INCLUSIVE LEARNING MANAGEMENT SYSTEM INTERFACE EVALUATION

Carlos Henrique Berg[1], Msc.
Silvia R. Pochamann de Quevedo[2], Dra.
Tarcísio Vanzin[3], Dr.
Vânia Ulbricht[4], Dra.

(1) Universidade Federal de Santa Catarina
e-mail: henrique.berg@gmail.com
(2) Universidade Federal de Santa Catarina
e-mail: silviareginaquevedo@hotmail.com
(3) Universidade Federal de Santa Catarina
e-mail: tvanzin@gmail.com
(4) Universidade Federal de Santa Catarina
e-mail: vrulbricht@gmail.com

1   Context

Computers and the internet have allowed the distribution of culture, knowledge and education to much of the population, especially after the Internet came to be accessed from anywhere and at any time. Communication via hyperlinks happens through mathematical processes, incomprehensible to most users. Are digital interfaces that allow human understanding of cyber content, using recognizable metaphors of reality, as the desktop metaphor, where the computer screen simulates a desk with various equipment: calculator, text editor, spreadsheet , email, VoIP telephony, etc.

Such metaphors are designed within a certain context that are not universal, are private, and when extrapolated to other contexts, may present barriers to understanding. Barriers can frustrate a user, generating negative valences on experience, reducing navigation time and not favoring the return to the environment. In the case of distance education, computer and internet is a powerful tool, the capacity of transmission and presentation of multimedia content, allowing the student to choose the most convenient way of learning. The student has at their disposal books, articles, films, presentations, discussion groups, among the various ways that a teaching-learning process can contain.

Hence the importance of promoting the development interface evaluations in order that accessibility barriers are identified before the product become public and frustrate the user experience. In education, reduce or eliminate barriers to accessibility offers more to the student learning opportunity.

The virtual environment WebGD learning education was developed by research-ers of the Federal University of Santa Catarina (UFSC), with descriptive GeoMe-industry content for people with hearing impairments, visual and without disabilities. In the case of access to public with sensory impairment, to identify barriers to accessibility has become even more important as these changes should be considered in the development of an accessible environment.

The objective of this assessment is to identify barriers to accessibility of virtual environ-being teaching learning WebGD Affordable at the stage where the interface is designed for users with hearing impairment. The following will present the methodology followed by the evaluations, recommendations and final considerations. This study aimed to identify barriers in the specific interface starting from the following problem: - As the digital interface WebGD Accessible may have increased the accessibility for people with hearing disabilities?

2   Method

Among the various paradigms of reviews of digital interfaces, computerized procedures, inspections by expert, heuristic evaluations and tests of uses bility (Nielsen, 1995), three of them were used in this research.

The study began with the use of computerized procedures, automated processes that are online and offline. These programs / applications scan a web page in search of programming errors. The scans are commonly based on WCAG recommendations in versions 1.0 and 2.0 of the World Wide Web Consortium - W3C.

The second part of the assessment made use of inspection by experts. Two experts, a woman and a man, separately, made the inspection. The woman performed the inspection, considering the intuition as a guide, the most common process between users when the discovery of a new environment. The man considered the functional structure of the project.

The third method was developed by Heuristic Evaluation Toggnazzinni (2014). Eighteen heuristics were used in the evaluation. Each evaluation presented the results of a form. For the computerized procedures errors and problems found during scans were found. The critical points were this-ed in the results.

The inspection by experts presents its results in the form of textual analysis, while heuristic evaluation shows its results in table form, indicating compliance or not the environment. At the end, they were woven the recommendations for the reduction and elimination of barriers encountered, prioritizing activities according to importance and urgency.

3   Results

Based on the results presented by various evaluations, the following recommendations are   made

3.1.   automated   procedures
Despite these methods they lack a human point of view, they seek syntax errors in programming. The type of displayed error, error parsing, or the wrong typing commands. The advantage of this method is that it indicates precisely the location of the

error and suggests what can be done. Are the corrections that can be made faster. In the case of negative results of the pages cascade, they are cumulative, so the repair of basic pages, the others will be automatically corrected.

3.2. Inspection by experts

Each of the experts identified various barriers. The first expert suggests that the developers refine the significance of relations between it-gomarca and the objective environment. That the purpose of WebGD appropriate and attuned to the audience, or the audience to be better defined. It also suggests that icons should be immediately recognized that have function, and that the redundancy errors are overcome. The information must be appropriate to the target audience's interests.
For the male expert makes five recommendations:
a) About the interpreter of Libras: cutouts of the human body without spatial reference, create an image that can be misinterpreted by the brain, the suggestion is to place at the foot of the page along the bottom edge of the monitor.
b) To install a program: before the operation is performed you need to tell what will be done, where it comes from and what the implications. The process should be clarified before starting use.
c) web address changes (redirects) the user must be informed before the change, and that there are different rules of use, as the mirror of the research group at the Capes site (http://dgp.cnpq.br/dgp/ espelhogrupo / 5738054239218577).
d) On the <publications> put the hyperlink Mendeley: https://www.mendeley.com/groups/2226061/webgd/papers/
e) permissions and locks: predict the minimum number of necessary facilities or referrals that may confuse the user.

3.3. Heuristic evaluation

This assessment used the 18 heuristics developed by Tognazzini (2014) to verify compliance environment. Of the three non-conformities found the recommendations are as follows:
a) Anticipation - it warns the user when routing pages or in-stallation applications
b) Autonomy - give option to the following user or not a referral or application installation
c) Objects Human Interface - avoid change of site or environment, and develop a feedback mechanism to the original environment when necessary.

4   Conclusions

The observations are explained here recommendation object to improvement of inclusive teaching and learning virtual environment WebGD Affordable. They represent adjustments as in any virtual environment, always subject to constant change and innovation. The Communication Area experts identified issues relating to noise in the message, which can lead to lower rates of absorption, and therefore less likely to expand the content with the target audience, since the communication is one of the main routes of transmission of knowledge.

5   References

1. BASTIEN, J M Christiain; SCAPIN, Dominique L.. Ergonimic riteria fot the evaluation of human computer interfaces. 2.1 França: Institut Nationale de Recherde En Informatique Et En Automitique, 1993. 82 p.
2. NIELSEN, J. MOLLICH, R.1990. Heuristic evaluation of User interfaces. CHI'90 Proceedings. 249-256.
3. NIELSEN, Jakob. Technology Transfer of Heuristic Evaluation and Usability Inspection. In: INTERNATIONAL CONFERENCE ON HUMAN-COMPUTER INTERACTION, 95., 1995, Lillehammer. IFIP INTERACT. Lillehammer: International Conference On Humancomputer Interaction, 1995. p. 1 – 9.
4. TOGNAZZINI, Bruce. First Principles of Interaction Design: Revised & Expanded. 2014. Disponível em: <http://asktog.com/atc/principles-of-interaction-design/>. Acesso em: 15 jul. 2016.

6   Acknowledgments