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Accessibility, between technology and social background

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Designing Resilience

edited by

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Piet Mondrian, *The Gray Tree*, 1911

Book series STUDI E PROGETTI

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1.2 ACCESSIBILITY, BETWEEN TECHNOLOGY AND SOCIAL BACKGROUND

*Christina Conti**, *Valeria Tatano***

Environmental accessibility

The advanced fulfilment of accessible buildings, spaces and services is the result of a conscious design process that focuses with particular attention to the many and various users' needs; a design process that recognizes the importance of defining an appropriate environmental context so that the needs of users are satisfied. It is an overall process that refers to the macro area of architecture and that has found in the discipline of Architectural Technology a complete expression of the integration of specialized knowledge to meet the physical and psychophysical needs of users.

The term "environmental accessibility" refers, in this context, to the set of architectural themes that use the skills of design to create spaces, objects and services usable in a comfortable and safe way by the largest number of people, in their peculiarity and differences, extending the meaning to the sense of "collective resource" as a possibility to improve the quality of life of a community (Lauria, 2017).

The themes addressed by the environmental accessibility are many, develop in an interdisciplinary scientific context and are aimed to product artefacts that are coherent with the different functional requirements of the architecture in the multiple scales of the project; themes that together approach the design with the necessary awareness of an experimentation aimed at the people and at the recognition of the value of the persons in an ethical process of social development (Conti et al., 2016).

In an overall vision and with the awareness that it is more important (and even easier) to protect everyone's needs while meeting special needs, environmental accessibility complies with the principle of recognition of people's rights and contribute to the processes of inclusion implementing the equality rights, as defined in the Constitution of the Italian Republic, «*without distinc-*

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*tion of sex, race, religion, political opinions, personal and social conditions»*¹.

This can in all respects be considered the result of a virtuous synergistic process of instrumental innovation (knowledge development, identification of requirements, constitution of regulations, standards, guidelines and reference best practices, production of aids and development of dedicated materials and techniques, etc.) and social growth with respect to the values of inclusion through paths of knowledge, sharing and direction conducted by stakeholders. “Nothing about us without us” is the motto assumed and shared by the consultants, associations and committees of people with disabilities, and it is the synthesis of the difficult path that has allowed to identify the way in which the civil community must relate to the people with disabilities so that they, together with their families, participate as much as possible in the political choices and would be actors in the decisions of the community. This is a path already triggered to *«protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms [...], and to promote respect for their inherent dignity»*²; a path that recognizes the importance for people with disabilities (who are more than 37 million only in Europe) to be actively present in the choices for the protection of their rights.

Specifically, the technology of architecture (and more generally the technological design) expresses its disciplinary and research potentials through an inclusive approach aimed to achieve a continuous relationship between all, accepting diversity as a distinctive feature of everyone. A design that pursues integrated strategies for the realization of accessible spaces, objects and services, overcoming the simplification of a targeted and regulated design for specific categories of people and for an action of mere demolition of physical and sensory-protective architectural barriers.

The current paradigms of inclusive design are at the bases of an evolved society and among the instruments to implement the global guidelines set out in the UN Convention on the Rights of Persons with Disabilities for the respect of the rights and the guarantee of liberties (right to education, to culture, sport, leisure, freedom of choice, justice, health, etc.).

The enabling role of an inclusive environment is spelled out by the UN Convention on Persons with Disabilities, which limits the definition of these to those who *«have lasting physical, mental, intellectual or sensory impairments»*, and focuses the problem on the interaction of the people with the barriers that *«can hinder their full and effective participation in society on the basis of equality with others»*. In this mode the UN Convention assigns a significant weight to the potential of inclusive design, since it shifts the focus from the disability (personal condition of the individual) to disability as a consequence of

¹ Article 3, Constitution of the Italian Republic, approved by Assemblée Costituente on 22nd December 1947, in *Gazzetta Ufficiale* 27th December 1947, n. 298.

² Article 1 of Convention on the Rights of Persons with Disabilities, CRPD, 2008.

an inadequate interaction between the individual and the environment. The consequent assumption is that an accessible environment enables the individual to perform the functions as a fundamental condition for effective inclusion.

This approach is reiterated by the International Classification of Functioning, Disability and Health³, which was developed by the World Health Organization, which replaces the 1980 ICIDH classification, placing the different components of health, functioning and disability.

The ICF asserts that everyone can have some form of disability, understood as the product of the interaction between health conditions (trauma, disorders, etc.) and contextual factors (environmental, personal, social). «*Referring to modern theories of complexity, disability is the result of mutual interactions between injuries or impairments at the level of body structures and functions, limitations of activity, restrictions of participation and contextual factors*» (Leonardi, 2005). This eliminates the categorization of people in favour of a multi-dimensional approach, which does not classify according to the consequences of diseases, but that describes what a person may or may not do in any personal health condition and in a determined context.

A world in motion

The living environment therefore plays a fundamental role in increasing or limiting the problems of disability: it is able to determine the behaviour of people and above all to limit their choices and autonomy.

But space also plays an important role in social constructions, in relationships and in the way of relating to others, whether positive or negative. «*To every organization of space corresponds a precise disposition of the society, so the spatial exclusion presupposes a social exclusion*» (Lettieri, 2013).

Whenever the project betrays the task of creating accessible and safe spaces, it lays the foundation for the construction of new physical barriers and potential social isolation. Otherwise, every time the project is able to modify the existing environment by increasing its accessibility or moulding it *ex novo*, it acts directly on the safe use of spaces and on the wellbeing of people, improving the possibility that these have an active life and self-determined.

The designer role is central in this process because the objectives described do not concern only the compliance with the dictates of regulation, but require in-depth knowledge and design sensitivity to these issues.

³ WHO (2001), *International Classification of Functioning, Disability and Health (ICF)*, World Health Organization, Geneva; WHO (2002), *The World Health Report 2002. Reducing Risks, Promoting Healthy Life*, World Health Organization, Geneva; *How to use the ICF. A Practical Manual for using the International Classification of Functioning, Disability and Health*, ICF, exposure draft for comment October 2013, available at: <http://www.who.int/classifications/drafticfpracticalmanual.pdf> (accessed on 20th November 2018).

The current Italian regulations, drafted in the 90s, define the basic criteria, setting a limit that the regulator has certainly hoped would be exceeded in favour of specific solutions and attentions that go beyond the answer to an obligation; the contemporary Italian situation returns a framework that is riddled with virtuous examples and is full of artefacts characterized by defaults, problems and errors on which the press reports daily.

It cannot be denied that there is a split between the world of research, design practice and local administrations, areas that seem to proceed on distant and infrequently convergent tracks.

The research sector has been wondering for years on how to improve the accessibility of spaces and buildings, dialoguing with stakeholders and activating participation mechanisms that convey information and solicit actions, even if sometimes with a limited impact on the results achieved in the daily practice of doing.

The world of professions responds to the regulations but has often underestimated the social responsibility that belongs to it, and it renounces to deploy its own abilities in relation to these issues.

The administrations of small and big cities, appealing to problems of economic nature, have not always supported with due attention the accessibility policies in which all the actors involved could express themselves at their best.

This situation has worsened in recent years and the system is increasingly required to be able to adapt to changes and external stresses. For example, the adaptation to an aging society that requires more protection of elderly population's fragilities, but also to a society that, being related to the past, is able to understand which actions could make life easier.

Environmental accessibility, due to its characteristics, deals with people and environment modifications; it is a research and design sector that expresses knowledge through requirements such as adaptability, flexibility and usability, which are able to absorb changes predetermining some effects on spaces and on living technical elements.

«The ability to change over time the space built at limited costs, in order to make it completely and easily accessible even by people with impaired or impaired motor skills or sensory», normative definition of the word “adaptability”⁴, expresses the ability of a system to deal with the transformations of the person and therefore of his needs to adapt to the new conditions.

This requirement has been a focus point during the planning of spaces able to reconfigure themselves with low budgets in case of need. The designer thinks of his user as an evolving person in relation to the space he lives in.

In relation to environmental accessibility, therefore, the need of adaptation

⁴ Ministerial decree - Ministero dei Lavori Pubblici 14th June 1989, n. 236, “*Prescrizioni tecniche necessarie a garantire l'accessibilità, l'adattabilità e la visitabilità degli edifici privati e di edilizia residenziale pubblica sovvenzionata e agevolata, ai fini del superamento e dell'eliminazione delle barriere architettoniche*”, art. 2, I).

to changes invests both the built space and the user, since both are called to absorb the transformations: the first one being concretely modified and the second one changing his behaviours.

If this operation does not happen on the two fronts, it is difficult to restore the original condition or improve it by increasing its quality.

The user's contribution in this process is fundamental for what has already been mentioned in the introduction, since it is important that he can play an active role both in terms of the design process and the subsequent management aspects. The user's involvement is as much important as the theme of accessibility extends its sphere of action from individual problems to collective problems, especially in emergency situations. In these cases, the user is part of a community of people who must adapt in an environmental emergency context which has to cope with the crisis as quickly as possible; as a whole, people/environment define a resilient community.

This is an important aspect that involves various scientific areas of study and research on people (welfare, psychological, behavioural, etc.), on the emergency management process and on the design of spaces, goods and services of first and second reception, with the contribution of architectural technology that can not disregard the principles of environmental accessibility and which outlines resilience in this sense as a necessary condition.

In the specific area of safety and accessibility, in the architectural field, the aspects related to the perception of risk for the prevention of the emergency are also noted; aspects for which the user either individually or in community learns to identify the risks developing the ability to manage the emergency.

These are behavioural processes that condition the choices of environmental solutions and determine the predisposition of suitable technological solutions and dedicated devices.

In the cases in which the user is more fragile, the attention to risk prevention should be more focused; but it is not always true, especially when the environment is perceived as a family environment such as, for example, the domestic places.

A research conducted in Friuli Venezia Giulia⁵ shows that of the 283 people interviewed with different motor disabilities living in private homes, 48% live alone and only 60% have full awareness of what they should do in case of fire or earthquake; a relevant datum that highlights the need to intervene with an information/training action for users and operators, even before intervening

⁵ The research was conducted in the 2015-2016 biennium by an interdisciplinary working group of members of the Local Health Authority 4, the University of Udine, the University of Trieste, the Fire Department of Pordenone and the Regional Center for Barrier Information Architectural CRIBA-FVG; the results achieved were presented at the 35th edition of the International Convention General Assembly of the European Seismological Commission, Trieste 4th-10th September 2016; Zampa A., Baldanello M., Conti C., Franz M., Garofolo I., Pascoli P., Zanut S., "People with disabilities and emergency situations: a survey in Friuli Venezia Giulia", session 23 "Educational seismology: Empowering the community for seismic risk reduction".

with a design action aimed at refining the technological solutions for risk reduction⁶. This is an evolution of a process already undertaken for other fragile users, such as those developed in the recent past for the domestic safety of children that led to a widespread use of dedicated devices, to the design of complementary detail solutions adapted to shape and function, to the realization of industrial protection products.

Moreover, and in general, it is also noted that when the risk situation is perceived and understood, it is the user himself who gets back in the game by intervening with environmental solutions and dedicated personal devices; therefore, the technological design assumes the character of multisector action for a conscious user.

On this basis we can find some elements of scientific experimentation that disregard a generalist view of situations but try to strengthen the individual value of persons to experiment the fundamental paradigms of accessibility for an effectively inclusive planning.

When the theme is accessibility, however, we often see a strong initial reticence of the technicians to accept the change and to give a quick answer. If this “resistance” can make sense when the intervention concerns the recovery, restoration and conservation of artefacts or historical contexts, it completely loses it if applied to new construction and even more to the planning of urban strategic actions for a healthy, safe and inclusive society.

This initial reticence determines a temporal divergence between the initiation of adaptation processes in response to social change and the personal adaptability of individuals; when a person suffers a trauma, he/she is required to recover his life as soon as possible to find a positive meaning in the environment that surrounds him/her, but he/she is not always able to adapt as quickly as possible to the changed needs. This is not a question about designing accessibility by imagining more flexible spaces in the short and medium term, but adaptable spaces to ensure adequate levels of long-term performance and service. The adaptability of the spaces is also accompanied by the peculiar ability of users, who often intervene to try to satisfy their needs as soon as possible by creating customized solutions to assist them; it follows that an accessible environment, to be effectively inclusive, must be adaptable in a personalized way.

Accessibility and resilience, ending notes

Safety, declined with attention to the fragility of people, is an integral part of accessibility and allows to orient technological design to meet the needs of

⁶ On the subject of training of rescuers in the presence of people with disabilities, see: Ministero dell'Interno, Dipartimento dei Vigili del Fuoco del Soccorso Pubblico e della Difesa Civile (2001), *Il soccorso alle persone disabili: indicazioni per la gestione dell'emergenza*, Ministero dell'Interno, Roma.

people, understood as individuals and groups with special needs (in many cases in their natural evolution); accessibility is an essential requirement for resilience, understood as a condition related to contemporaneity in times of crisis⁷. The crisis, as a state of strong perturbation⁸, leads back to risk as an eventuality of the person, the community or the property to suffer damage in circumstances where the uncertain predictability implies an opportunity for improvement. Every resilient story is born when someone took the risk of investing in an improvement, because the resilience is the ability to stay in the unknown, to know how to get back in the game⁹.

The technological design assumes therefore the resilience as a transversal condition in the different scopes and scales of the project, similar to the ability of a system to preserve (improving) its qualitative and performance characteristics, to absorb changes and to react to them with adaptation and reactive capacity¹⁰. Changing usage needs (even more in accessibility), puts the reconfigurability, the enhanceability and adaptability as environmental requirements of resilience for a shared architecture with users. The participation of resilient users as (fragile) people, contributes to rethink the performance levels of use, with consequent improvement of the well-being, health and safety of all inhabitants.

References

- Conti, C.; Tatano, V. and Villani, T. (2016), “Accessibilità ambientale: verso l’inclusività nella progettazione / Environmental accessibility: towards inclusiveness in design”, in Lucarelli, M.T.; Mussinelli, E. and Trombetta, C. (a cura di), *Cluster in progress. La Tecnologia dell’architettura in rete per l’innovazione / The Architectural technology network for innovation*, Maggioli, Santarcangelo di Romagna, pp. 28-41.
- Lauria, A. (2017), “Progettazione ambientale & accessibilità: note sul rapporto persona-ambiente e sulle strategie di design / Environmental design & accessibility: notes on the person-environment relationship and on design strategies”, in *Techne. Journal of Technology for Architecture and Environment*, vol. 13, pp. 55-62.
- Leonardi, M. (2005), “Salute, disabilità, ICF e politiche sociosanitarie”, in Ferrucci, F. (ed), *Disabilità e politiche sociali*, vol. 8, 3, Sociologia e politiche sociali, FrancoAngeli, Milano, pp. 78-97.
- Lettieri, T. (2013), “Geografia e disabilities studies: spazio, accessibilità e diritti umani”, in *Italian Journal of Disability Studies*, vol. 1, n. 1, pp. 133-150.

⁷ Accademia della Crusca, www.accademiadellacrusca.it.

⁸ Enciclopedia Treccani, www.treccani.it.

⁹ INDIRE, Istituto Nazionale Documentazione Innovazione Ricerca Educativa, “Resilienza e nuove risorse per la sicurezza: intervista alla ricercatrice di Indire, Patrizia Garista”, www.indire.it.

¹⁰ From the introductory document of the Future Search Conference “Designing Resilience. Resilient Design”, MadeExpo 2017.