



AALBORG UNIVERSITY
DENMARK

Aalborg Universitet

‘Frontrunners’ Understanding of Universal Design in Architecture

Grangaard, Sidse; Lygum, Victoria Linn

Published in:

Transforming our World Through Universal Design for Human Development

DOI (link to publication from Publisher):

[10.3233/SHTI220817](https://doi.org/10.3233/SHTI220817)

Creative Commons License

CC BY-NC 4.0

Publication date:

2022

Document Version

Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

Citation for published version (APA):

Grangaard, S., & Lygum, V. L. (2022). ‘Frontrunners’ Understanding of Universal Design in Architecture. In I. Garofolo, G. Bencini, & A. Arengi (Eds.), *Transforming our World Through Universal Design for Human Development* (Vol. 297, pp. 28-35). IOS Press. <https://doi.org/10.3233/SHTI220817>

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal -

Take down policy

If you believe that this document breaches copyright please contact us at vbn@aub.aau.dk providing details, and we will remove access to the work immediately and investigate your claim.

‘Frontrunners’ Understanding of Universal Design in Architecture

SIDSE GRANGAARD^{a,1} and VICTORIA LINN LYGUM^a

^a*Department of Built Environment, Aalborg University*

Abstract. In Denmark, the building sector is in a state of transition towards Universal Design (UD). Thus, UD has not yet completely found its way into the practice of architects and their clients. Legislation about accessibility has dominated. This paper studies understandings of UD through a discourse analysis based on a survey among professionals with experience and interest in UD and professionals who were expected to keep their fingers on the pulse of the profession’s development. The findings illustrate the existence of five discourses: 1) Social sustainability, 2) Re-instatement of humans as a focal point, 3) It is not just about ramps, 4) Equality, and 5) Giving a voice. Across the discourses there exists a genuine attempt to legitimise and mainstream UD into the architectural practice, focusing on multisensory and architectural quality in the design of spaces for human diversity in all scales.

Keywords. Discourse analysis, Social Sustainability, Universal Design

1. Introduction

There is a growing awareness of Universal Design (UD) and the inclusive aspects of architecture. In 2009, Denmark ratified the Convention on the Rights of Persons with Disabilities (CRPD) [1], where the concept of UD is defined in relation to usability.

In Denmark, the building sector is in a state of transition from accessibility towards UD [2]. For the last fifty years, the accessibility requirements have dominated to such an extent that the field of accessibility has been black boxed, resulting in a fixed understanding of users [3]. In 2018, the new Building Regulations (BR18) mention UD in a guideline about users without any introduction. Furthermore, BR18 maintains the prescriptive requirements while simultaneously literally erasing the word accessibility [4].

When a new definition of UD as a process was launched by two US researchers in 2012, few professionals knew of the concept of UD [5]. Some years later, the situation was similar in Denmark [2]. In European countries, including Denmark and Belgium, professionals have primarily had a limited understanding of the inclusive aspect of architecture, tending to associate it with care, e.g., hospitals and assisted living facilities [6], [7]. In Denmark, the focus has been on accessibility, which is understood among architects [6], landscape architects [8] and clients [9] as the Building Regulations and is primarily associated with wheelchair users and blind and partially sighted people.

¹ Corresponding Author, Sidse Grangaard, BUILD, Aalborg University, A.C Meyers Vænge 14, 2450 Copenhagen SV, Denmark; E-mail: sdg@build.aau.dk

According to Gramkow et al [8], landscape architects do not relate accessibility to the UN's Sustainable Development Goals (SDGs).

The situation in Sweden is different. A study shows that professionals with a relation to UD, i.a. architects, merge UD with accessibility. Accessibility is associated with requirements and guidelines for solutions that could be easily assessed. Guidelines are not only supportive, however; they can also be a barrier to creativity and innovation. UD, on the other hand, is associated with innovation and creativity, although some find the word universal problematic. In relation to the design process, they find that UD can support the initial state of the design process because it functions as 'a tool for ethical guidance'. Yet the situation is different in the rest of the process because UD seems to be too abstract and not suitable for practical solutions and evaluations [10].

Thus, it is understandable if the sector is confused and does not know how to understand UD. Someone must lead the way. Every professional field has its share of pioneers, professional stars and powerful actors keeping their fingers on the pulse of change – actors that the rest of the field looks up to or is inspired by. Such 'frontrunners' lead the way. The research question of this paper is: how do these 'frontrunners' understand UD?

This paper presents a preliminary discourse analysis of the understanding of UD among Danish 'frontrunners' across scales in the realm of architecture: urban space, buildings, and landscapes. The way they talk reflects the meaning they ascribe to the concept of UD and will thus have an impact on how the rest of the Danish sector will consider UD in the future.

2. Discourse theory

A discourse is "*a particular way of talking about and understanding the world (or an aspect of the world)*" [11, p.1]. Discourse analysis can be a useful method when we want to study how UD 'frontrunners' talk about UD and what understanding of UD they identify themselves with. Discourses create representations of reality. These representations are not just reflections or mirror images of the existing reality; they also contribute to the creation of reality, comprising knowledge and identity [11].

There exist many positions in discourse theory. Our analysis is based on the concepts of Laclau and Mouffe to map the fixation of meaning in a discourse. Thus, discourse is centred around a nodal point that characterises the discourse and its identity. A nodal point does not stand alone, but is articulated by a chain of equivalence composed of elements or signs that are transferred to moments when meaning is ascribed to them in relation to the nodal point [11]. In the analysis, we have focused on presenting the nodal points and their chains of equivalence.

3. Research design

Empirically, the paper is based on a questionnaire with open-ended questions. The strategy for the selection of respondents is information-oriented, focusing on paradigmatic [12] professionals: frontrunners. 25 Danish 'frontrunners' were invited in the autumn of 2021. They were selected based on either professional reputation as e.g. chair of an architectural organization or their stated interest in UD and experience with UD in a Danish context e.g. completed projects or initiatives focusing on UD. We

received answers from 16 'fronrunners' (Table 1), 15 of which were from the field of UD.

Table 1: Overview of the 'fronrunners'.

ID	Gender	Role
R1	F	Architect; architectural firm
R2	M	Landscape architect, Founding partner + chair of a professional organisation
R3	M	Architect, founding partner of an architectural firm
R4	M	Urban planner; municipality
R5	F	Constructing architect; architectural firm
R6	F	Landscape architect; architectural firm
R7	M	Landscape architect; architectural firm
R8	M	Client; central administration
R9	M	Client consultant; property asset management consultancy
R10	F	Project architect; architectural firm
R11	F	Project manager, Self-endowed philanthropic association
R12	F	Head of wayfinding and place activation; design agency
R13	F	Consultant and co-founder of an urban design consultancy
R14	F	Assistant general manager; professional organisation
R15	F	Universal design consultant; founder of consultancy
R16	F	Architect, founder of an urban design consultancy

The survey comprised four questions: 1) How do you work with UD in your practice? 2) Why do you think it is relevant to work with UD? 3) What do you see as the biggest hindrance for creating an inclusive architecture? and 4) What do you wish or dream that everybody in the sector knew about UD?

4. Results: Five discourses about UD

In this part of the paper, we present the discourse analysis of the interviews, which extends beyond individual responses. These discourses defined identities using the dominant qualities that the 'fronrunners' ascribed to UD. They clustered around five different nodal points that we have identified: 1) Social sustainability, 2) Re-instatement of humans as a focal point, 3) It is not just about ramps, 4) Equality, and 5) Giving a voice.

4.1. Social sustainability

It was clear that UD was seen as a key to creating social sustainability. Thus, social sustainability was a nodal point that had a chain of equivalence containing SDG2030 and the value 'Leave No One Behind' (LNOB) as concepts equivalent to UD.

Other moments in the chain were 'the material and sensory aspects of architecture', which were emphasised both as a driver of design and as a part of the design strategy to create experiences for users without incurring extra costs: "*If UD is an integrated part of our design strategies, it would feed into a more material, sensory and sustainable architecture. It does not have to cost more – it should merely become a permanent part of our design thinking.*" (R1). It was considered a part of socioeconomics as well:

"It is not more expensive to do it smart from the beginning - and not at all seen in relation to what each person and society can gain." (R11)

The sensory qualities were made equivalent to UD emphasising 'aesthetics': "*UD is not equal to bad aesthetics. You do not have to compromise.*" (R12) They also pointed to the architectural experience: "*It is not only about making it possible to move from a to b or creating enough space. The actual experience is what we should frame.*" R6

It was problematised that most architects do not understand what it is like to be marginalised or stand outside the norm. Empathy and an in-depth analysis of user needs were described as essential to the UD approach and thus the creation of an inclusive environment. Hence, 'the human experience', 'knowledge' and 'empathy', were all parts of the chain of equivalence.

This discourse was about mainstreaming UD into the architectural mindset and practice under the umbrella of social sustainability.

4.2. Re-instatement of humans as a focal point

This discourse was related to the previous discourse 'Social sustainability' because their chains of equivalence shared a moment. The common moment was the idea of 'the sensory and material aspects of architecture'. Additionally, mindsets about 'diversity' and 'inclusion', along with 'a holistic mindset', were described as qualities of UD in a context of cultural heritage, preservation and restoration.

"UD does reason well with the human presence and the great richness of materials, processing of materials, and details that exist in pre-modern architecture." (F8)

Years of regulative rules about sizes and designs had deprived architects and designers of possibilities for training bodily empathy and insight into our physical environment. This had, along with mass production, synthetic materials, and standardisation, contributed to an increased rigidity and narrowness of possible solutions, which resulted in a distance to objects and surroundings that we meet in our everyday life. Thus, the nodal point of this discourse was 're-instatement of humans as a focal point'. UD was seen as a solution to the problem of modern architecture since UD expanded ways of working with the relationship between people and their physical surroundings.

Likewise, in this discourse, a kind prejudice about UD was disproved when UD was described as a mindset that was liberating rather than limiting. Therefore, 'liberating' was a moment in the chain of equivalence.

"It [UD] fosters a common realm of understanding and connections between the different scales within the design of our physical surroundings. And it contributes to the re-instatement of humans as a focal point for the design of our physical surroundings." (F8). This discourse was about a revival of forgotten architectural virtues focusing on the human body.

4.3. It is not just about ramps.

The nodal point of this discourse was "It is not just about ramps". In this discourse, an effort was made to distance UD from accessibility and to describe UD as something more than the accessibility defined in the Building Regulations:

"It is not just about ramps, handrails, and lifts. It is also about organising buildings and outdoor space. It is about integrating light, shadow, acoustics, and tactility so we can show consideration for those people who are somehow challenged in their physical capability or have cognitive challenges that make it difficult to obtain a good everyday life at work, in school or in daycare." (R14)

Thus, 'integration of sensory architecture' was a moment in the chain of equivalence. A need for knowledge was significant for this discourse. Again and again, it was stressed that more knowledge was needed in general and in relation to groups of professionals. A more-thorough understanding of users' diversity was requested, along with knowledge about barriers, users' needs and UD as a concept, as well as factual knowledge about design parameters. There was a focus on the need for operationalisation of UD in this discourse; thus, 'operationalisation' was a moment in the chain of equivalence.

This discourse suggested that UD was about a new kind of design that did not cost more but would require an awareness of the mindset and potentials among all professionals involved. 'Awareness' was a moment of the chain of equivalence.

This discourse was about operationalisation of UD, emphasising with the nodal point 'it is more than ramps' that UD was different from accessibility.

4.4. Equality

The concept of equality was a keyword used by respondents to characterise the relevance of UD and what they wanted the sector to know about UD. Thus, this discourse had equality as nodal point.

"The people that use the buildings have very different abilities that cannot be predicted. Here, equality is an essential element. UD ensures that most people experience the architecture equally, without some being displayed as a person with 'special needs.'" (R3). Equality was related to and understood as a basis for a democratic society and a democratic city.

The mindset of UD was seen as productive for the work with architectural projects because of its focus on all users and their needs – physical as well as mental. This discourse separated accessibility from UD and wanted to maintain the difference: *"It is essential to brand the concept of UD so that it becomes a concept that distances itself from 'disability accessibility' and focuses on people as a broad group."* (R3)

Other moments in the chain of equivalence were 'integrated solutions' and 'a focus on UD from the start'. The latter was common to the discourses 'Social sustainability' and 'It is not just about ramps'. In this discourse, the focus was on 'integrated solutions' as one of the project requirements, on equal terms with social, aesthetic, biological and technical aspects. 'Project requirement' was a moment in the chain of equivalence.

This discourse with the nodal point 'Equality' was about integrating UD in the process and the solution from a perspective of equality.

4.5. Giving a voice

This discourse was about giving a voice to minority perspectives to obtain equal possibilities for everyone. Thus, the nodal point was 'giving a voice'. UD was a basic premise for the planning of inclusive urban spaces in terms of age, culture, social status, ethnicity, gender and disability – mental as well as physical.

'Inclusion' was a moment in the chain of equivalence and was understood as a social, mental and physical accessibility. The experience of accessibility on a profound level was emphasised. Here it was not merely a question of creating physical access for everybody – that was taken for granted – but it was about making the city open for different kinds of people in relation to social acceptance: *"For me inclusion is about giving a voice to the ones that normally not have been heard."* (R13).

Attached to this nodal point was the moment about an inclusive process involving different minority groups: "*Our way of working with UD in design and building projects is based on involvement of minority perspectives from e.g. women, ethnic groups, citizens with mental and physical disabilities, vulnerable citizens, children and youth.*" (R16). It was emphasised that it was about ensuring diversity of the voices being heard by creating various opportunities for these voices to speak and be heard. There was hope that such an inclusive process could become a part of a common practice based on an awareness of one's own situation and privileges; then it would become easier to determine who had not been heard. 'Awareness of one's own situation and privileges' was a moment in the chain of equivalence, but it was related to the social sustainability discourse.

'Feminist urbanism' was also connected to UD: meeting the needs of women in the design of towns and urban space would create a space that would function for everyone. Feminist urbanism was a moment in the chain of equivalence. Here, this discourse touched an existing discourse that doubted the benefits of feminist urbanism for the general public.

This discourse was about involving minorities in urban planning processes, giving them a voice.

In summary, the analysis resulted in five different discourses of UD (Table 2) that showed how the frontrunners identified themselves with UD and the meaning that was ascribed to UD with their chains of equivalence.

Table 2: An overview of discourses and chains of equivalence.

Discourse	Chain of equivalence
Social Sustainability	'SDG2030', 'Leave No One Behind', 'material and sensory aspects of architecture', 'design driver', 'aesthetics', 'human experience', 'knowledge', and 'empathy'.
Re-instatement of humans as a focal point	'Material and sensory aspects of architecture', 'diversity', 'inclusion', 'a holistic mindset', 'liberating', and 'human'.
It is not just about ramps	'Integrated sensory architecture', 'knowledge', 'operationalisation', and 'awareness'.
Equality	'UD mindset', 'integrated solutions', and 'project requirement'.
Giving a voice	'Inclusion', 'inclusive process', 'awareness about one's own situation and privileges', and 'feminist urbanism'.

5. Discussion

In the discussion, we will first focus on our contribution in relation to existing literature and then on the implications of the five discourses in relation to dissemination of UD within the building sector.

5.1. Another take on UD

Across the discourses, there was an understanding of UD as being about all kinds of architectural spaces, and not just buildings for care, as previously understood [6,7]. The discourses 'Equality' and 'Giving a voice' emphasised the scale of town planning as relevant in relation to UD. In general, all the discourses were based on an awareness of human diversity while pointing out a need for more knowledge about users' needs. Furthermore, 'Social Sustainability' and 'Giving a voice' problematised the privileged position of architects who had never been marginalised. Thus, these discourses emphasised empathy and the involvement of users.

Another finding contrary to [10] was that none of the discourses equated UD with accessibility. The discourses 'It is not just about ramps' and 'Equality' distanced themselves from accessibility by pointing out differences, while the discourse 'Giving a voice' was not afraid to use the concept of accessibility and understood it in a much broader sense, encompassing both social and mental aspects.

One element that linked most of the discourses together was the sensory and material aspects of the architecture. These aspects were associated not with regulation, but with architectural quality. None of the discourses understood UD as one specific solution for everybody, or reacted to the word 'universal', as argued elsewhere [10]. Instead, they focused on the relationship between humans and architecture, acknowledging that UD can recreate a stronger connection between humans and architecture in relation to senses, scale and perception. The discourse 'Re-instatement of humans as a focal point' criticised modernistic architecture for forgetting the humans using the spaces.

The discourse 'Social Sustainability' emphasised UD as a design driver. Nearly every discourse was about the necessity of thinking of UD from the start of a project – also in order to ensure that UD would not cost more. The discourse 'It is not just about ramps' seemed to find UD too abstract for operationalisation.

UD was indeed understood as a kind of ethical guidance as the Swedish study [10] points out. Especially the discourses 'Equality' and 'Giving a voice' were clear about this aspect, but so was 'Social Sustainability', which recognised the value of LNOB. They wanted to create spaces designed to contribute to quality of life for everyone, and especially for vulnerable users.

5.2. Implications

We can speculate that the adoption of UD will advance. In general, UD was understood by the 'frontrunners' as a mindset that was interesting from an architectural point of view, regardless of scale, due to the focus on the creation of architectural and multisensory experiences. This tendency could be understood as a kind of legitimization of UD, because when it is about multisensory experiences and aesthetics, it is accepted. It could also be seen as a kind of rediscovery – indeed, Mace also focused on aesthetics [13], but this was not integrated in the definitions from 1997 [14] or 2006 [1], where the focus was primarily on usability.

In the literature, social sustainability is hardly mentioned as a framework for UD, e.g. [6]. Understanding and articulating UD as social sustainability, together with the SDGs and LNOB, is a rather modern take on UD, and may be a crucial lever for UD. Furthermore, the relation to the SDGs can be particularly beneficial, as no one is opposed to the SDGs in the Danish context.

The eagerness about operationalisation of UD that 'It is not just about ramps' represented could result in a simplification of UD, where it loses its broadness and just becomes a new version of the accessibility, we know from the Building Regulations.

The discourse of 'Equality', however, emphasised a value that everybody can relate to. This may be constructive on a strategic level in relation to different actors. As a value that can be articulated throughout the entire process [9] and combined with 'Giving a voice' to minority groups by involving users, it could create a new dynamic in the dialogue between client and architect.

The discourses demonstrate ambitions for an architecture of high quality, designed for everyone and based on empathy and an interest in users that has not been identified

before. A strength of the study is that it has given us a unique overview of the Danish UD field however a weakness is that the study only is concerned with the Danish context.

6. Conclusion

The discourse analysis of the 'frontrunners' 'answers to the questionnaire reveals five different understandings of UD. One was about mainstreaming UD into the architectural mindset and practice under the umbrella of social sustainability, thinking of UD as a design driver. The second saw UD as a revival of forgotten architectural virtues due to the focus on the human body and its scale. Operationalisation of UD was the main theme in the third discourse, pointing out that UD was not just about ramps. The fourth was about integrating UD in both the process and the solution from a perspective of equality, while the final discourse was about involving minorities in urban planning processes, giving them a voice.

Despite their differences, the discourses presume that UD accommodates all kinds of human diversity, is relevant in all scales and should be integrated into the process from the start. Another general theme is the interest in qualifying the design through knowledge about the users and their needs. With all of these committed people working to establish UD as a self-evident part of architectural design, focusing on equality and multisensory experiences for everyone, the future of UD looks bright.

References

- [1] United Nations. *Convention on the Rights of Persons with Disabilities*. New York: United Nations. 2006.
- [2] Grangaard, S. How to communicate Universal Design to Architects on a New Website? A Reflection on the Type of Knowledge Requested. *Universal Design 2021: From Special to Mainstream Solutions, Studies in Health Technology and Informatics*, 2021, pp. 301-314.
- [3] Grangaard, S. & Gottlieb, S. Opening the Black Box of Accessibility Regulation. In Lill, I. & Witt, E., editors, Volume 2, 10th Nordic Conference on Construction Economics and Organization, Emerald Reach Proceedings Series: Emerald Publishing Limited, vol. 2, 2019, pp. 365-370.
- [4] Steinfeld, S. & Maisel, J. *Universal Design: Creating Inclusive Environments*. John Wiley & Sons, Inc., Hoboken, New Jersey, 2012.
- [5] Building Regulations. <https://byggningsreglementet.dk/> visited March 2022.
- [6] Grangaard, S., Frandsen A.K. & Ryhl, C., *Analyse af de gældende regler om tilgængelighed i Bygningsreglementets*, SBI 2016:31, Statens Byggeforskningsinstitut, Aalborg Universitet, København, 2016.
- [7] Van der Linden, V., Dong, H. & Heylighen, A. 'From Accessibility to Experience: Opportunities for Inclusive Design in Architectural Practice', *Nordic Journal of Architectural Research*, vol. 28, no. 2, 2016, pp. 33-58.
- [8] Gramkow, M.C., Merit, M. & Stigsdottir, U.K. "With a good solution you won't need a disability sign": A qualitative study on how Danish Landscape architectural firms understand and work with accessibility. *Archnet-IJAR: International Journal of Architectural Research*, 2022, ahead-of-print.
- [9] Grangaard, S. Clients' Approach to Universal Design – a Slow Change? Craddock, I.G., Doran, C., McNutt, L. & Rice, D., editors, *Transforming our World Through Design, Diversity and Education: Proceedings of Universal Design and Higher Education in Transformation Congress 2018*. IOS Press. *Studies in Health Technology and Informatics*, Vol 256, 2018, pp. 706-715.
- [10] Erdtman, E., Rasmus-Gröhn, K. and Hedvall, P-O. "Universal Design as Guiding, Striving and Unifying: A Qualitative Study about how Universal Design is Understood, Practised and Realised in Contemporary Sweden." *Scandinavian Journal of Disability Research*, 23(1), 2021, pp. 158–168.
- [11] Phillips, L.J. & Jørgensen, MW. *Discourse Analysis as Theory and Method*. SAGE Publications, 2002.
- [12] Flyvbjerg, B., Five Misunderstandings about Case-study Research, *Qualitative Inquiry*, vol. 12, no. 2, 2006, pp. 219-245.
- [13] https://projects.ncsu.edu/ncsu/design/cud/about_us/usronmace.htm Visited March 2022.
- [14] https://projects.ncsu.edu/ncsu/design/cud/pubs_p/docs/poster.pdf Visited March 2022.