

UDDA

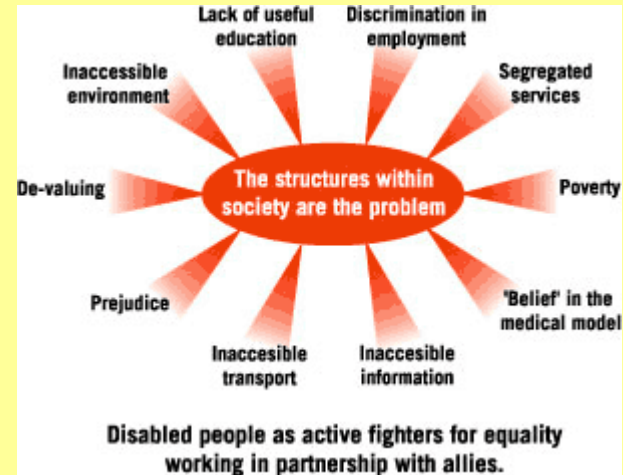
Universal Design – Design for Autism

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UGent, Faculty of Engineering
Hasselt (B), October 03, 2008

Copernican revolution



BFI, 2003 *Disabling Imagery* p.20
Earth-centred, 'Ptolemaic System'



BFI, 2003 *Disabling Imagery* p.21
Sun-centred, Copernican System

Shift from 'Medical Model' to the 'Social Model' is seen as a copernican revolution

Copernicus, N. (1543) De revolutionibus orbium coelestium (On the Revolutions of the Heavenly Spheres). Nuremberg

Samoy, E. and F.Lammertyn (1998), Sociaal beleid ten behoeve van mensen met een handicap: Leuven : Acco

Universal Design

Design approaches from an historical perspective



Throughout the ages : **DESIGN for AVERAGE USERS**,
Exclusive, misfits lead to “Adaptation de soi..” (Grosbois, L-P.)



Post War : **Design for average users + Additional categorial DESIGN for SPECIAL NEEDS.**



21st Century : **INCLUSIVE DESIGN or UNIVERSAL DESIGN, +...**
Inclusive, misfits call for “Adaptation à soi..” (Grosbois, L-P.)

- MICRO approach (treat-as-different)

- ‘Design for Special needs’

- ‘Wheelchair-Accessible Construction’, ‘Assistive Technology’, ‘Design for Special Needs’, ‘Barrier-Free Design’, ‘Inclusive Design’, etc. can be viewed as categorial design points of departure that are related to the medical model.
- More firmly anchored in the **European** ‘social-welfare culture’ (*Service-led*)

- MACRO approach (treat-as-normal)

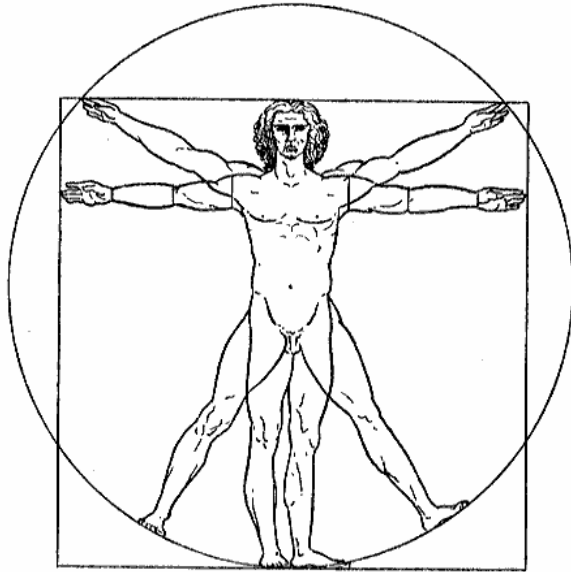
- ‘Design for All’

- ‘Universal Design’, ‘Designing for Everyone’, ‘Design for All’, etc. are names for the new design paradigm that anticipates the social ‘handicap situation’ model.
- In the **USA** the ‘self-help culture’ predominates (*Grievance-led*)

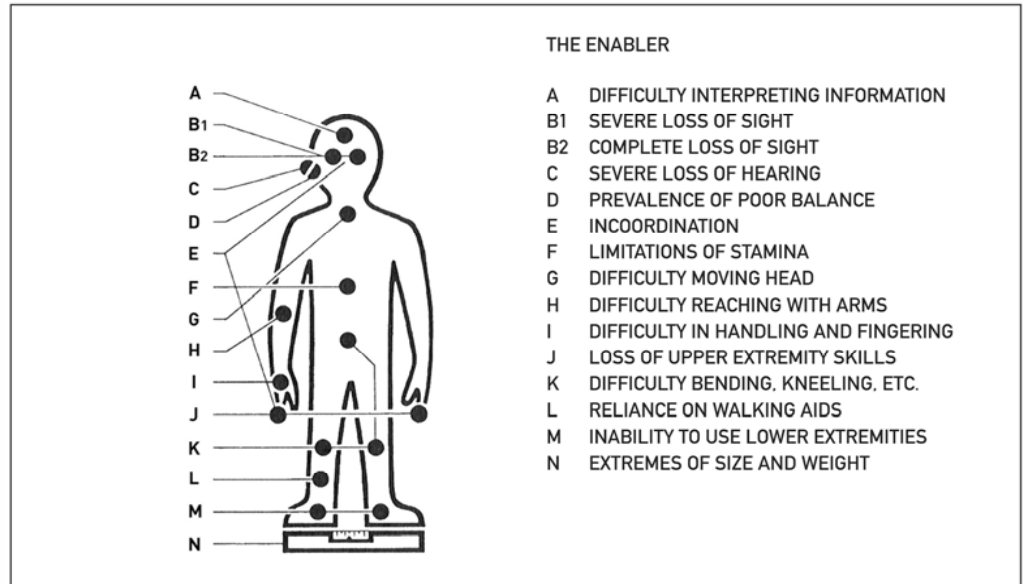
How can Design for Autism Spectrum Disorder (ASD) relate to Universal Design

or how can we proceed from

Design for Special Needs → Design for All



Leonardo Da Vinci's Vitruvian Man (1492)
(Wittkower, (1949) 1996)



Steinfeld, E., Schroeder, S., et al. (1979) Access to the Built Environment: A Review of Literature. Washington, DC: U.S.Department of Housing and Urban Development. Geciteerd in: Mueller, J. (2001) Office and Workplace Design. In Preiser, F.E.Wolfgang and Ostroff, Elaine, eds. (2001) Universal Design Handbook. New York: McGraw-Hill, 45.1- 45.11

In the epistemological fault zone that designers are currently traversing, the renaissance ideal of *designing for the universal person* is gradually being transformed into a post-modern goal of *universal designing for the variety of real people in real situations.*

Dumortier, D. (2002). *Van een ander planeet, Autisme van binnen uit.* Antwerpen / Amsterdam: Houtekiet

- Need to hold on to something when going up or down a staircase.

“Ik heb het ook lastig met overgangen. Plots een opstapje gaat niet goed. Ik kan niet goed zien hoe hoog of diep het is en moet me dan vaak vasthouden. (...). Zo moet ik me ook steeds vastklampen als ik de trap op of af wil.” (Dumortier, 2002, 57)

- Tactile information is of utmost importance

“Ik voel heel graag aan dingen. Het liefst zou ik aan alles voelen. Ik heb het gevoel dat ik iets pas ken en kan bevatten als ik het heb kunnen betasten. Het tactiele geeft me bijzonder veel informatie die ik op geen enkele andere manier kan verwerven en die voor mij zeer belangrijk is.” (Dumortier, 2002, 58)

Grandin, T. (1995). *Thinking in Pictures. My life with Autism*. New York: Vintage Books.

- Visual thinker
- “Fluorescent lighting causes severe problems for many autistic people (...)” (Grandin, 1995, 70)

Nazeer, K. (2006). Send in the Idiots. Stories from the other side of autism. New York: Bloomsbury

“ (...) local coherence” (Nazeer, 2006, 40)

Confer Magda Mostafa's 'Architectural Design Guidelines' in her PhD thesis.

(...) “27. Spatial organization according to sensory characteristics”

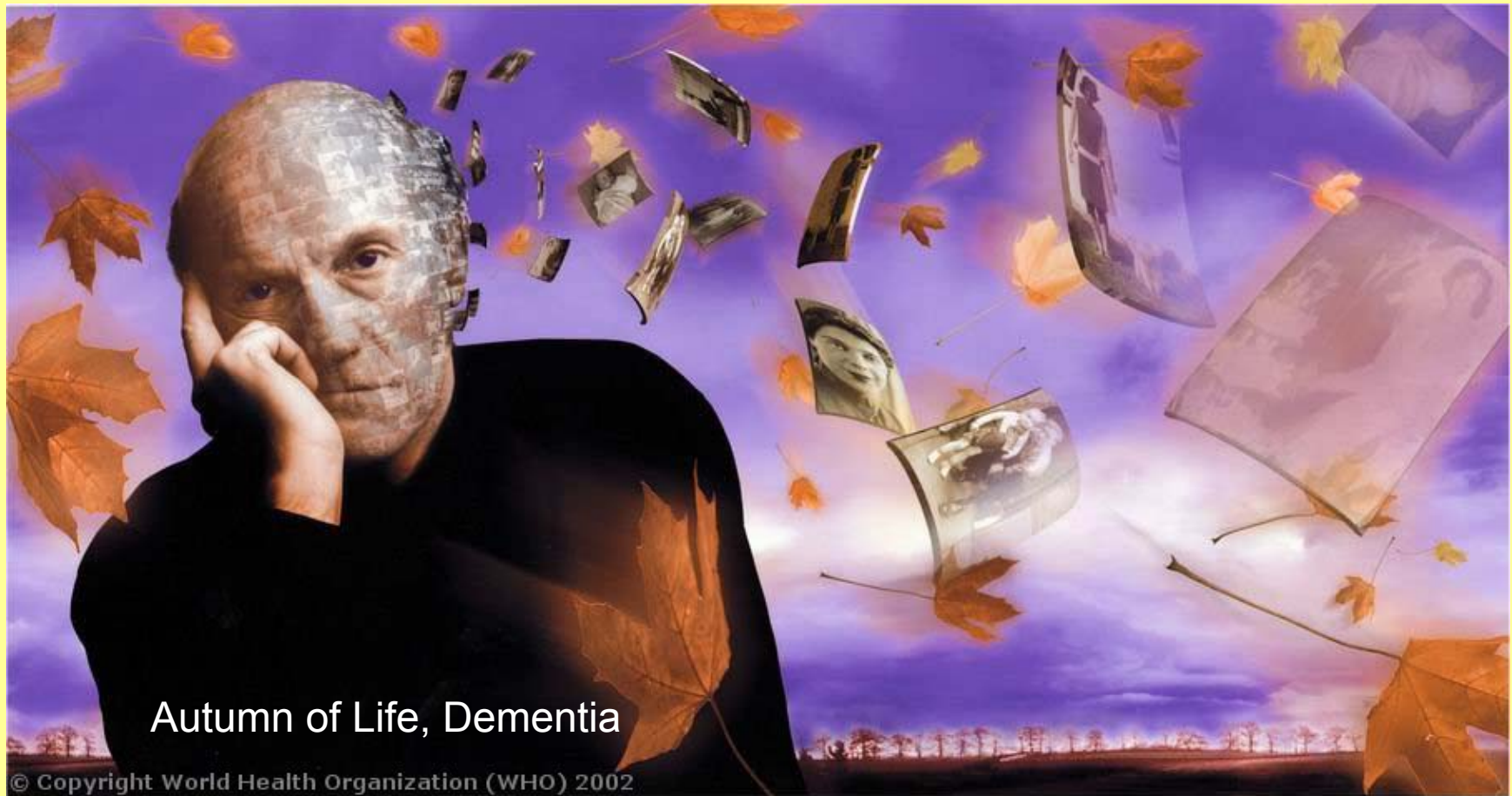
Appendix B: Architectural Design Guidelines generated by the Sensory Design Matrix (Mostafa, 2008, 210-211)

Mostafa, M. (2008). An architecture for autism : concepts of design intervention for the autistic user. Archnet-IJAR, International Journal of Architectural Research. Volume 2, Issue 1, March 2008, 189-211

Tammet, D. (2006). *Born on a Blue Day*.
London : Hodder & Stoughton

- High-functioning autistic savant
- “little Rain Man in each of us”

Daniel Tammet refers to the research of professor Allan Snyder, director of the Centre for the Mind (University of Sydney). Snyder believes that the autistic way of thinking does not fundamentally differ from the average way of thinking, it rather expresses itself in a more extreme variant. (Tammet, 2006, 53)



Autumn of Life, Dementia

© Copyright World Health Organization (WHO) 2002

“If one wants to understand what people generally feel in different environments, what better way to do this but to observe people with Alzheimer’s in those settings – their feelings are the same as others, just with less self-control.” (Zeisel, 2001, 8.2).

Zeisel, J. (2001). Universal Design to Support the Brain and its Development. In Preiser, F.E. Wolfgang and Ostroff, Elaine, eds. *Universal Design Handbook*. New York: McGraw-Hill, 8.1- 8.14.

- At the International Conference on Inclusive Outdoor Environments, held in Edinburgh in October 2004, John Zeisel described the treatment effects of healing gardens for Alzheimer's as a difficult thing to prove.
- He selects and describes three major overlapping design principles for the design of healing gardens for people with Alzheimer Disease (AD). These are: natural mapping (Norman, 1988); latent image elements (Lynch, 1960); and housing zones (Zeisel and Welch, 1981).

1. Naturally-mapped environments and objects (Norman, 1988) are those in which all the information needed for their use is designed into the object or environment itself. No instruction book, map or memory is needed to negotiate the environment or figure out how to make the object work.

Universal Design:

PRINCIPLE THREE: Simple and Intuitive Use

Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level

[[www.http://www.design.ncsu.edu/cud/about_ud/udnonenglishprinciples.html](http://www.design.ncsu.edu/cud/about_ud/udnonenglishprinciples.html)]

Norman, D.A. (1988). *The Design of Everyday Things*. New York: Doubleday / Currency.

2. Latent image elements (Lynch, 1960), defined by Kevin Lynch in his landmark study and book *Image of the City* of how taxi cab drivers organize information about cities in which they work. Latent image elements include :

Paths – Edges – Landmarks – Nodes – Districts.

These five elements appear to be central to the way the brain processes environmental place information. Research has shown that landmarks play a central role in how people organize mental information for way finding – to develop their cognitive maps.

Lynch, K. (1960). *The Image of the City*. Cambridge, MA: MIT Press.

3. Zeisel, in *Housing for Families*, defined the following housing 'zones' as natural organizing principles for residential settings.

Outsider public – Insider public – Front personal areas – Building edges – Building walls – Back stage areas – Insider public (back) areas – Back personal areas – Building edges (back).

Zeisel, J. and Welch, P. (1981). *Housing Designed for Families: A Summary of Research*. Joint Center for Urban Studies for MIT and Harvard.

UNIVERSAL DESIGN

PhD Research

In chronological order :

Hubert Froyen (PHL + UGent, Engin. Dept.)

Jasmien Herssens (PHL / UHasselt + K.U.Leuven)

Evelien Verdonck (PHL / UHasselt)

USERS

The Enabler

- A. Difficulty interpreting information
- B1. Severe loss of sight
- B2. Complete loss of sight
- C. Severe loss of hearing
- D. Prevalence of poor balance
- E. Incoordination
- F. Limitations of stamina
- G. Difficulty moving head
- H. Difficulty reaching with arms
- I. Difficulty in handling and fingering
- J. Loss of upper extremity skills
- K. Difficulty bending, kneeling, etc.
- L. Reliance on walking aids
- M. Inability to use lower extremities
- N. Extremes of size and weight



CONFLICTS

BUILT ENVIRONMENTS

1. Arrival at the station.
2. Transfer to the station building.
Functions of the station.
- staircases in public building
3. Transfer to the platform.
Waiting for the train.
4. Boarding the train.
5. Getting off the train.
Changing trains.
Further connections.
- travel information



RESOLUTIONS

RELEVANT FUNCTIONAL LIMITATIONS :
A, B, B₂, D, E, F, K, L, N

UD PATTERN Y₂

STAIRCASES IN PUBLIC BUILDINGS

RELEVANT FUNCTIONAL LIMITATIONS :
A, B, B₂, L, G, I, J

UD PATTERN W

TRAVEL INFORMATION

UD Patterns

***UD Patterns* provide relevant and well structured information about problems (CONFLICTS) experienced in handicap (disabling) situations by users, whether they have specific and permanent limitations or not, and related empirically supported Architectural / Technological Solutions (RESOLUTIONS).**

***UD PATTERN* model**

UD Pattern Y2 : Staircases in public buildings



- **Introductory paragraph with references to related UD Pattern(s) for which this specific UD Pattern serves as a supplement.**
- **Problem Definition (CONFLICTS)**
 - 0.0 Modal users (average, standard).
 - 1.0 Users with neuromusculoskeletal and movement related functional limitations.
 - 2.0 Users with sensory limitations.
 - 3.0 Users with organic illness.
 - 4.0 Users of exceptional size.
 - 5.0 Users with mental health problems.
- **Sources and results of empirical research**
- **Architectural / Technological solutions (RESOLUTIONS)**
- **Closing paragraph with references to related UD Patterns that supplement and round out this specific pattern**

UD Patterns 'Public Toilets'

- **UD PATTERNS: Public Toilets.** Away from home provisions and facilities.

UD Pattern 01.05 : (Semi-)ambulatory Toilet Stall. Personal Care



"Ambulatory" Toilet Stall.

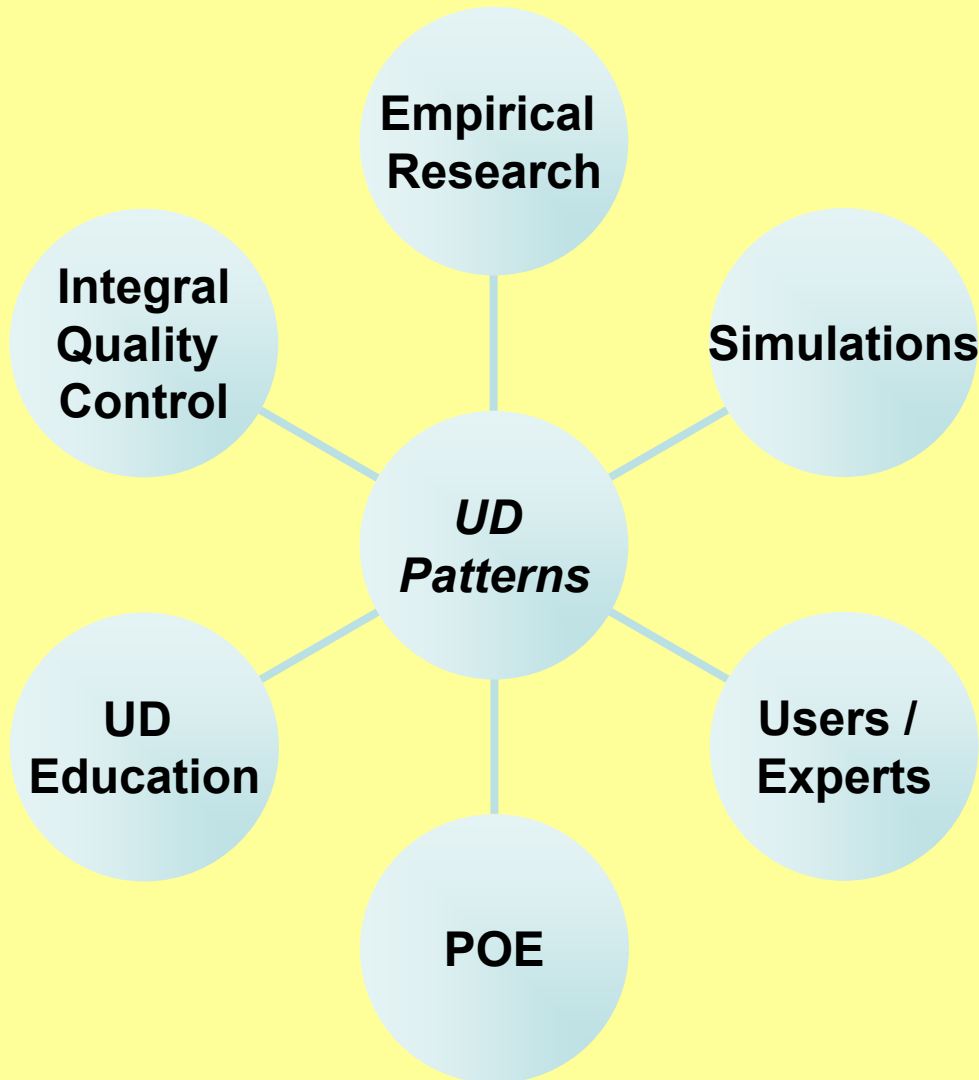
In U.S. Department of Justice. Disability Rights Section ((1997)
Common ADA Errors and Omissions in New Constructions and Alterations.
Washington, DC: Civil Rights Division, 8

- **Introductory paragraph with references to related UD Patterns for which this specific UD Pattern serves as a supplement.**

(etc...)

SEE ALSO 'Ambulant plus cubicle', *The Accessible Toilet Resource*, page 69

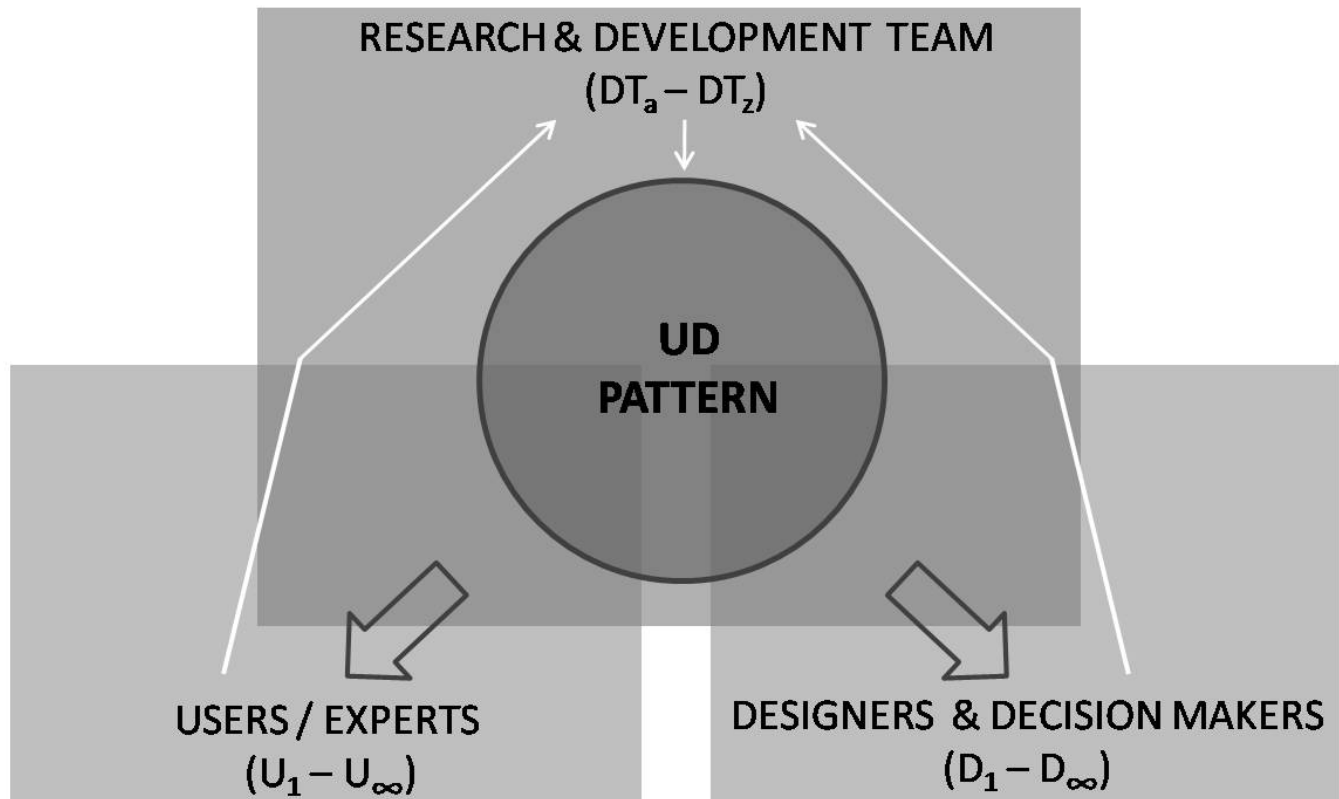
Overall methodological approach..



UD Patterns

We view such UD Patterns for the built environment not only as carriers of information, but also as Open Content (OC) forums and as tools in the on-going search for temporal social, academic and professional consensus.

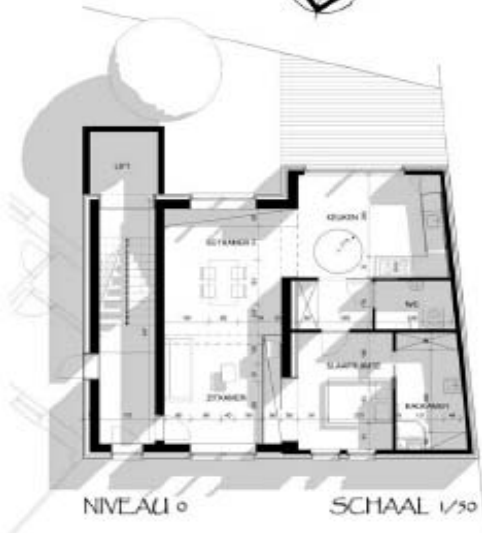
How are UD Patterns generated and permanently updated





PHL Campus, Department of Health Care, 'Oud Moederhuis', UD Lab

UD Lab



WOONLABO

PHILda 4AR 06.07

JANNA PIERAETS_KATRIEN VANDEVELDE

UDDA

Universal Design – Design for Autism

UD includes **DA** in the shared environment away-from-home, and adapts it to the needs and requirements of the diversity of people experiencing and using this environment

A ‘*perfect*’ built environment would be one that accommodates ‘*imperfect*’ users, under different circumstances and throughout the various stages of their lives.

THANK YOU

