Design for Inclusion
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The Role and Implication of UD to Foster Inclusion in Built Environments

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Abstract. The level of inclusion of all its members in the complex of community activities is a fundamental indicator of the progress of a society that wants to be defined as civil and there is a rising awareness about the evidence that diversity and inclusion are linked to positive outcomes. The Universal Design approach is increasingly recognized as the one that helps to shape environments - in terms of physical and virtual environments, as well as buildings, goods and services - so that it can be accessed, understood, and used to the greatest extent possible by all people, regardless of their diversity. Thus, making a more inclusive society for all. This short essay summarizes some reflections resulting from studies, research and field practices reported by literature, and also experienced by the author in her training as a researcher and university professor. Attention is focused in particular on some critical issues and implications inherent in the practical application of UD principles, as well as on the importance of its multidisciplinary dimension, which also entails a different attitude towards the training of professionals.

Keywords. Inclusion, Universal Design, Built environment, Education

1. Addressing Disability in the Perspective of Inclusion

Over the past few decades, the world has witnessed many deep, rapid changes: economic, demographic and social challenges have sharply affected communities at international, national and local level.

Because of these large and cross-scale trends, diversity has become one of the most critical issues we face, and inclusion is a challenge for communities and organizations worldwide. By virtue of their key role, the topics of diversity and inclusion are at the heart of strategies and policies worldwide, and the relevant issues are the subject of research in different scientific fields.

The leading principle of the Sustainable Development Goals (SDGs), officially known as Transforming our World: the 2030 Agenda for Sustainable Development, is the global eradication of disadvantage through the improvement of situations for all peoples. Inclusion is one of the guiding principles of the Agenda, which includes the commitment "*to leave no one behind*" and to create a "*just, equitable, tolerant, open and socially inclusive world in which the needs of the most vulnerable are met*" [1]. The commitment to inclusion specifically addresses persons with disabilities and the 169 targets of the 17 SDGs integrate specific indicators related to disability.

The Agenda is consistent with the Convention on the Rights of Persons with Disabilities (CRPD), which affirms equal rights for all people, regardless of their disability status, and puts forth a development agenda for ensuring full inclusion in all aspects of society. The adoption of the CRPD by the United Nations General Assembly in 2006 marked a turning point in the definition of minimum requirements to consider when addressing the rights of persons with disabilities (see art.4 par.f); through its

ratification, the EU committed to comply with the Convention's obligations and set up the necessary coordination and development mechanisms for its implementation.

Launching the new Strategy for the Rights of Persons with Disabilities at the EU Parliament on March 3rd 2021, President Ursula Von der Leyen once again stressed the relevance of the issues while affirming "*people with disabilities have the right to good working conditions, independent living, equal opportunities and full participation in the life of their community. Everyone has the right to a life without barriers. And it is our duty as a community to ensure their full participation in society, on an equal footing with others*". [2]

However, despite the strong commitment expressed by the international community, and the pledge "*to tackle prejudice and misinformation and find new approaches and tools to work for and with persons with disabilities*" [3], persons with disabilities continue to face significant challenges to their full participation in society, experiencing everyday discrimination, stigma, exclusion and negative attitudes towards them. Moreover, in the majority of public places as well as in virtual environments, the persistence of barriers leads to the lack of accessibility and therefore the impossibility of using spaces, goods and services.

In the new EU Strategy 2021-2030, accessibility is still one of the top priorities, with the need to ensure a decent quality of life and participation – that is the possibility of independent living, social protection, non-discrimination in the workplace and inclusive and quality education.

To develop proper actions and initiatives as a necessary first step towards addressing disparities, it is important to understand the exact nature of the barriers that persons with disabilities still face and to adopt an inclusive perspective to address solutions, compliant with the UD approach. Furthermore, we must also ask ourselves why, despite the efforts and commitments made in the last twenty years, we are still a long way from reaching a satisfactory outcome in terms of inclusion.

The inclusive perspective goes beyond the vision confined to deficit and limit and is the result of a conceptual evolution, both cultural and social, which should affect the actual condition of people with disabilities. In addition, inclusion calls for greater attention to the recognition and respect of that dimension of diversity which is a part of everyone and which requires the realization of a real culture of human differences. The ones that may concern every person, in different moments of his/her life, permanent or temporary depending on the disabilities (as well as personal histories, languages and different cultures, and social or economic conditions).

2. Some UD Implications and Critical Issues to Address

If we look closely at its definition, Universal Design is "*the design of buildings, products or environments to make them accessible to people, regardless of age, disability or other factors. It addresses common barriers to participation by creating things that can be used by the maximum number of people possible"* (Mace, 1985). UD therefore holds the perspective of inclusion in its meaning.

Recent studies suggest that the concept of UD is not so widely accepted and that some scepticism about its ideas persists. In one of his interesting articles, Rob Imrie highlights how UD is a difficult theory to practice [4]. Other researchers investigated the reasons why, despite a clear assumption of UD and a growing understanding of the

widespread societal benefits of a universal design approach, still today it is very difficult to design in a universal way.

The research outputs from experiences gained in the field and applications to real cases study (particularly in urban planning and building construction) highlight some key issues about designing for inclusion in light of UD principles, that are still being questioned and on which some considerations will follow:

- the need for a broader and shared vision on what disability is, and the lack of a common language among professionals and, in general, among the various stakeholders;
- the challenges associated with the adoption of standards or compliances that the built environment is asked to meet;
- the involvement, still low, of *expert* stakeholders (person with disabilities) in the development process of design and the related question of evaluating a UD project by means of effective indicators.

More and more frequently, we are witnessing the use/abuse of two recurring words, not only in the field of design or among the various actors involved in the processes of envisioning and shaping the environments: inclusion and accessibility.

The term inclusion should define the orientation of society towards people; very often, the term is juxtaposed, and sometimes even confused, with the word integration. As noted by thematic literature, unlike integration, which tends to counter the differences, inclusion entails the acceptance of all diversities and peculiarities of the individual.

The role of environment as an enabling factor, as well as the wide definition of what a barrier is, is clearly asserted by the International Classification of Functionality (ICF). ICF is a framework for describing and organising information on functioning and disability in the frame of a multidimensional construct. It provides a standard language and a conceptual basis for the definition and measurement of health and disability, and it presents a bio-psychosocial model of functioning, according to which disability is defined as the interaction between a person's capabilities (limitation in functioning) and environmental barriers (physical, social, cultural or legislative) that may limit their participation in society.

On the inclusiveness of a UD project, an observation by Rob Imrie [4] is interesting, who claims that a UD approach by many professionals still shows "*vestiges of a medical model [with] clinical and physiological rather than cultural (social) criteria … shaping its design mentalities and approaches*".

Undoubtedly, the language of the ICF could be a useful tool for a new approach to design based on a shared model of disability in relation to the environment in which people move and act. As argued by some researchers [5] the social model recognizes marginalization, exclusion and oppression as the main causes that prevent the full participation of disabled people in wider society; however, such a position could divert attention from the fact that the disabled person's experience of the living environment is in any case shaped by his or her residual physical abilities. However, there is no doubt that an enabling environment characterized by accessibility - understood in the broadest sense of the term and in a holistic way - is a fundamental element for guaranteeing participation.

The term accessibility has today lost its strong connotation linked mainly to the presence (and therefore to the concept) of barriers and has acquired a value that we can define as more dynamic.

Physical accessibility, as always recalled by international strategies on the rights of persons with disabilities, is "*an enabler of rights and a prerequisite for the full participation of persons with disabilities on an equal basis with others a necessary*

condition for full participation in social life based on equity" [6]. Despite being an essential requirement of built space, today it is also guaranteed by a different potential for the use of spaces and services.

In particular, after the recent COVID-19 pandemic, the development of home delivery services, or services available remotely, changed the way of carrying out activities - even daily ones - and rooted habits previously confined to small groups of population, effectively dematerializing physical accessibility. This did not necessarily lead to the improvement of the "enabling" process, but rather transformed the accessibility issues from a material to an immaterial fact. Let's think, for example, of a "service" provided by an organization, such as that of "consultation of a bank account", where the person's physical accessibility to the bank space is no longer essential as they are able to resort to home banking services.

ICF could therefore be the basis of a shared language for the shared intention of having an inclusive vision in the project, since it clearly defines what a barrier is rather than a facilitating element. Despite the fact that ICF is a multipurpose classification system designed to serve various disciplines and sectors — from education, to transportation, health and community services — and across different countries and cultures, it is still little known by those involved in the design of living environments and little understood in its potential.

Looking to theories and to the principles of the UD, and observing how in practice these are applied by designers, it becomes evident how the lack in different national contexts of an articulated and multidisciplinary debate on universal and inclusive design has so far produced largely modest results, both in terms of the quality of the built space and the real effectiveness of the solutions implemented.

In some cases, we note paradoxes permeating the design culture: for example, in Italy there is a recurring belief that designing in an accessible way means eliminating architectural barriers (even in new construction projects, which naturally should not include barriers of any kind) and that it is sufficient to comply with the law to guarantee an inclusive environment. It is a pity that a regulatory framework, which is rather dated, has generated a conspicuous apparatus of programmatic documents and handbooks, communicating technical design principles, which are often characterized by a marked distance from the ethical engagement and the epistemological foundations of UD.

The lack of specifications should give designers the opportunity to develop innovative solution, to meet different needs and to fit different contexts. Nevertheless, designers and builders, but also the administrations' internal control bodies, are still largely influenced by "compliance with the rules" culture.

The reading and understanding of the requirements could be difficult and time consuming, in addition to to the fact that the complexity of the procedures related to accessibility (as. i.e. overly strict requirements) can therefore be an obstacle to the implementation of a truly inclusive design. Therefore, we can easily understand that the availability of clear specification can speed up the design processes and make the control of solutions easier.

It is also widely recognized that compliance with the building codes itself does not guarantee the improvement of design quality in terms of accessibility, usability and in general of "inclusion". Moreover, despite many architects now being able to create accessible solutions that are immediately functional and architecturally satisfying without being overpriced, there is a widespread belief that the costs of a universally designed project are too high.

Actually, it is more suitable for designers and controllers to have readymade solutions to apply to the project or to be used as a reference in project evaluation processes. Sometimes these schemes are provided in the form of schematic indications, often containing stereotypes and generalizations referring to disability; they are intended as standardized blocks to take from a "library", that guarantee compliance with the building codes as they can be "pre-accepted solutions" and lead to the simple and fast quantification of construction costs, to create affordable solutions.

In order to develop further progress, there are two issues to reflect on: a new shaping process for regulations to support designers' creativity and new concepts, and the wider awareness of related responsibilities; we also need a deeper investigation of the understandings and the motivations of UD from architects' and users' perspective, that continues to be the unbalanced. The gap between the perspectives has been largely investigated and as Imrie argued "*ableist bodily conceptions underpin architectural discourses and practices, with evidence to suggest that the specific mobility and/or access needs of disabled people rarely feature in the theories and practices of designers or architects*"[7].

Taking into consideration the needs and preferences of persons should be the core of design, and in particular of the design for inclusion, according to a user-centred paradigm; but the understanding of the relationship between people and their built environment as a further dimension of the project is often missing because of the lack of contamination between the different actors. This implies the involvement of end users by means of a participatory approach that enhance the capacity of users, and in particular persons with disabilities, to affect decision-making during the design process.

Even if we consider the best technical knowledge and professional expertise, making decisions and interventions that will directly affect their everyday life requires a meaningful involvement of people, that means doing more than just making sure the solutions are technically compliant with regulations.

It is widely recognised that participatory design is a controversial domain, and that it reflects many of the definition issues that afflict UD; it can be understood as an umbrella term given to an "extended family" of practices that challenge problematically unequal power relations between architects and their publics" [8].

Several field research practices have demonstrated how it is possible to focus more attention on processes through which architects could understand the role of "non-architects" in the design of buildings and spaces and take benefits from their expertise. Involvement of end users in the process of making and evaluating design solutions provide knowledge that can challenge or validate the goodness of the solution supported by regulatory compliance or technical literature (for example, design handbooks or guidelines). It is therefore also important to adopt practical tools to measure the effectiveness of solutions in the framework of UD principles. As some scholars highlighted [9], despite difficulties inherent in the evaluation of buildings' empathy, there is a need to have practical instruments for measuring UD that can also address local specificities.

3. The Role of Education in Fostering Universal Design

A last issue to highlight is the difficulty inherent in the process of training professionals and the growing need to address professional skills towards a multidisciplinary approach.

A good design of living environments is a pivotal key to guaranteeing full accessibility to spaces and services: that is a pre-requisite of a universally designed project. Therefore, it is essential to broaden awareness of the need for universal design knowledge in future designers and to incorporate UD-related disciplines into educational pathways, to enable them to practice it in innovative ways.

To practically implement UD, diverse and dedicated subjects and master classes have arisen in higher education worldwide, to develop knowledge and skills. Several research projects have recorded a changing attitude in the last decade towards architectural education and its growing awareness of UD as an important aspect of architectural practice. However, although UD is increasingly permeating design education, it still remains difficult to interpret as anything more than a set of good intentions, and to implement with effective project ideas and solutions [10].

Creating environments able to accomplish expectations from the widest range of people in an inclusive perspective, responding to their well-being needs, corresponds to the need to guarantee the willingness of professionals to engage and compete with the multidisciplinary approach and knowledge that characterizes UD. Diversity rhymes with multiplicity, the one belonging to disciplines that combine to frame and address the issue of inclusion. The design practice can play a key role, particularly if it favours the contamination and a positive dialogue among the aspects traditionally belonging to the discipline and other sciences: the relationship between architectural space and the human mind and body is acknowledged today through the explicit link of neuroscience and architecture [11].

Traditionally, the approach to multidisciplinarity implies the provision of different perspectives within a training course, therefore offering different contributions within basic and specialist training. It requires specific planning of the training courses and therefore the teachers or, rather, groups of teachers, who work in teams, must be prepared in this direction. On the other hand, multidisciplinary training needs greater interaction with strong recourse to teaching formats that actively involve the students.

Centres supporting advanced and long life-learning education to UD, that ensure a permanent spot for supporting public and private bodies and professionals, promote the multidisciplinary approach within inter-professional education better than Universities, where there is a tendency towards what is known as “educational silos” and teachers remain isolated in their own little part of the academic neighbourhood .

Higher education institutions should provide strategies for breaking down the barriers between faculty members and fostering interaction, also at cross-faculty level. “Systems thinking” and “team learning” must be particularly encouraged in the field of architectural design. As proof of the strong conviction of how much architects remain anchored and confined to their own discipline, research findings demonstrate that they have a peculiar predisposition about their own strong identity, even if involved in large and complex projects.

Moreover, there is a greater predisposition towards interdependence rather than inter-professional collaboration [12]. Recent research investigated the role of UD in the context of architectural education, and the output has been presented in forms of recommendations and guidelines [13]. One study refers to an attempt to embed universal design practice education in the curricula of architecture and occupational therapy students, to evaluate the impact on students’ readiness for inter-professional learning [14], but it provides evidence of uninspiring results.

Providing students with the opportunity for experiential learning is an important element of the UD curriculum, particularly if developed in a cross-cutting perspective,

at multi and inter-disciplinary level and when based on the strong contamination between theory and practice. Current literature records different practices tested in the field in various Universities for many years now. Personal experience developed at the University of Trieste, where the elective course Inclusive Design (32h, 4 CFU) for architecture students was held in the period 2011-2015, and several curricula design workshops included in subjects on urbanism and architectural design, show that learning based on direct experience with users and trained designers endow a practical understanding of the application of UD knowledge.

The experiences were developed in the field of design for housing and public spaces, and included different formats: open debates with different stakeholders, guided tours of buildings and spaces, the collection of direct testimonies by people with disabilities involved on-site inspections, site visits at places where involved users were living, and interaction with residents. To implement the practical design exercises, the students were required to develop a project, and to document it not only by means of drawings but also by recorded comments - video or voice - taken from dialogue with potential users, during simulations of a participatory planning phase.

To empower architects to creatively approach designing for an increasingly diverse population is a challenge; a multidisciplinary and participatory approach is important for this aim, as an inclusive design for spaces, good and services, based on a broader concept of accessibility, embraces sociological, psychological and behavioural as well as technical consideration. To design inclusively means to educate professionals to think inclusively and to work in collaborative teams composed of diverse groups of people. Education and awareness are essential factors to encourage an inclusive mind-set amongst architectural design professionals and other stakeholders [15] and putting UD principles into practice with creativity and innovation can facilitate the formal implementation of CRPD, to achieve an inclusive, sustainable society and social innovation based on the human diversity.

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