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# Design(*ing*) for more – towards a global design approach and local methods

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## **Abstract**

The general terminology regarding inclusive design is not always as inclusive and global compared to its goals and ambitions. Design thinking often struggles with this confusion. Universal Design (UD), Inclusive Design (ID) and Design for All (DfA), are synonyms for design and designing with attention for inclusion. The terminology and definitions are various and it is not so clear how to interpret inclusive design during the design process. Theoreticians and practitioners often consider it in a different way. These differences may stimulate design confusion. This paper gives a historical and theoretical overview of the global terminology and zooms in on different views upon the implementation of inclusive insights during the design process. The idea is raised that we need a global inclusive design attitude as well as descriptive local design methods that can change according to the specific social, cultural, cognitive and physical features of the actual place and context. Without the need for new terminology, a global attitude with local methods is intended in order to obtain more sustainability in every respect.

## **Keywords**

design terminology, global approach, local expertise, history, design attitude, method, Universal Design, Design for All, Inclusive Design

## **Introduction**

This paper outlines the common objectives and related terms on inclusive design from a theoretical and historical point of view. It presents an overview of the 'global' terminology used in the context of inclusive design. Based on literature study the theoretical analysis of the definitions is linked with its historical context and with insights in design thinking and current global objectives on inclusive design.

The first part elaborates on the history and meaning of the terms. Due to the lack of clear definitions and the history founded on activism, a majority of designers do not yet recognize or know the possibilities and opportunities presented by UD, ID or DfA from a social, economic or designerly point of view.

The second part of the paper focusses on the different design interpretations of inclusive design. Supported by a graphical scheme the differences and links between the interpretations are presented. Most designers connect these terms with Design for

Special Needs (DFSN) or 'accessibility' and consider the concept behind as a standardized or 'universal' guideline in a context of problem solving. The paper develops the argument that instead of a plea for a specific term, the future lies in focussing on a global design approach.

## **UD, DfA, ID in a historical and geographical perspective**

Universal Design (UD) [1], Inclusive Design (ID) [2] and Design for All (DfA) [3], used in the USA, UK and mainland Europe respectively, are synonyms sharing the same objectives. Despite the fact that each term is region specific, all have the same purpose: a more inclusive environment for everyone. The elimination of handicap creation in designing the physical environment supports these objectives. The general concept aims at a balanced outcome in usability, elegance and comfort for as many people as possible regardless of age, ability or circumstance. This paper identifies two major patterns that may have contributed to the variety in definitions and terms. First the historic evolution towards a more human centred approach and second the geographical preference that determines the vocabulary in the domain of inclusive design.

### **Historical evolution**

Current design thinking welcomes the idea that designing is creating for people, with people, about people and by people. This idea fits a human centred approach. Design results are not limited to visual information, creation and representation but give attention to all human experiences.

From a historical perspective different aspects have contributed to this growing awareness in human centred design. Most important social and cultural changes have influenced people's belief and awareness towards a more inclusive-focussed community.

For a long time, people were convinced that impairments could be overcome through the adaptation of the body itself. In general, restrictions were viewed as the result of impairments of the body that had to be restored or removed. From the Greeks to the Enlightenment, most impairments were considered as religious signs and were treated respectively, as a punishment [4]. Adaptation of the impaired person to the social, economic as well as cultural environment was necessary. If they did not disabled people were abandoned. Scientific innovations of the Enlightenment changed the dogmatic belief in religious authority and created a medical approach as for the solution of problems. Disabilities could be medically diagnosed using for example the following categories: motor, mental, sensory and cognitive impairments [5]. The progress of medical knowledge influenced again the social perspective. The number of people who could adapt themselves to the norm increased. At the end of the 19th century, industrialisation brought economic prosperity. The technical revolution in for example steel and concrete, contributed to the expansion of designers' possibilities. From that point on designers were no longer restricted to classical rules and constraints to span a ceiling. Rationalisation was one of the key stones. Consequently, they gained more design freedom to give attention to the actual experience of the physical environment. One of the intentions of the modernists was to bring design closer to the average users. In a way they could be named as the pioneers of inclusive design. Modernists believed in a universal and unitary design that would rationalise the usability of the built

environment for everyone. Modern architecture was to have been a universal style for the elevation of universal man [6]. However, the formal representation of their ideas received the most attention and common people were not ready for this form of representation yet. Oud and Johannes, members of the modernist movement de Stijl, stated that the definition of universal focussed on the result of mechanical production in the first place [7]. In addition to the possibilities of rationalisation for social innovation, industrialisation also brought less positive effects. Paradoxically these negative aspects did also contribute to the social change towards an inclusive attitude. The new machinery caused serious injuries and accidents. Industrial accidents often led to unemployment amongst workers. In the textile industry, for example, people were more likely to lose their hands and arms when they were distracted by having to change the threads of the loom. As a result, accidents were frequent and popular street imagery bears witness to the rise in physical impairment around this time. Industrialization was one factor but the two world wars also contributed significantly to the rise in the number of people with an impairment.

The 1950s brought a new social discourse and sciences in which designers sought for innovative ways of user participation, ergonomic design, attention for people with disabilities, psychology, ... and along came the social researchers. Society was encouraged to perceive and think about disabilities in a different way [8]. Specific changes in the built environment that could support people became a social objective. Initially, this discourse was defined as Design for Special Needs (DFSN) or Barrier-Free Design, a design approach in which the focus lies on a specific group of people with impairments, for example wheelchair users. Froyen defines this as a micro approach that supports solutions with specific adaptations for specific groups [9]. In the 1970s, several international governments integrated the social and academic movements into resolutions, legislation and recommendations. This change in legislation and the social research resulted in the fact that impairments were no longer considered as an exclusive individual problem but related to society as a whole [5]. Discourse about impairments was no longer restricted to the body, for example physical, mental or intellectual disabilities, but extended to environment in general. During the seventies and the eighties, Barrier-Free Design was commonly used as an umbrella term to define initiatives that raised out of activism and focused on the surroundings of the individual to support people [5]. The term Accessible Design, used in the US, had a similar meaning and came to be viewed more positively than Barrier-Free Design, but it was much more linked to requirements that were supported by legislation [1]. In the 1990s, principles for equal opportunities increasingly become international policies. This postmodern discourse created a new human centred design approach as advanced and defined by Ron Mace [1]. Throughout the world, many different initiatives were taken. In the United States, the Center for Universal Design (CUD) in North Carolina became the pilot centre for Universal design[11]. In 1993, the European Institute for Design and Disability (EIDD) was established in Dublin [12]. The common belief was that people must not be forced to adapt to the environment, but the designed environment should be adapted to its users. This movement advanced a macro approach that was aimed at finding solutions for as many people as possible. Davies and Lifchez called for UD to be viewed not as a restriction but as a "*major perceptual orientation to humanity*"[13]. So it wasn't until the 20th century that the possibilities of environmental adaptations -encouraging individual independence- were acknowledged. However, a debate exists as to the appropriate global term for this design movement. The next section outlines the differences and similarities in the existing definitions and vocabulary.

## Geographic interpretation

Language and vocabulary is region specific and has its limitations. Depending on the geographic location, people use different terminologies. This diverts the focus and sometimes blurs the actual target. Moreover, this analysis is paradoxical as defining inclusive design or explaining the different terminologies already gives the possibility, option or consideration of excluding certain groups of people.

## Universal Design (UD)

Ron Mace coined the term Universal Design and defined it thus: *“an approach to design that incorporates products as well as building features which, to the greatest extent possible, can be used by everyone.”* [4] A similar definition is coined by the Center for Universal Design at North Carolina State University [14]. Ostroff elaborates on the fact that this approach implies that equity and social justice are embodied within the design process and that designs that work for as many people as possible are the end result [1]. Similarly, Herwig states that UD means Design for Everyone [15]. However, in the *Dictionary of Architecture and Landscape Architecture*, UD is defined as equal to Barrier-Free Design: *“Barrier-free or Universal Design: Design for Handicapped accessibility, considering the needs of those with visual, hearing and mental disabilities as well as those with physical mobility problems, e.g. buildings with alternatives to stepped entrances and internal steps and staircases. It became compulsory by federal law in the USA after 1990.”* [16] Although UD aims at environments that support everyone, this definition appears to focus on the integration of special needs only. Consequently, many people associate it with accessibility standards. Ostroff explains that the term has inappropriately been adopted by some people as a trendy synonym for compliance with the *Standards for Accessible Design* that is supported by the *Americans with Disabilities Act* [1]. Besides the ambiguity in the use of the term ‘universal’, most people who hear the term UD for the first time are confused and consider it as design that is less inclusive but rationalised and in this way universal. Others incorrectly associate it with “universal designs” as coined by great utopians, like Bouill  e [17]. Donald Norman defines it very well and states that Universal Design is about designing for everyone; it is a challenge but he agrees that this is no excuse for not designing usable products that everyone can use [18].

## Inclusive Design (ID)

Whereas UD is a term that originated in the USA, ID originated in the UK. For a definition, John Clarkson et al. refer to the British Standard Institute: *“The design of mainstream products and/or services that are accessible to, and usable by, as many people as reasonably possible...without the need for special adaptation or specialised design.”* [British Standards Institute, 2005 in 2] Clarkson et al. go further: *“By meeting the needs of those who are excluded from product use, inclusive design improves product experience across a broad range of users. Put simply, inclusive design is better design.”* This definition makes the core message clear. Clarkson et al. also clarify the linguistic confusion that exists when talking about UD by explaining what ID is not. They state that ID does not naively imply that it is always possible or appropriate to design one product to address the needs of the entire population. Neither is it only DFSN, nor a stage that simply can be added into the design process. Instead, they refer to a waterfall model [2]. However, the main definition focuses on products and services whereas the design world as a whole ought to improve and encourage ID. Remarkably, Clarkson

himself questioned the term during a discussion at the Include 011 conference in London. He explicitly stated that the term Inclusive Design is no ideal choice because it intrinsically suggests separation. To get the message across this terminology and its definitions should finally disappear [19]. Indeed the use of the term, might stress the differences in users and their specific difficulties, whereas the main objective is that these ideas will be taken over in the larger scope of the design process. For this reason, the term might exclude itself and therefore cause confusion.

## Design for All (DfA)

DfA is one of the common terms increasingly used in Europe since 1967 [1]. Grosbois, a French architect, who defines DfA as a concept that is identical to UD cites Vitruvius, the Roman architect, who stated that architecture is based on three main principles: *firmitas* (solidity of construction), *venustas* (aesthetic experience) and *utilitas* (adaptation to use). For Grosbois, DfA is an extension of *utilitas*. However, he states that it is only through a dialogue between solidity, usefulness and beauty that DfA can come into being [3]. The European Institute for Design and Disability (EIDD) adopted this vision and use DfA as the common concept behind the platform of European Design and Disability. In the EIDD Stockholm Declaration, DfA is defined as: “*design for human diversity, social inclusion and equality. This holistic and innovative approach constitutes a creative and ethical challenge for all planners, designers, entrepreneurs, administrators and political leaders.*” This definition comes closest to the objectives of both UD and ID. For some the term is less restrictive and embraces the design world as a whole.

Depending on the language and the first use, different terms are used in different countries and continents. Today, it is clear that the definitions are not uniform enough in terms of content. The fact that a single concept can be called different things is confusing and generates much discussion, as witnessed on more than one occasion at conferences and during informal discussions. UD might sound too utopian and DfA similarly has very ambitious connotations. Although utopian concepts might challenge designers, these ambitious terminologies actually seem to discourage. It creates an unachievable destiny and most designers still link it immediately to DFSN, with the concept elevated to the level of all users. There is even a fear that UD will result in “banal” and “clumsy” products [23]. ID, on the other hand, is primarily defined in relation to product design that makes it confusing for architects and other designers.

On top these terms are once defined out of a form of activism of people with disabilities. Designers still link them with special needs, accessibility, political ambitions and legislation. There is an enormous series of terms and definitions but still the discipline is under-theorized. In the new handbook on architectural theory Heynen and Wright state that: “*Because this discourse (UD) rarely engages theoretical issues, it tends to come across as undertheorized and even simplistic.*” [21] UD, ID or DfA is a young discipline that is still designing and determining its identity. Moreover apart from good conferences the domain lacks critical data sources for innovative and reliable information.

When no global terminology is used the confusion in language and content tend to raise the opposite objective of the actual concept. Instead of encouraging designers, it puts them off and leaves them in the dark since most UD, ID or DfA deal with negative bias. The use of a global term would help in clarifying the content but we may not underestimate the other side of the coin. The choice for a global term that defines inclusive designing encourages an explicit separation or even be an implicit form of discrimination. In our opinion an umbrella term and definition is no strict requirement for

UD, DfA or ID if its actual design practice is clear to all and if its content is linked to global sustainability.

## DESIGN interpretations for UD, DfA, ID in practice

UD, DfA and ID share one common term: “design” that has a meaning as a verb, as well as a noun. It refers to the design process as well as the actual outcome. Until now the focus was put too often on the objectives of inclusive design, whereas the inclusive design practice was seldom explained or examined. The design process has a huge impact on the inclusiveness of the design as it determines the degree of inclusion. The pioneering theoretical work in inclusive design results out of its recent emergence but the under-theorization also went along with the young development of design methodology as a research domain. Due to the differences between design education and practice, design methodology was questioned in the 1950s. Since then, attention for design theory was raised and a new research domain was born. Simultaneously the attention for inclusive design grew daily. Although the inclusive objectives are often clear to many people, the required design process is less obvious to designers. What does the concept stand for in the context of design theory? Views often differ according to the various backgrounds of researchers and designers. A clear overview is helpful as the current trend encourages interdisciplinary work [23].

### A paradigm

UD, DfA and ID are considered as a paradigm when placed in relation to other scientific theories. A paradigm is the connection of different concepts and thoughts. Goodsmith[22] defined UD as “a new paradigm” supported in the *Universal Design Handbook* by Ostroff [1]. Dong draws attention to the evolution of Universal Design in terms of two shifting paradigms [23]. The first paradigm shift focusses on the difference between two different approaches. First an assistive technology approach also referred to as top-down and second UD defined as designing for as many people as possible, without the need of adaptation better known as the bottom-up approach. Dong suggests that idealistically both approaches could work complementary. The second paradigm shift is the evolution towards multidisciplinary research teams in the design process as different research domains deal with UD, DfA and ID, the future lies in connecting all this expertise.

### An attitude or approach

If inclusive intentions exist during the design process, a global terminology that fits a paradigm is not a requirement but a global inclusive design approach is. An attitude or approach in design is a state of mind that supports designers in obtaining an inclusive result. Many researchers in UD, DfA and ID support the idea as an approach. One of the most clear definitions is given by Iwarsson and Stahl: *“An approach to design that to the greatest extent possible, can be used by everyone. UD or DfA is the best approximation of an environmental facet to the needs of the maximum possible number of users. Universal design is uttermost about changing attitudes throughout society emphasizing democracy, equity and citizenship. UD denotes a process more than a definite result.”*[24] In the same line Newell and Gregor state that *“User Sensitive Inclusive design needs to be an attitude of mind rather than simply mechanistically*

*applying a set of "design for all" guidelines."* [25] Indeed UD, DfA and ID is more than the making of a checklist during the design process. Some researchers and designers wrongly consider the UD-principles as a form of checklist for their design outcome. Based on insights of professionals in UD, The Center for Universal Design in North Carolina developed what they defined as "The principles of Universal Design", seven key terms containing the main objectives of UD [14]. These principles can be taken into account during the design process as they can help as a reminder to keep an inclusive design focus.

### A design focus

A design focus can be considered as part of a design attitude as it is the state or condition in which something can clearly be apprehended. This is a necessary condition in order to produce inclusive design results. Some researchers [26] consider this focus incorrectly as the focus to design for specific user groups or needs. This is too narrow minded as the concept of UD, DfA, ID aims to reach a group of users to the greatest extent possible. A design focus can help in the choice of the right design methodology and methods to achieve results that can reach a diversity of users. For example Abascal and Collette conducted research to: *"analyse the benefits of the use of inclusive design guidelines in order to facilitate a universal design focus so that social exclusion is avoided."*[27]

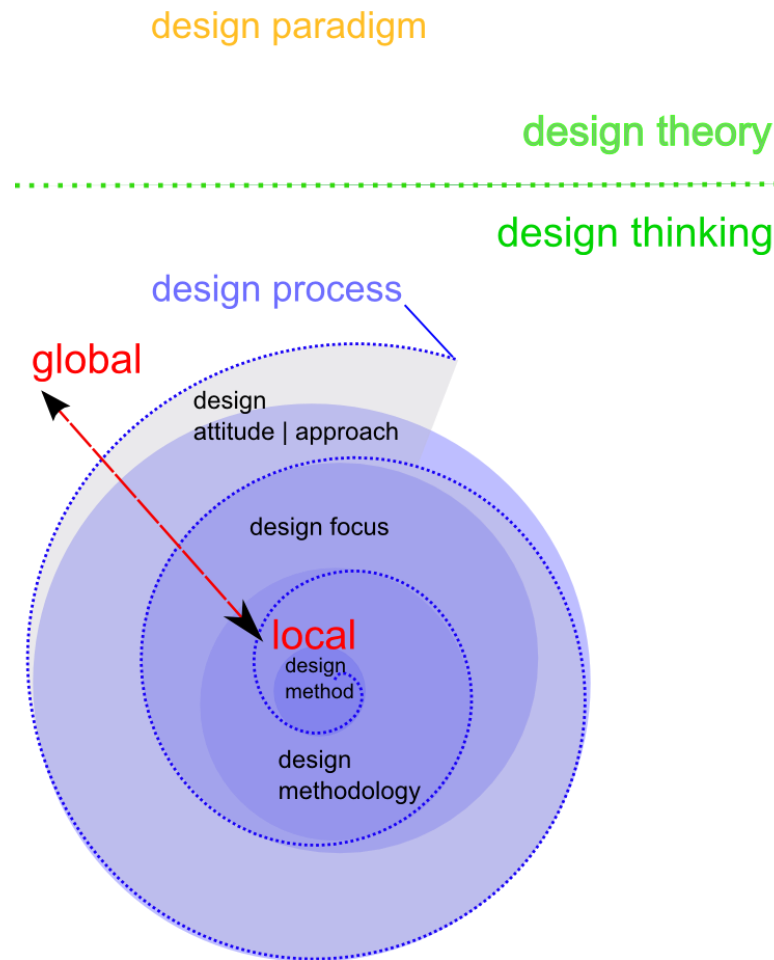
### A design methodology

To guarantee a design focus designers rely on methodologies. A design methodology can consist out of one or more working methods. In the context of inclusive design "human centred design" or "user-centred design" can be considered as the applied methodology [25,29].

### A design method

Some researchers [28] regard UD, DfA or ID as an inclusive participative method in itself to include more users, however there is need for a more detailed description of the actual design methods in order to become an inclusive design outcome. Some researchers [29] already noticed the lack of available design methods in inclusive design. Often these design methods are restricted to the principal methods for users from different capabilities. On the other hand, the idea of a global design method is not so grateful for a diversity of people. In a globalising world, products and environments become less authentic and more and more similar and standardised. For inclusive design, standardised solutions are not always the key to success. From a perceptual point of view it is appropriate to consider also the cultural, social and cognitive aspects next to the physical restrictions. For example cultural aspects may also contribute to an inclusive experience. Oriental people are raised in a tradition that favours shadow. Consequently their designers will start designing with a focus on the experienced shadow, while Western people on the contrary design towards light experiences and will experience spaces as a result of light experience. The methods should be regarded in a broad sustainable approach with respect to ecological and economic factors.





**Figure 1: scheme: summary of global attitude versus local methods.**

Currently UD, DfA and ID are interchangeably used as a paradigm, an attitude, a design focus, a design methodology and design method. From the foregoing analysis a paradigm is placed at the level of design theory. An inclusive design paradigm can be defined by several scientific theories. An attitude, design focus, design methodology and design method on the other hand can be linked with the study of the design process. These different design aspects are all linked and placed within a certain hierarchy. Whereas an inclusive attitude is required on a global level, design methods can differ depending on the local context and place. However, an inclusive attitude without focus, methodology or method is insignificant. Conversely a design method will not be inclusive without an inclusive design methodology, focus or attitude. All levels are irreversibly connected. A common inclusive world view is recommended but each designer should be able to continue to design with respect for regional and local design foci, methodologies and methods. Only this way inclusive design can be worn on a large world scale (Figure 1).

# Discussion: The paradox of a local terminology for a global attitude

This paper takes the point of view that the more designers approach diversity as valuable and normal, the more it will become part of design methodologies and general design attitudes. Based on the analysis and insights in design thinking, inclusive designing is in the first place considered as a design approach towards sustainability in the broadest possible sense. The idea is that a specific terminology will disappear in the future. Like energy efficiency was once a specific objective in an architectural design process, it is now no longer in question. Similarly inclusive designing will be a design approach that aims at designing for a more sustainable environment in which aesthetical, ecological, economical, sociological, psychological, physical, cognitive and cultural aspects go hand in hand. Thus designing for diversity might become an inherent part of design thinking. It is hoped that the concept will become such an integral part of the larger design process that it won't even need to be referred to. The design community is ready for a common sustainable design approach that outlines the general world objectives towards inclusion, a global attitude.

This holistic approach requires a 'global' design attitude and thinking for planners, designers, entrepreneurs, administrators, contractors, political leaders and anyone who contributes to creations in a sustainable environment. In this way inclusive designing aims at creating design solutions for more people, more senses, more actions, more experiences, more user interactions, more design narratives, more possibilities, more sustainability...designing for more [30]. Inclusive design methods are still rare, and often focus on design for special needs. However, future research can offer insights in inclusive local methods. Accordingly a global inclusive attitude can generate local methods and vice versa.

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