

Democratize Universal Design

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Abstract. Universal Design is a concept that tries to make minorities' life, especially persons with disabilities, better: not only by destroying physical barriers but also by trying to include them socially. Some Universal Design solutions exist and are being developed. Unfortunately, this development concerns few countries especially from the developed world. The idea is to look for the reasons why the inclusive designs ideas are not universal (everywhere). This work aims a better understanding for the different realities of representative countries in order to find a way to introduce Universal Design where there is a lack of awareness about it.

Keywords. Universal Design, democratize, inclusion, social awareness, design inclusive, design exclusive.

Introduction

The relational world of an individual is based overwhelmingly on communication with others and with his environment. Indeed, we all seek to join a group, to express an idea, an intention or a feeling through diverse ways such as the language, gesture, tone or vision. However, this interaction, although it's necessary for everybody, is far from being obvious in some cases. Indeed, it is very difficult to interact with other people and with the environment when it comes to a person who has different references (culture, norms, linguistic signs, dress forms and institutions...). Without having chances to express and interact with others, people feel quickly excluded. This interaction becomes a real challenge for persons with a disability: they are daily facing physical barriers of a hostile environment and social barriers of their society. Therefore, the risk of excluding them, physically and socially, increases. Even though the situation of persons with disabilities is different from a country to another depending on how tolerant the environment is and how adequate the products are to the need of these people. That creates a large spectrum related to the inclusiveness of the places. Each country presents a different degree of respecting people differences.

We count only few countries that are concerned by developing and presenting inclusive approach in their infrastructures, concepts and product design. Those countries are more from the developed world. Does it mean that universal design solutions cost a lot of money? Or it's a matter of awareness? Inclusive and universal are two terms that insinuate that something can be present everywhere adapted to

everything. But regarding inclusive design, many countries are excluded from the services and solutions that it offers. So how to democratize universal design?

1. Universal Design (Inclusive Design):

1.1. Definition:

The British Standards Institute defines inclusive design as "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 specialized design." By meeting the needs of those who are excluded from environment and product use, inclusive design improves product experience across a broad range of users. In an inclusive design approach, the product must provide suitable features to satisfy the needs and desires of the intended users. A product with a large number of features is not guaranteed to be functional!

The aim of Universal Design, according to the Research Institute for Consumers Affairs, is 'to design mainstream products and services so as many people as possible can use them', although they acknowledge that 'there will always be some people who need specialist equipment'.[1]

1.2. Facts and main challenges:

According to the "world report on disability"[2] done by the World Health Organization and The World Bank, we mention that "More than one billion people in the world live with some form of disability, of whom nearly 200 million experience considerable difficulties in functioning". Comparing this numbers to the one that have been given around 40 years ago by the World Health Organization. In the future, disability rates will increase due to ageing populations, which also means higher risks to have a physical disability. This is partly because people with disabilities are constantly facing barriers even when it comes to fundamental services including health, transport, education or employment. These barriers get stronger in less advantaged communities. "Disability disproportionately affects vulnerable populations". Results from the World Health Survey show higher disability prevalence in lower income countries in comparison with higher income countries [3]. In fact, the main challenge is in the developing countries: people with disabilities have less chance to access to education for example, in Colombia, only 15% of people with special need access to education [4], this reduces more their chances to be employed and that's what a study from the OECD (Organization for Economic Co-operation and Development) shows [5]. This will of course have repercussions on the financial situation of people with disability suffering from these conditions across the world but reaches the worst degrees in developing countries where UD doesn't seem to be a priority.

2. Democratization:

Whenever we speak about "Democratization", people think about it in a pure political approach. In fact, it means the transition from an authoritarian or semi-

democratic regime to a democratic one. Even in politics, democratization can be used in different contexts related to economy, safety and other topics. It is always related and influenced by various factors, including economic development, history, and civil society.



Figure 1. Democratize.

The general idea remaining about democratization is that it is a process that involves members in making decisions related to the group they belong to. In our case, we will use the etymological meaning of this term: Make something that used to have social, geographical, ethnical etc. limits, accessible to the greatest number, to all social classes, within the reach of all. Democratize includes economics, history, and culture, have been cited as impacting on the process. In fact, nowadays, we use this term when we speak about making products, innovation or technology accessible. It refers to the process by which access to one thing rapidly continues to become available to more people. At an increasing scale, consumers wants, not only to have greater access to new services and products, but also to participate meaningfully in the development of these products.

3. Design inclusive/exclusive:

3.1. Design inclusive environment:

Solutions and ideas for an inclusive environment exist already in many places. It goes from small products to the whole space. For example, when you visit Japan, from the first moment you go out door, you can easily notice the abundance of yellow embossed squares forming lines along the streets. This is what we call “Tenjiblocks” (点字ブロック). “Tenjiblocks” indicate the way and the stops. It allows persons with visual impairment to move freely and securely in the city. We can also find this equipment in the public places, inside the buildings and public transport stations so that the spaces enable visual impaired persons to access equally to the offered services, and move independently and confidently in daily moves. In Scandinavian countries, many companies designing products and furniture started considering peoples with special needs as potential consumers and users. IKEA, which is a Swedish ready-to-assemble furniture maker, made inclusive design appliances and home accessories.

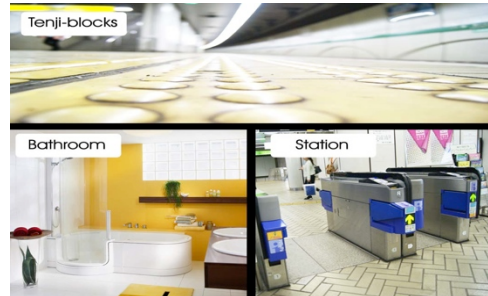


Figure 2. Example of Inclusive Design spaces and products.

Some carmakers lunched research and production of cars suitable for physically challenged people by offering customized solutions for car conversion for them. It offers various automotive electrical car conversion products that enable the person to drive a car with the help of his/her hands or using only one limb. Public transportation are also concerned by inclusive design concept. In many developed countries we can observe many universal design aspects. By public transport, we mean train stations, airports, bus stations, subway stations, etc., In this context, Inclusive design doesn't only aim to break the physical barriers for a free circulation of all the people including those with special needs, it also look for making the information more accessible to everybody. Users need to know easily basic information such as locations (guiding maps), schedule related to arrival and departure. They would also need other tools helping travelers to find their way around. Here, we visited some train stations around Kansai area in Japan. We could observe the existing ideas and installations for making public transport more accessible. We took notes about the observations, interviews and remarks. All has been illustrated in written notes, photos and few videos. This figure other example of inclusive design installations besides the guiding lines for helping visual impaired people to circulate freely, train stations and trains offer accessible toilets with keeping same ground level, lateral doors easy to open Public and commercial building and infrastructure provide few design features to permit people with disability ease of access. But with all the inclusive existing design ideas, we have to notice that, in many countries considered developed, most of the homes and public spaces are not wheelchair accessible. Public and commercial buildings are poorly inclusive designed; public transport is rare instead of being the standard.

3.2. Design exclusive environment:

According to a survey recently done, when we evoke the problem of accessibility of people with special needs, the first case think about is wheelchair users. We can also notice that one of the first areas where infrastructure, products and information technology improved the quality of life for persons with disabilities is wheelchair. In many capitals of developing countries, we can differentiate two parts: the old town and the expended part. Very small streets characterize many conserved parts of old cities. Sometimes, these streets don't allow car and vehicles to get there. Houses are usually horizontal (no need for stairs) and offering big spaces.



Figure 3. Who are the people that this design is made for?

As we can see the large space in this kind of places. Traditionally, three generations are living in the same house so there is always somebody to take care or help if another member in the family is in need. Although it's not having any of the inclusive design new solutions and products, this environment can be more tolerant for people with special needs than the new areas of big cities in developing countries. In fact, expanded part of the cities are imposing new life style where everybody needs to be independent, go out, work, go for shopping. These daily life activities become so challenging for people with any disability since they are exposed to danger all the time. We can notice a very poorly inclusive designed infrastructure in general.



Figure 4. Street and infrastructure of cities in developing countries example: Tunisia.

From this illustration of a street in a developing country we can notice how the environment is excluding many potential users. The total absence of any slope in the sidewalks creates barriers for many users even without a real or permanent disability (cyclist, wheelchair-users, persons having trolley, older people...). There is no visual or sound marks, tactile cues or ramps for giving a layout to help people with special needs, such as persons with a reduced visibility, to locate them self in this space and feel secure. They become dependent on others or deprived from their basic rights to access to the different services that the city can offer. Most of the buildings became vertical with out having necessarily an elevator or escalator and that make the evolution of the city more and more design exclusive. Only some high standing buildings, malls and hotels offer, to a certain extend, a design inclusive environment for wheel chair

user and aged people. In the world's developing countries we count more than four hundred million people suffering from a disability [6] Despite this huge number, we found attractive in observational study that, the less the environment is inclusive, the less we see people with special needs or aged people. We almost don't see anybody struggling to circulate or access to some places. We didn't feel the presence of people with disabilities. So, where all this persons are gone in these kind of cities? As we can guess, the entourage, environment and society make them so disabled to go out, that they prefer to avoid the external world and stay in their own prison called "home". Going to school, access to education or work becomes so challenging. They become completely invisible in their own neighborhood. That explains why in societies suffering from poverty, people with special needs represent the bottom of the pile. So what are the factors that make Universal Design a matter that everybody cares about?

4. Important factors for making an inclusive design environment:

4.1. Demographic Changes:

For a better understanding of the difference between societies and countries, demographic evolution is an important fact that needs to be studied. In our case, we know that the more we have active aged persons, the more important inclusive design becomes. So we want to see the percentage of aged people in different parts of the world.

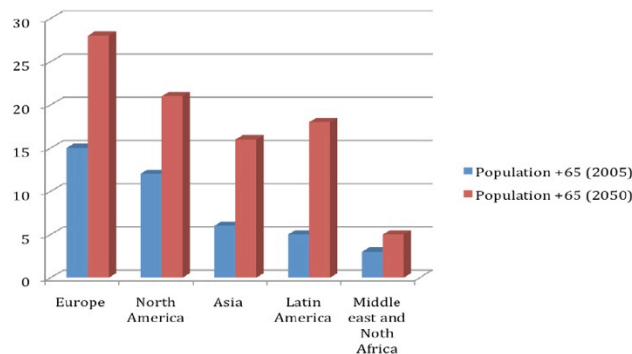


Figure 5. Aging population around the world. [7]

Figure 5 is based on the data furnished by United States Census Bureau; we could make this graph about recent estimations and expectations of the percentage of aged people in their society. It explicitly shows that, Even though this percentage is increasing worldwide countries, developed countries are and will still be more concerned about aging population. Japan, Sweden, Great Britain, the USA, and Norway have over 15% of their population aged +65 years (Crews, 2005). According to Crews 2005, this not only because of the improvement of health care especially in developed countries, but mainly because we notice a reduction of fertility rate and higher life expectancy. That means that the number of aged persons who need inclusive

design environment is important in the Middle East, North Africa or Latin America. The graph shows that in the coming days their rate getting higher in higher. According to the Health and Retirement Study (HRS)[8], chronic health conditions cases are increasing and knowing that older people have higher risk of disability.

4.2. Economical power:

To give estimation about economical power of different countries we will refer to the PPP given by From The International Monetary Fund (IMF) (see Figure 7).

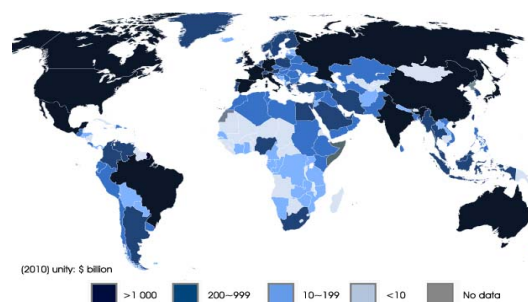


Figure 6. Who are the people that the design is made for. [9]

As we can see in Figure 7, the countries having the highest PPP are not necessarily the ones that offer inclusive design environment. There are some countries that have a less PPP but a better infrastructure and responding more to the need of people with disabilities such as Scandinavian countries PPP (200~999) that still more concerned by finding inclusive design solutions than West Europe or Brazil (PPP>1000).



Figure 7. Hippo water roller. [10]

This Figure give as an example as a proof that taking in consideration the need, cultural appropriateness and respecting the economical situation, universal design can expend beyond the riche and developed world. The Hippo Water carrier was designed to address the needs of low-income people in developing regions and displaced persons in temporary camps. Supplying a household with water requires a substantial investment in time and physical effort. The figure shows the carrier in use next to a woman carrying a bucket on her head. We can easily notice how the product, despite the low price, allows individual to carry much water at one time and easier.

4.3. Political decision:

For sure, a political decision is necessary to change the reality of people with special needs especially when it comes to prepare a better infrastructure, public transportation and policies. But in some countries, like Serbia when politicians took the decision to start working on it and to make some streets and buildings in Belgrade (the capital) more inclusive, surprisingly, a part of the population didn't react positively to this idea thinking that there are other priorities than putting money on inclusive design projects. This proves that the political decision alone cannot lead to real results.

4.4. Mentalities and awareness:

As we could see in the example given in Serbian experience, when there is a lack of awareness about how important inclusive design can be for everyone of us, democratize universal design becomes more challenging. As we could mention when we were making tours in some cities belonging to developing world, people they almost never mention the need of inclusive design solutions when we ask them about what they want to change in their cities. WHO CAN WE BECOME AWARE?

The first people to be aware of the need of an inclusive environment are the excluded ones. They are the best placed to understand how much it is challenging to live in a society that doesn't tolerate their difference. But sometimes, when exclusion becomes a fact for those who have a disability, they start believing that they are disabled and they deserve the struggle because nothing can be done for them, they become shy closed and they don't even try to claim their right for having equal chances with the majority. One of the wheel chair users that we asked said that: I'm feeling that "my handicap is a chore for me and for my entourage, I think can be done." Here we come to the second part of the people who can be aware about the necessity of universal design. In fact, if somebody who has a disability or a special need find him self in a design excluding environment, This will not have a negative consequences on the concerned person only but it will affect the life of his entourage (family, friend, people taking care of him...) people around are going to be much more empathic: putting them selves in the place of the people with a disability. As Jean Dion said: "Empathy is a public virtue obliged while indifference is a private vice." [11] Empathy is a way to feel how people with special needs view themselves in relation to the model that society impose of disability, their awareness of the Disability Discrimination Act and how it relates to them. It also describes in detail-disabled people's experiences of discrimination and problems accessing goods and services.

5. Increase social awareness in order to democratize universal design:

Reversal of roles:

To understand the situation of these people, let's imagine our self's as we are but in a different world. A world where the majority of human has wings, so able to fly and they would develop their concepts, building and products according to their abilities. Or in an environment where there is no possibility to communicate with sounds. These

situations will prove us how difficult simple actions become in different environment that doesn't tolerate our disabilities.



Figure 8. Scuba diving [12]

Scuba diving is one of the examples that make us discover how environment brings barriers. Diving is based on the solidarity of divers. Communication without speaking is essential. Although there are conventional signs " security ", not all information can be exchanged with these codes. So each diver, according to his ability, his sensitivity, his relationship, will find its own way of expression. The underwater world offers an environment similar to the one the deaf people are living in everyday, the possibilities of exchanging information without speaking are numerous. They are linked to sounds, attitudes, gestures, to look, to touch ... In the language we usually use to communicate, speech is often a priority. It can be used in immersion without special equipment, but some divers, used to frequently change together, manage to understand by making sounds (screams , cries , giggles ...) others would be hard to interpret. Writing as well as other means of expression can be used under water through submersible platelets



Figure 10. Showing how would a common person look like in our imaginary world.

In this case, people wouldn't even think that making stairs is necessary since only a minority can't fly. In that world, every one of us would feel design excluded: not only because he would find difficulties in moving from a place to another but also joining other flying persons in their activities would become a real challenge. Until now, most of people are still not aware about what can persons with disability can suffer from and how much they are excluded. For some people, a lot of places are as accessible as this following house could be for us. Imagining how we would feel in such kind of environment can make us aware about the importance of proving and working on offering accessibility to everybody. But accessibility is not only a challenge for those who have troubles in moving but also those having vision trouble. This

reversal of roles can remove the gap that exists between persons with a visible disability and those without it.

6. Project idea:

The project idea is based on this approach of reversing roles, offering a chance to what we call normal people to experience becoming, for a short moment, a person with special need; not by removing one of the senses or one of the ability that the majority of us is using, but by putting them in different environments that are not adapted to what they are used to. Then, every action or mission becomes challenging. We can imagine a place having different room in which we can experience many daily life actions with another perception in order to make and realize how difficult it can be. This place will have One is a dark room, a place where everything is written in an unknown language, an other place offering elastic clothes limiting the extension and contractions of muscles (it will remind difficulties that aged people are facing). In every space we can make a simple mission to accomplish by the visitors but every time, the environment is going to present some obstacles. Somebody who has a disability will guide the visitor but the environment will make from his disability a real ability (example: visually impaired as a guide in the dark room). There will be a reversal of roles, which makes the visitors feel like having a disability for a short period of time, is going to contribute the increase the awareness of the participants and push them to reconsider their perception about disability. The project needs to provide a lot a fun in order to attract participants.

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