

Designing for Diversity or Designing for All

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ABSTRACT

This paper is based on an ongoing reflective process on the notion of Universal Design (UD), and aims to discuss its specific application to product design. It forms part of PhD research being conducted at Aveiro University, Portugal, which examines the concept of UD and its potential use in industrial product development.

Thus we hope to contribute towards a broader understanding of the existing rapport between mainstream industrial products research and development and human diversity, as far as physical, sensory and cognitive capacities are concerned. We present our approach to the concept of UD and the systematization of two other related concepts: Universal Use and Designing for Diversity.

KEYWORDS

Universal Design; Product Design; Diversity; Equity.

INTRODUCTION

According to Mace's definition, Universal Design "means simply designing all products, buildings and exterior spaces to be usable by all people to the greatest extent possible." (Mace, 1996, p.2). This definition should be viewed from the context in which it was drawn up. In order for it to be clearly understood and subsequently properly applied to product design, the debate as to its real meaning and implications should be expanded to an increasingly larger number of professionals, with and without experience of designing products for people with special needs.

It is important to remember that the term Universal Design is more suited to the design disciplines, such as urban planning and architecture, which, by the very nature of their aims, are subject to a whole array of constraints that are very different from those of product design.

In the case of products for daily use, in point of fact, the product-user interaction is far more evident and individual preferences are accentuated considerably. Thus, a more ample diversity of users is translated into a wider range of needs and preferences at the individual level.

UNIVERSAL DESIGN AND PRODUCT DESIGN

We believe that the issues that UD raises at the heart of product design are central to the permanent adjustment that that discipline must make in relation to the system of social values in which it is integrated (Maldonado, 1999).

In consumer societies, the habitual notion of the average man as a consumer of mass products has been increasingly questioned. This change of attitude has forced designers to question also some of their own concepts that allowed 20th century industry to reach high levels of productivity.

The production models that are at the base of contemporary industry, which provide for production levels that are able to supply all kinds of products and services and to reach all strata of the population, were developed to respond to goals that are basically quantitative in their nature.

However, today industry has quite different goals to achieve. Take the example of a regular dishwasher detergent: at the exact moment of purchase, the consumer can make one of several options, associated with his or her own individual value system (price related, environmental, aroma, the skin protection it offers, and so on and so forth).

Through this system, consumer societies, fruit of the abundance of products and the availability of services, allow their citizens an ever growing choice. Consumers, on the other hand, demand from society an ever growing attention to their own individual traits.

This relationship between the construction of an individual identity and the consumption of material goods has been explained by Miller: "Mass goods represent culture, not because they are merely there as the environment within which we operate, but because they are an integral part of that process of objectification by which we create ourselves as an individual society: our identities, our social affiliations, our lived everyday practices"(Miller, 1993, p.215).

We can thus conclude that, if the product and service diversity we have at our disposal is strongly conditioning the mode through which we construct our identities, then to deny its access can be seen as an instance of social discrimination, given the fact it hampers the construction of identity and restricts the enjoyment of full citizenship.

Recognising material goods as factors in an individual's identity construction process is intimately related to the UD concept, for as one upholds for Universal Design, one is not only arguing for right of use, but also upholding equal rights in regard to the construction of identity through choice possibility. Equality is a fundamental principle in the Constitutions of democratic societies.

We are now set to define, what we feel are, the fundamental guiding lines for UD application in product design:

1. The recognition of the importance of industrial products and consequently the design process as defining factors in the dynamics of social integration/exclusion.
2. The search for design solutions that can lead to fairer and more equitable consumption in relation to all citizens, regardless of their physical, sensory and cognitive capacities.

UNIVERSAL DESIGN AND UNIVERSAL USE

The idea that the concept of UD defends the development of solutions suited to the full range of users (or at least as close to this goal as possible) is clearly put across in practically all of the definitions we find in the reference books published by the various competing schools of thought (universal design, inclusive design, design for all). Paradoxically when we take a closer look at the theoretical output we find that nearly all authors (in particular those specialising in product design) say that UD does not mean we design for every single person. Design for all is not the same as design for everyone.

This apparent discrepancy between the general definition of the concept and its more detailed explication is the first point we propose to examine.

It is somewhat easier for us to understand, on an architectural scale, how indivisible any given building is, a close-knit cluster of the systems and parts that constitute it. It is a relatively obvious fact that access to these several parts doesn't need to be secured by all the available options for any given individual user, but rather through the coexistence of the several systems in tandem, systems such as stairs, escalators, ramps, elevators and so on, that bring about the possibility for each and every user to make the most suitable option to his or her own needs.

In product design such an array of options is done quite differently from the one at stake in space creation, or the services one finds within them. Take a post office, for instance: the services it offers and the access to its area should be as clear as possible for all potential users, but the products that are made available do not have to be, each and every one of them, universal in use; rather, they just have to allow, as a whole, for its universe of users to be granted the access to the best suited solutions.

Thus, Universal Product Design is achieved not through the universality of each and every solution but through the universality of the offer, which consists of the group of existing solutions.

This difference between building use and product use leads us to the need of separating and clarifying two concepts, which we believe to be quite distinct: the very concept of UD, representing the ambition for a more equitable, fairer means that promote the social integration of everyone, and the concept of Universal Use which stands for the actualization of a space, product or system, as suited to the whole universe of its users (or which is headed that way).

As we mentioned earlier, separating these two concepts is of paramount importance, given the fact that the construction of a fairer environment for all does not necessarily entail the development of solutions that are suited to the whole universe of users. We actually consider that the overlapping of these two concepts brings about two of the most recurring, misinterpretations of UD:

1. the impression that UD is actually unattainable;
2. the idea that if a product works for persons of lesser capabilities then it will work for all users.

The first misinterpretation is related to the very origin of Mace's formulation, which is further qualified with "...to the greatest extent possible.", a qualification which recognises that "all" is actually an impossible goal to attain. This idea stems from the erroneous belief that UD and Universal Use mean one and the same thing, which then couples the impossibility of achieving the latter with the former.

The second problem lies in the unfailing feeling that people in general come across problems, and more often than not, with product use. This is a fact confirmed by Holly E. Hancock, Artur D. Fisk and Wendy A. Rogers in their study, in which they evaluated how ageing affects one's use of everyday products, but reached the conclusion that what was more significant than an age-associated and triggered increase in difficulties was the high percentage of people across all age groups that have trouble using products (Hancock, 2001).

However, the generalised difficulty users come across, where the use of everyday products is concerned, is not at all a good indicator of the notion that one could solve all these interaction problems through the use of a single, universal solution. Quite the contrary, Margolin suggests that the interrelations between people and products should be understood as a singular process of information exchange (Margolin, 1995).

The issues raised by the need to enhance product quality through interaction with the users are to be found in the concerns of many authors, no matter how different their backgrounds. Dreyfuss, one of the main responsible people for the introduction of concepts that would lead to the establishment of the average man, grounds it in his Design for People book: “Joe and Josephine are austere line drawings of a man and woman,(...) They remind us that everything we design is used by people, and that people come in many sizes and have varying physical attributes. (...) They are part of our staff, representing the millions of consumers for whom we are designing, and they dictate every line we draw”(Dreyfuss, 2003, p.26).

UD is quite different from this mainstream approach due to the fact it emphasizes, first and foremost, human diversity.

DESIGNING TOWARDS HUMAN DIVERSITY

From our point of view to distinguish clearly between the concepts of the Universal Design and Universal Use, requires the introduction of yet another concept, which we will call Designing for Diversity (DfD), a concept that fully encompasses the issues raised by Mace’s UD concept, although recasting it differently.

Designing for Diversity is the development of solutions that answer to human diversity, as far as physical, sensory and cognitive capacities are concerned, in a fairer and more equitable manner.

We will attempt to understand the benefits of focusing product development on the notion of Human Diversity, without the constraints imposed by the Universal Use model.

Take a stove, for instance. As an object for everyday use, we can contemplate it immediately and in direct relation to notions such as comfort, autonomy and safety.

What would be a stove designed for Human Diversity? This would be a stove that was thought as in accordance with and regard for the needs of diversified users: people who have culinary skills and people who do not; people who have a greater or lesser perceptive or feedback interpretative abilities in regard to product usage (their senses of smell, vision, sound...); a wide range of physical capacities and conditions; not to mention that each and every individual will have a unique conjugation of these diversity variables (for there is no direct correlation between them: bad eyesight, say, does not imply physical weakness).

In terms of expectations or needs, we can predict an ample array of options as well: some of the users will certainly prefer to be able to control as minutely as possible the time and the temperature of the stove, in order to obtain highly-specialised results; others will prefer the stove to do all the work, reducing thus the necessary interaction time; others still will want to try out for the very first time a new recipe; and some will want to repeat as exactly and rigorously as possible a learned skill, in order to reach the desired effect.

This leads us to predict the immense diversity of goals also expected of products, an ever increasing number if we take into account that a lower ability level does not imply less demanding performance expectations.

If we were to think of the solutions in accordance with the Universal Use concept, the solution could be reached via two distinct strategies:

1. a redundancy of systems, that would allow for the several users’ stove usage profiles at the various performance levels, which would inevitably lead to excess complexity triggered by the overload of

available functions, aimed at serving a segment of the universe of users, but quite useless to any other segment.

2. an adjustment to the lowest degree of complexity, simultaneously lowering the level of use difficulty and the differentiated interaction possibilities.

Conversely, if we design it for Human Diversity, the solution could and would be adjusted to the individual needs of a diverse array of users, without meaning that it should be adapted to all.

The main difference between these two approaches lies in the development of solutions regulated-by-all or solutions regulated-for-each.

This is not a play on words: it is an actual differentiation between concepts, in the sense that DfD aims not at the development of products that are compromised by several, different needs, but rather at the development of products that can directly respond to specific needs.

In terms of its manufacture, a product developed for Human Diversity would be easily customised by the user himself at the moment of purchase, or easily transformed throughout its use, in the case of a product with a long useful life.

These characteristics could emerge from the resort to standards and to modular structures, or from the ease of linkage between several components, which are all quite commonplace practices of production strategies in many consumer products sectors, although rarely used to allow the product's use by users with diversified capacities or needs.

In Portugal, just as in other European countries, when you buy an ice-cream in a shop you find a given set of available parts: cones and cups of several sizes, and usually a few dozen flavours; as you purchase it, you may group these parts differently and thus point out the wide range of possible combinations. Younger customers will make a different choice from adult ones; an allergic customer will be specific in his or her choice...; each choosing what is best suited to him or herself. These shops' trading models not only allow for customization in terms of personal taste, but also in terms of other particular needs.

This conceptualization, production and sales model is also employed in other product typologies: photographic material for professionals brings with it the possibility of the user purchasing and assembling the most appropriate configuration; the kitchen furniture industry allows the use and choice of modules, resulting in the purchase of tailor-made solutions matching the user's needs.

These are but a few examples of products, with distinct complexity scales and degrees, where we can come across this notion of diversity of solutions as the appropriate response to diversity of needs.

But contrary to this current practice in existing industries, the idea of adapting products for people with special needs has traditionally been seen and dealt with as a stigmatizing one.

The question that then arises is as follows: is it the individualised nature of the assistive technology which gives these products their stigmatizing character? We do not think so, for if we are to find a stigma, it is based on the fact that as the solutions are associated to assistive technology they usually represent a very primitive, basic characterization of needs; as a result, their development is often guided by criteria similar to those used in hospital triage, that is to say, the user is seen as a patient.

The idea that we can only reach non-discriminatory solutions via Universal Use, an idea that was heralded by examples such as the lever doorknob, actually pushed product designers into conceptual dead ends, every time they came across the development of a more complex product.

The development of industrial products involves finding solutions that allow for the complex interaction that emerges between products and users, and what the UD concept brings to this discussion is solely the fact that within that process there are people who are more often than not considered to fall outside the number of potential users, with all its inherent implications.

CONCLUSION

The approach we have attempted to discuss, clearly separates the social goals of Universal Design from the concept of Universal Use. This conceptual separation is, to our mind, a vital step if we wish to implement Universal Design and achieve a fairer and more equitable industry.

Along with the systematization of the Design for Diversity concept, which we hope will be discussed among industrial designers and others who are fundamental to the industrial process, from this moment onwards, two questions arise that we consider as crucial research pathways:

1. what is the role of Universal Use in the development of fairer and more equitable products for people with highly diversified physical, sensory and cognitive capacities?
2. to what extent can productive strategies focused on human diversity, such as *adaptability* or *customization*, contribute to the development of mainstream products that can respond to the needs of human diversity without resorting to a non-stigmatizing form?

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