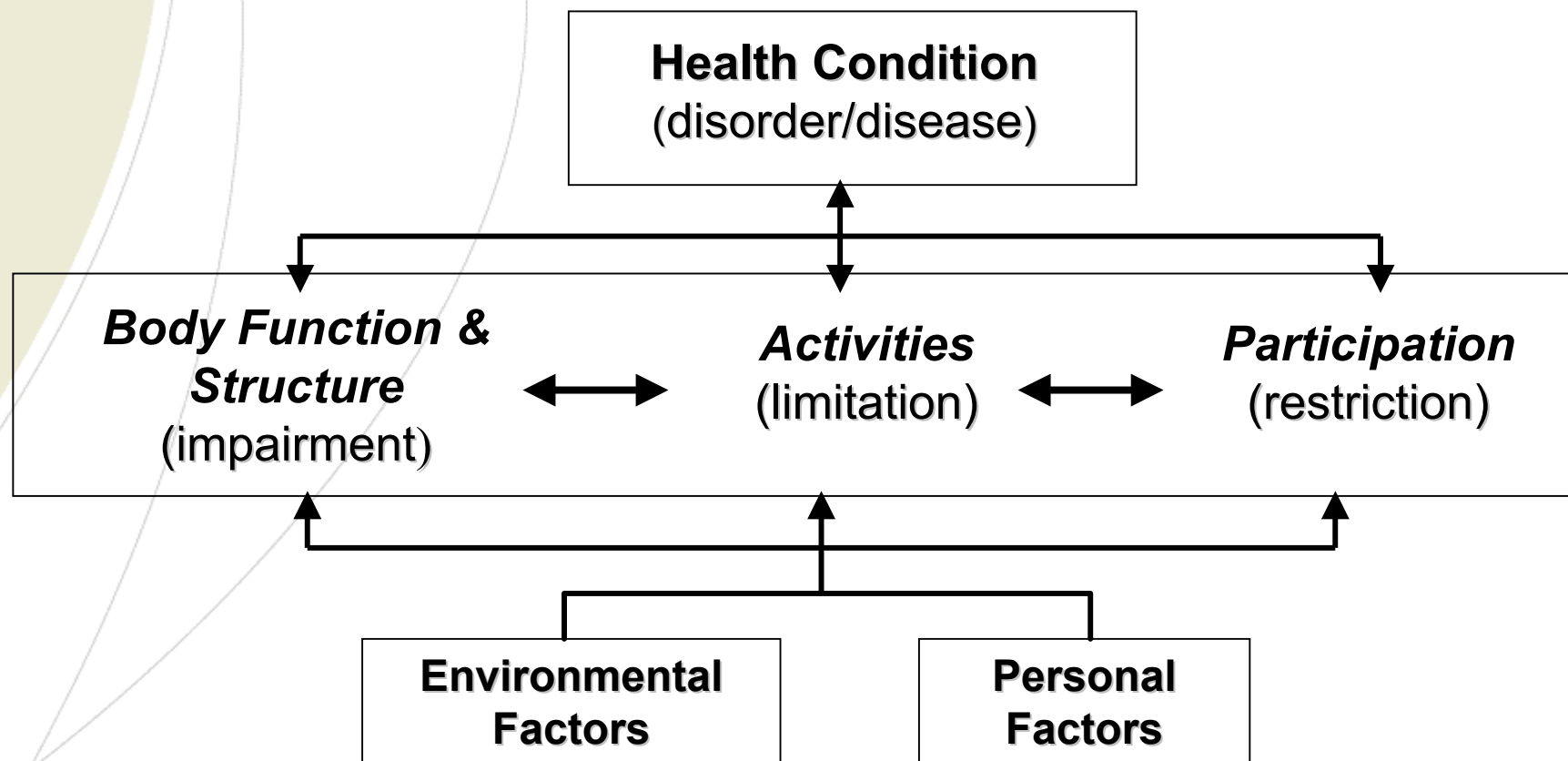
6 Low Physical Effort

Principles of Universal Design



7 Size and Space for Approach and Use

Compatibility



Principles behind the ICF *:

- Disability is a multi-dimensional notion, limitations are not necessarily caused by one factor, e.g. health condition, personal, or environmental factor,
- Disability is *interactional*, f (environment, person, condition)
- Disability is *universal*, all people have similar needs, etc.
- Functioning and disability are continuous, levels of severity
- Etiological and terminological neutrality, no assumptions related to specific diseases or other health conditions

* Bickenbach (in press)

Needs in evidenced based practice:

- Identifying the environmental factors related to UD
- Identifying the questions the designer needs to ask
- Finding the information needed to answer the questions
- Finding examples of best practices

Using the ICF to organize evidence for UD:

- **ICF is the international language about function and disability**
- **It facilitates multi-disciplinary communication**
- **It can be used to clarify the relationship between environmental factors, personal factors and outcomes (function, activities, participation)**
- **It can help link research to practice**
 - **For the practitioner - identify knowledge to apply to specific problems**
 - **For the researcher - identify research needs**

Example:

“e2500 Sound intensity”

Universal design need: *Design acoustic environment that ensures participation by older individuals at public meetings.*

Designer’s question: *What are the sound qualities needed for this population?*

Research knowledge: *Research on hearing perception among the older population.*

Evidence based guideline: *Reduce background noise to support conversation in public spaces where social interaction often takes place.*

Example:

“e430 Individual attitudes of people in positions of authority”

Universal design need: *To address negative attitudes of clients toward disability.*

Designer’s question: *What information or experiences can help convince clients to change their attitudes?*

Research knowledge: *Information on demographics, roots of negative attitudes, experiential methods to raise awareness, etc.*

Evidence based guidelines: *Identify typical attitudinal barriers and refer to methods for attitude change that can be adopted in practice.*

Limitations to Overcome:

- **Definition and principles of UD need to be reconciled with the ICF**
- **No method is available to search for answers to design questions and find best practices**
- **Some Environmental Factors are not well conceived for design practice, e.g. e2500 Sound Intensity is not sufficient to ensure an adequate acoustic environment**
- **Immediate needs:** Revision of UD's definition and principles; development of a crosswalk and an application method
- **Future:** Recommendations to improve the ICF's Environmental Factors

Redefining Universal Design

Definition:

- Incorporate function, activity and social participation
- Be explicit about the process of continuous improvement
- Accommodate cost and social difference

Principles:

- Focus goals on ICF outcomes – functions, activities and participation
- Develop guidelines for different domains
- Tie to a body of evidence – knowledge base of research
- Develop benchmarks to use as comparison - best practices

Redefining Universal Design

Universal Design of products, environments and systems is:

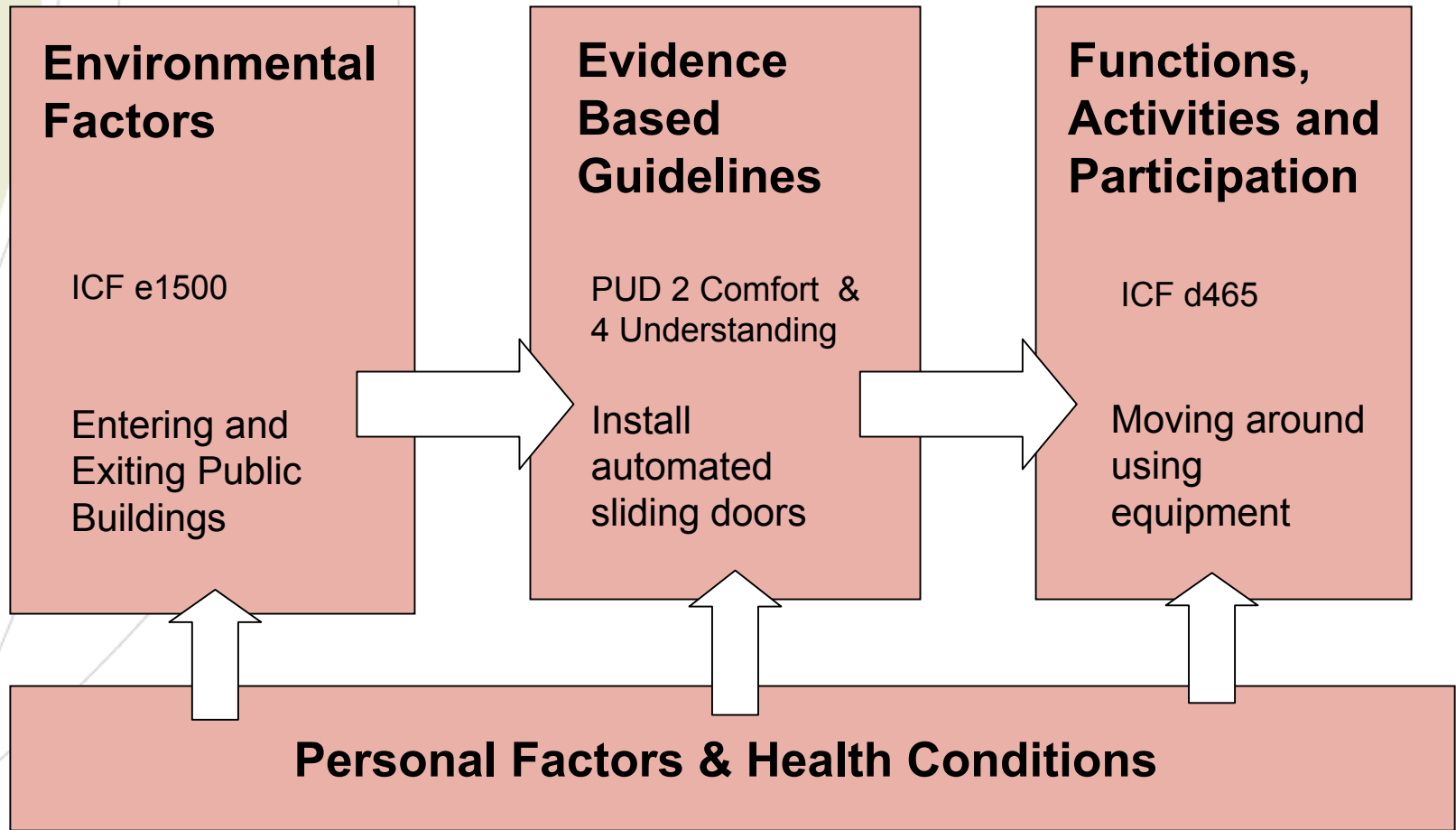
- a process of continual improvement
- to improve function, activity and participation for all users,
- and to extend those benefits to an ever broader population
- within the context of resources available.

Redefining Universal Design

Principles of Universal Design (Steinfeld, 2006)

1. **Body fit:** Accommodate people with the widest range of body sizes, postures and movement abilities
2. **Comfort:** Ensure that the physical demands for safe and effective use are within the comfort range of the widest range of people
3. **Awareness:** Make information needed for safe and effective use readily available in all necessary forms
4. **Understanding:** Ensure that the methods of operation and use are easily understood by all users
5. **Identity:** Support the construction of positive self image and social status for the end users
6. **Social integration:** Support effective participation by all and reduce barriers between user groups
7. **Cultural appropriateness:** Ensure that differences in cultural values and attitudes are respected

Crosswalk



Guideline Structure:

- 1. UD principle (design goal)**
- 2. UD guideline (environmental performance)**
- 3. Research evidence and confidence rating**
- 4. Best practice examples**
- 5. Commentary by experts and the public**

Interactive websites:

- Collaborative workplace for writing guidelines
- Setting for evidencing crosswalk connections
- Discussion area for evaluating guidelines and nominating best practices

Initial test with a focused project:

- Recruitment of a stakeholder expert panel
- Cycles of development by experts
- Delphi survey for rating confidence in the evidence
- Public forum for comment and validation of best practices

Community of Practice

Opportunities to contribute:

- **Volunteers for the expert panel who are knowledgeable about the ICF**
- **Suggestions and criticism of methods**
- **Review the interactive websites**
- **Publicize this effort**
- **Take on an assignment**
 - **Writing guidelines for selected Environmental Factors**
 - **Preparing state of the art reviews on evidence**
 - **Submitting best practice candidates**
- **Take ownership**

Contact

Center for Inclusive Design and Environmental Access (IDEA Center)

RERC on Universal Design and the Built Environment *



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UD & ICF