

ACCESSIBLE GUIDELINES ON DIGITAL ENVIRONMENTS: Application of graphic-inclusive parameters for the website development

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1 Context

Accessibility is a key concept in this line of thinking. In an overview of the subject, accessibility is defined as the possibility of anyone, regardless of their physical and motor, perceptual, cultural and social skills, enjoy the benefits of life in society, having the opportunity to participate in any activity, even including the use of products, services and information, with the possible restriction of minimum (Nicholl, 2001) and (NBR 9050, 1994). It is the operational translation of the basic right to come and go independently in all environments, whether physical or virtual (Gameleira, 2002).

RODRIGUES and Contributors (2000) point out that the adoption of accessibility in the production of pages and Internet applications become the documents more flexible, quick and easy to use. When thinking about web accessibility, usually the most common idea about the application in a website is the accessibility bar, which contains a button to leave the site in high-contrast (represented by the letter C) and buttons to modify the font size (represented by the letter A), which were designed for people with various types of visual impairments.

Note that this accessibility encompasses much more than the visually impaired, as highlighted by the Accessibility Model of Electronic Government, a document from the federal government of Brazil that guides the production of accessible digital products (E-MAG, 2014). An accessible website should have a rich content to encompass different educational levels and age groups, organized to be navigated by people with little or no experience in using the computer as well as being compatible with different browsers and devices that can be used to access a web page.

The expansion of the Internet in recent decades has revolutionized the ways of communication and access to information increasingly being common the use of computers by people with disabilities. With regard to such access can be divided into four main situations experienced by users with disabilities, according to the E-MAG (2014):

- 1- Access to computer without mouse: people with difficulty in controlling movements, paralysis or amputation of an arm;
- 2 Access to computer without keyboard: people with amputations, severe limitations of movement or lack of strength in the upper limbs;
- 3- Access to computer without monitor: people with blindness;
- 4- Access to mute computer: people with hearing impairment.

Thinking about the application of graphic design, we also highlight other situations:

- 5- Access to computer without color distinction: people with color blindness;
- 6- Access to computer without the understanding of letters and symbols: people with communication disorders (dyslexia).

In this article the situations will be addressed the itens 3, 4, 5 and 6, thinking in possibilities and parameters for the process of creation in graphic design focused on inclusion. We'll discuss the aforementioned deficiencies, the technologies and the digital products that can contribute to greater inclusion of people with physical and cognitive limitations, when designed to include as many users as possible.

2 Method

From researches in the sites that propose parameters and accessibility guidelines (WCAG: Accessibility Guidelines for Web Content - version 2.0 - and E-MAG: Electronic Government Accessibility Model - version 3.0), a list of graphic recommendations (typography, layout and color) it was held in order to gather important information on the subject.

After the data collection of the parameters, we present two virtual environments, developed by one of the authors, that the W3C accessibility guidelines are used in order to exemplify the feasibility of these and ratify its efficiency.

The first, called "The Poets Special" (www.ospoetasespeciais.com.br), completed in 2015, is an accessible learning object aimed at children with special educational needs. This is an experimental project, already tested well with users with various disabilities such as learning disabilities, communication and deafness. The second site was developed in 2016 and entitles it is "All Equal Horizontally" (www.tudoigualna

horizontal.com.br). It consists of an accessible environment about sexuality and disability back to the adult audience with communication disorders, hearing and visual perception.

After that, the two sites were subjected to comparisons with graphic-inclusive parameters of developer's organs of accessibility in digital environments (W3C and E-MAG) on the following topics: typography, colors, buttons and icons and use of media.

3 Results

Before testing prototypes and analyzes carried out during the years 2015-2016, with children 6 to 11 years with special needs and adults with a disability, it was noted that the specifications of accessibility to funding agencies (W3C and E-MAG) were applied.

Based on these results, it was noted that the projects objectives have been achieved. The object "The Special Poets" proved accessible in use by children of different ages who have or not any special education need.

The sites were shown to be accessible, whereas the use of an individual without disabilities simulation using individuals with impaired vision - through screen readers, audio description and color blind vision simulators - the use of typographies for dyslexics and use of subtitles in videos or sound elements.

4 Conclusions

"The Special Poets" proved to be an important tool for learning, with a different and creative platform that seeks to give the necessary assistance to educators and demonstrates fundamental sensory support to children, due to its layout, colors, typefaces and elements aimed at interactivity and the inclusion.

"All Equal in Horizontal" is presented as a significant source of information and digital and social inclusion, as it portrays real situations of people who suffer prejudice on a daily basis, using graphics accessibility to inform and educate readers.

The design, as theoretical and technical tool, collaborated in the development of appropriate graphical interfaces to a public still in need of affordable products and enabled a different approach through visual identity.

It was found that the existence of digital environments that value human diversity would provide great benefits to society in general, expanding new research and leading the user to look inclusive perspectives.

We can conclude demonstrating that the consequences of this project cannot be singled out promptly, but that in the long term, it is planned to produce graphic-inclusive parameters for the development of digital learning objects aimed at children, because as teaching material still exists great potential to be studied. This study is currently giving the authors, through master's program and a research group called "Inclusive Graphic Design: sight, hearing and language".

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