

## ***En-abling Physical Environments. Prescriptive and descriptive approaches for Universal Design***

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### **ABSTRACT**

Universal Design is gradually becoming a global concept that represents integral and inclusive design for everyone. The concept of Universal Design has gradually acquired global significance in the social, the academic, and the professional field, and is now going mainstream. However there is not yet a methodological framework to structure underlying scientific investigation and to support related teaching. Thus, the objective of this paper is to discuss the en-abling physical environment, prescriptive and descriptive approaches for Universal Design from author point of view. The paper presents a variety of real people in real situations includes those with permanent functional limitations and those with temporary disabilities, due to illness, accident or pregnancy. It conclude that universal design or design for all, as a utopian construct, deeply rooted in human rights and in human search for comfort and elegance.

**Keywords:** Universal Design; En-abling physical environment; Prescriptive and Descriptive approaches.

### **INTRODUCTION**

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 relevant variety of real people in real situations*, thus also for people with permanent, temporary and / or situational functional limitations.

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**Figure 1.** Diversity Cartoon, Ton Bredeesen, Norway.  
(Source: *Norwegian Ministry of Local Government and Modernisation* (2014))

A variety of real people in real situations includes those with permanent functional limitations and those with temporary disabilities, due to illness, accident or pregnancy for example.

A special category, which is most relevant for decision makers and for designers, is the group with so-called ‘situational functional limitations’. The late Selwyn Goldsmith calls these users ‘architecturally disabled’, simply because from a medical perspective they are perfectly able-bodied, but *dis-abling* physical objects and environments prevent them from use or from access. An athletic young mother for example cannot enter the elevator with her double-wide stroller, because the limited width of the door. A building, product, service or system can be made fully *en-abling* by the elimination of all stressors, for all people, from its use. How can we systematically eliminate misfits (stressors) between people, young and old, and dis-abling physical environments? We can assist people in ADL (Activities Daily Living), we can provide rehabilitative devices, and we can re-design objects and spaces.

Personal assistance, assistive technology and ‘Design for Special Needs’ all fall under the heading Micro Approach and treat the people in the target group as ‘different’. These approaches can also lead to segregation and to stigmatisation.

A Macro Approach on the other hand, supported by ‘Design for All’ or Universal Design, entails mainstream production and treats the diversity of people as normal. Elegant Universal Design solutions can bring more comfort and can occasionally eliminate the heavy burden of stress and of stigma.

The utopian concept of ‘Design for All’ encompasses the classical medical categories of users with neuro-muscular-skeletal and movement

related functional limitations, those with sensory limitations, with organic illnesses, users of exceptional size, and also a growing number of people with mental health / psychological problems. But first of all the design concept includes the real diversity of (average, normal) people, and rather focusses on extrinsic ‘handicap situations’

The current demographic changes, and more particularly the aging population, very fundamentally challenge the way we’ve build our settlements up to now. Better social conditions, better food and, last but not least, the whole array of medical and technological innovations help people to grow older and to remain relatively active.



**Figure 2.** Old Woman / Old Man Dancing Shadows

Peter Laslett, in his book ‘A Fresh Map of Life’ states ‘Recent demographic and sociological changes have given rise to the comparatively new phenomena of the Third Age and the Fourth Age’. The doubling of the duration of human life and the appearance in the last decade or two of an active Third Age – before inevitable mental and physical decay in The Fourth Age – have fundamentally transformed the landscape of our contemporary society.

However, the process of decision-making and design in the field of urban design and architecture, has so far not anticipated the growing need for barrier-free and *en-abling* human-made physical environments for senior citizens. The majority of older people still prefer to continue living safely and happily in their existing houses and neighborhoods. Age-friendly cities specifically offer (equal) opportunities for a decent daily life, for social contacts, for tourist visits, for culture, and they reduce the need for (institutionalized) care.

Both concepts of ‘Design for All’ and of Universal Design are truly utopian of course. We can only make progress in the direction of these goals in a step by step process where we systematically stretch the fit between humans and physical environments. ‘Designing Architecture for More’ and universal *designing*, as an ongoing activity, are more realistic stepping stones.

Universal Design is gradually becoming a global concept that represents integral and inclusive design for everyone. Originally it focused on the built environment and the designs and appliances that take into consideration the current diversity of its users, limber or not, aurally and visually impaired or not, overweight or slender, more or less intelligent. This design approach also takes into consideration the future needs of people in terms of life cycle, and of temporary or (later) permanent function limitations, and ‘handicap situations’.

The Universal Design concept / paradigm has been further criticized and shaped in numerous local conferences and symposia, but specifically in the larger global UD conferences, with participants from all over the world who have contributed to an analysis of trends in the social, academic and professional perception of Universal Design.

After the very successful UD2012 Conference in Oslo, the Norwegian Delta Centre published ‘Trends in Universal Design’ It gives an anthology with global perspectives, theoretical aspects and real world examples, an inspiring analysis of recent cultural shifts in design thinking. Two years later, at UD2014 ‘Three Days of Creativity and Diversity’ in Lund (Sweden) the report was used in an interesting workshop, where the spotted trends were further analyzed and criticized.

Three major shifts were pinpointed:

- i. From politics / regulation, to INNOVATION
- ii. From accessibility to INCLUSION
- iii. From barriers to SUSTAINABILITY

A general conclusion might be that the concept of Universal Design (UD) has gradually acquired global significance in the social, the academic, and the professional field, and is now going mainstream. However we also see that there is not yet a methodological framework to structure underlying scientific investigation and to support related teaching. Legislation, in the form of prescriptive codes and standards guides the design practice and sets minimal standards, but it contributes little or nothing to the academic debate.

Legislation and standardization is of crucial importance though, and the new Malaysian Standard MS 1184:2014 has a much broader scope than pure ‘accessibility standards’. It has been adapting and adopting the ISO 21542-2011 and also other standards such as JIS, BS, Australian Standards etc. Most importantly the subtitle includes the utopian goal of Universal Design and reads: ‘Universal design and accessibility in the built environment - Code of practice’.

Several points in the 244 page text, and most explicitly in the annexes, extend to ‘requirements and recommendations to create a sustainable built environment which is accessible’.

See for example:

Annex B Human abilities and associated design considerations [157]

(...)

Annex D Fire safety and assisted evacuation for all in buildings [182]

(...)

Annex E Management and maintenance issues [185]

(...)

Annex H Design guidelines for elderly [208]

(...)

Annex J Design guidelines for family friendly facilities [215]

The first explicit accessibility legislation in Belgium dates back from 1975. For two major reasons this legislation has had little or no effect, first there was no specific control on premises ‘as built’ and secondly there were no sanctions for non-compliance with the law. Since the 1st of March 2010, a new legislation on the accessibility of public buildings has been introduced in Flanders (Belgium). From this moment on, accessibility has become a *condition sine qua non* to be evaluated when applying for planning permission.

In addition to the regulations ENTER (Governmental Center for Expertise in Accessibility) provides all necessary supplementary information to guide professionals during the design process. The new regulations aim to make public buildings more accessible and useful for everyone. It’s a mistake to assume that accessibility is only relevant for people with disabilities. In the end, everybody benefits from user-friendly, safe and comfortable built spaces. In addition to this, the European Union, the national and the local government all participated in the building of a Universal Design Housing Lab (Hasselt, Belgium), where concepts and details of adaptive housing are demonstrated.

The subject matter of the Belgian regulations is restricted to dimensions and facilities as specified in the building plan. Therefore an additional manual goes several steps further in order to ensure integral accessibility. It does so by explaining standards and recommendations more in detail and in design examples. The principles of accessibility are illustrated in case studies, pictures and sketches. The manual consists of seven main themes:

- i. Circulation
- ii. Parking
- iii. Building access and doors
- iv. Differences between levels
- v. Sanitary facilities
- vi. Interior areas and furniture
- vii. Signs and signalization

Each theme contains additional subtopics with specific recommendations. ‘Prescriptive approaches’, with laws and regulations, are of crucial importance of course in guaranteeing basic human accessibility rights, but these will not suffice... Critical thinking is required to draw rational inferences about design, from prescriptive rules that rather emphasize the *How-it-should-be-done*, but that don’t explain *How-it-affects-users*.

‘Descriptive approaches’ in contrast, are performance based, they require understanding, they honor architecture as a science-based art and emphasize full creativity (not just requirements), and multi-sensorial experience & elegance.

We firmly believe that certainly the *design education* process should be guided by a ‘Descriptive approach’ and subsequently our conclusions to this end all fall under the heading ‘Constructing a UD Culture’

## CONCLUSION

- i. Universal Design, in an educational setting, entails a return to the real world, to immediacy and to personal experiences away from abstraction. The academic world offers possibilities to act as SENSOR for social and economic realities and changes. Simultaneously it also provides space and time in its role as an INCUBATOR for innovation, for steps towards the shaping of a more human-friendly environment for all.

- ii. At the beginning of the 21st Century, no longer the technical question ‘Which techniques to use ?’, but the anthropological question should be central : ‘ What human-made (social / physical / virtual) environments do we want, how accessible, usable and enjoyable by all, in all circumstances and in all stages of life..?’  
The anthropological question at the heart, and the design of physical, social and virtual environments should be thoroughly Human-Centered.
- iii. Universal Design, or Design for All, as a utopian construct, deeply rooted in human rights and in human search for comfort and elegance, echoes the motto of the French Revolution: *Liberty, Equality, Fraternity* and by virtue of its ‘unattainability’ entails a constant need for regeneration in mentality, culture, dynamics, processes, ethics and in values.

## REFERENCES

- Froyen, H. (2008). Universal Design Patterns and Their Use in Designing Inclusive Environments. In Langdon, P., Clarkson, J., & Robinson, P., (eds.) *Designing Inclusive Futures*. (pp.249-260). London: Springer-Verlag.
- Froyen, H., and Verdonck, E. (2009). Patterns as tools for Universal Design. In Neis, H. and Brown, G. (eds.) *Current Challenges for Patterns, Pattern Languages & Sustainability, Fall August 2009 International PUARL Symposium*. (pp.59-64). Portland: PUARL Press.
- Froyen, H. (2012). Universal Design: A Methodological Approach. *A pathway to human-friendly and elegant architecture*. Boston: Institute for Human Centered Design.