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Rethinking Brand's Presence: Universidade Federal Fluminense's Website Project Focusing on the Users

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Abstract. This article presents a redesign concept project for the main websites of Universidade Federal Fluminense, associated with Usability practices like information architecture and the application of researches to assess the usability grade of a website. The process also includes qualitative exploration with users and elaboration of guidelines that will set the future steps for the online presence of a brand.

1   Introduction

In its 21 years of existence, the Internet developed itself, growing supernaturally (and continuing to grow), dictating new standards and becoming part of a key piece in trends on technology market.

Tim Berners-Lee, creator of the structure known as Internet, said that "*The Web users want to obtain information quickly and easily. They don't care so much for attractive websites with a beautiful design*" on the not-so-far year of 1996, when the network started to have its access open and popularized at the houses of United States. According to the Internet Live Stats, a website that centers statistics about the network, actually we have more than a billion websites known[1].

With the popularization of the net, the common users (besides scientists and militaries, first users of the Internet) started to aim their spaces on the web, to be visible. This massive and global democratization of the cyberspace brings all the types of public to the global net of connections, including the designers. And, that way, the developers and programmers started to see the visual part of websites in a different way.

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[1] Known because they're indexed by the search crawlers (like Google). Internal networks (or intranets) and deep web websites are examples of "unknown" addresses because they are not indexed.

Concepts such as Accessibility (to make a website navigable for disabled people), Usability (studies of ways and alternatives to make a website easier and more logical to access - more usable) and design ideas focused on the interaction man-machine through the sites and design focused on the browsing experience, although recent, emerged to disseminate the knowledge and ideas of a few designers aiming at a better Internet, easier and more universal.

However, this attention to details and studies on usability, interface and interaction (cross-platform) of Universidade Federal Fluminense's websites were relegated to a computerized way to get printed information or, if anything, prioritize a non-accessible design for all (whether disabled or mobile users, for example).

Just to situate the reader, Universidade Federal Fluminese (or UFF) is a public university in the city of Niterói, in the state of Rio de Janeiro, Brazil, and part of the Public Education System, composed by federal, state and county universities, high and elementary schools. UFF is 56 years old, with 135 Undergraduate and 250 Graduate Programs, which have almost 50,000 students spread on presence and distance learning modalities.

2   Initial Analysis

My choice for a project to a university is based on the discernment of the University's image to the public in general. This valuation houses several aspects and, between them, its communication, specifically the online presence of the brand UFF.

Understanding the structural dimension and relevance of UFF to both Niterói and Rio de Janeiro cities and for the whole country, plus gather all this flux of knowledge and information produced daily within the University's classrooms and laboratories to the public through a media can seem complex, as complicated as it is to provide (and maintain) an infrastructure that supports all these communicational performances.

With this thought, I realized that there would be ways, through standardization and guidelines formulations, to optimize this communication infrastructure. More than aesthetic issues, standardize reduces costs, generates redundancy on the information warehouse of the institution (servers, cabling structure etc.) as well as enhance the site traffic with more and more users. This way you can spread, increasingly, the content produced by students and teachers of the University.

In addition to the technical requirements, the standardization of the framework for websites and portals, the proposal to Universidade Federal Fluminense will visually set the tone and help in the process of memorization and resemblance between the people and the University's brand. The current principles that guides the brand studies are to seek new ways to make the brands more present and permanent in the minds of consumers.

It is also a favorable point for the visual similarity as a way to authenticate the information on that virtual place. Recognizing the standardized structure, the visitor can have an (indirect) perception that that content is from a website of a government organization, then, has truthfully.

However, despite a path that heads this way (of unification on communication) by the current administration of the University, I believe that the development with a focus on usability and standardization itself go beyond the simple thing of *"a website just for everything"*. Seeing this way, the challenge in this project is to find ways to optimize and standardize (visually) the portals and websites of Universidade Federal Fluminense without forgetting to make it easy for anyone accessing the site (like a high school student, student enrolled at UFF, teacher, disabled person or not etc.).

2.1   Targets of this Project

The target is every person that has a computer with internet access, but will be considered, to this project, the following targets:

Discere[2]: Students, alumni and potential students of the University. The site is expected to reach the great mass of spontaneous access, with information for students who want to enroll to the University, to the student who is part and for the alumni of the University, in order to valorize one of the mainstays of the institution.

Docere: Professors and former faculty members. Also needs an approach to teachers and former professors of UFF that, even with years of knowledge of the University, still tends to look for specific information that should be available online, offering a convergence of all physical media to digital.

Seminare: Formal and outsourced workers. One of the most undervalued parts of Brazilian Universities, the technical-administrative and outsourced also have prioritized parts of the site for important information to them as employees and as members of the UFF Community.

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[2] *Discere, Docere* and *Seminare* is latin for *To learn, To teach* and *To sow*.

2.2   How Other Universities Works?

In analysis of the key representatives of the same segment of the UFF (i.e. the main public universities of the Southern part of Brazil), it is possible to realize a high resistance (or laziness) by the IT departments of the institutions to adopt new visual patterns or usability (such as responsiveness, more simplified layouts and better arrangement in the sitemap).

Accessibility is an item present in only 4 of the 20 sites analyzed, and even though, the minimum required for a website to be considered accessible or wasn't applied or was applied but not attending to what is set as the default. An example to be followed for the implementation of this project is the new website of the Universidade de São Paulo (www.usp.br) who, despite not having the minimum of the accessibility tools, is an example to be followed in usability manners and of a well-structured sitemap.

Now analyzing the major private universities of Rio de Janeiro and São Paulo its perceptible the investment in the aesthetics of the websites. Although the important for a website is its content and the way it is structured, the typesetting and layout of the pages are most relevant items for most ordinary users.

Unlike the publics, the private universities' websites weren't possible to identify the presence of accessibility tools (like text in high contrast or increase them or commands guide for screen readers). Of all 14 sites analyzed none had any of the options written above.

They may be mentioned as examples of good layout structure the websites of Fundação Armando Alvares Penteado, Universidade Estácio de Sá, Universidade Cásper Líbero and Universidade Veiga de Almeida.

3   Theoretical Context

First of all, it is necessary a basic presentation of the notions addressed in this project. **Accessibility, Usability, UI** and **UX** are very present concepts in the perception of the average user when entering and navigating through a website, but are not exemplified or explained, leaving only the perception when using the Internet. To Krug [1], *"people don't like to puzzle over how to do things. The fact that the people who built the site didn't care enough to make things obvious – and easy – can erode our confidence in the site and its publishers"*.

According to van Amstel [2], *"interaction design is another proposal to bring what is lacking on Engineering in the development of new technologies: a*

concern for the user", in a way that the structure of a website – from the content distribution through pages to the website layout itself – will always be thought focusing on the user perception and their probable lines of reasoning that they might have during the "read" the website.

The interaction, in this case, is not related to the transceiver relationship but to the website response to every form of interaction that the user does, can being patterned interactions (as prepared content for a page in particular) or custom (which will be structured upon options or pre-determined by the user).

Now the idea of Usability is directly linked to Experience Design, in a way that the user experience, if easy and intuitive, with other factors, will show that a site is usable. The process of thinking usability goes beyond a layout of a website made in a simple way, with bright colors etc., but as a process of elimination of probable questions that you (as a common user) will do when entering to your site. To Krug [1], *"making pages self-evident is like having good lighting in a store: it just makes everything seem better"*.

Usability itself is more applied to practical solutions. First you need to understand the flaws that your website has and then resolve them, but with this process being carried out by the ordinary user's point of view, and not the information architects' view, or designers who have in-depth knowledge of the content of the site, which will lead to distortions in the results of Usability testing.

Now Accessibility involves methods, manners and questions related to the power of access to sites by users with disabilities and, more recently, has been added to accessibility questions about the capability of access by mobile devices such as smartphones and tablets, starting from principle that also for these segments need to have adjustments in the structure of the site, which will optimize for small surfaces or touch-sensitive screens.

With the concepts already presented, the attention will focus on another important point of the project in relation to what is currently found on the web: the content. To Dias [3] the corporate portals should seek the *"ease of access to information distributed in different systems, files and institutional databases"*. Besides being usable and accessible to everyone, a website cannot fail to be a reference for its quality of content and always available, both for public or private organizations.

All the observations presented here should be studied and considered not as an obligation or as tasks to be accomplished by a designer or a web developer, but as a variant of its work aiming a better understanding of the users to your

product (usability) and the availability of this product to everyone (accessibility).

4   Thinking on Experience, Thinking on Users

Before developing any part of the project, attention should go to what needs to be done. Before all the surveys and validations, we need to establish the guidelines of what will be accepted or not then, from these guidelines, produce recitations (wireframes, layouts and the final product) and skeleton (sitemap and information architecture).

The grouping of this knowledge resulted in the *Book of Guidelines for the online presence of Universidade Federal Fluminense* (in Portuguese at https://www.slideshare.net/secret/zwmqR9ElGA0gH6), accompanying instructs and condenses the trends that will guide all the presence of UFF brand on the Internet.

4.1   The Book of Guidelines

Figure 1 Book cover [4].

The main purpose of the Book is to standardize the institutional communication at medium and long terms. With it, you guarantee some minimum criteria that must be met so that the result and the duty cycle aren't affected.

Novelty in this Book, the *Managing Committee of the UFF Communication* must meet the specified minimum requirements and they will be responsible for deciding any changes in online communication platforms. The Committee would be chosen by the senior chiefs (Directors, Pro-Rectors etc.) according to the availability of each internal office.

Working directly with the Committee, the Pro-Rectors, Superintendent's Offices, Coordination Courses and Directors of Colleges/Institutes should list people responsible for maintaining and updating their respective fields on the portals, websites and electronic systems of UFF. This directive seeks to promote a culture of constant maintenance of online channels of the institutions.

In addition to the Committee, the Book discusses guidelines for the editorial standard of communication of UFF and instructions for translation of websites. All the work done for the Book should be reversed in brand value (metaphorical value, association) for users.

5   Execution: From Card sorting to HTML

As mentioned earlier, the development of a website involves, besides the visual and technical issues, thinking back to the Information Architecture. For de Moraes [5], the *"card sorting is a usability technique used to discover the mental model of the user in an informational space. (…) Used to verify the difference between the way in which the inexperienced and experienced users understand the system"*.

The methodology of card sorting research is to make use of cards with content description of some pages of a website (just the keyword or a multiple-lines text, what will be best understood by the user) and the surveyed are asked to arrange those cards into groups (predetermined or not), in an arrangement that is best in your view.

Through pattern recognition in the provisions made by each assessed, the content of the website is structured. This test helps also to identify difficult terminologies to be understood by the target audience, identify content categorization difficult or even information that could exist in more than one group.

In this project, I developed a hybrid card sorting inquiry, in which the surveyed could or could not define names to groups that categorize the cards. In all, they listed 42 cards and 6 groups with the following information:

Table 1 List of items in the card sorting research [6].

#	Content of the card	#	Content of the card
1	Information about internships	22	Business Incubator
2	Information about mentoring	23	Intellectual Property Office
3	Information about tutoring	24	International Mobility for UFF students
4	Admission to Undergraduate Courses	25	Mobility for foreign students
5	Description of disciplines	26	Universalization Program of Foreign Languages
6	Teach and Working Staff Year Schedules	27	Languages without Borders Program
7	Undergraduate Courses	28	List of UFF's Online Systems
8	Graduate Courses	29	Events that will happen at UFF
9	Curricular matrices of courses	30	List of Addresses and Phones
10	Outreach actions at UFF	31	Service Bulletin (BS)
11	Information of Outreach grants	32	List of former Deans
12	Information about PIBIC grant	33	Course coordinators contact info
13	Units (*Campi*) of UFF	34	Portuguese for Foreigners
14	Scholar requirement	35	Overseas Opportunities
15	UFF ID Card	36	National Mobility
16	Student housing	37	List of Public Calls
17	University restaurant	38	Cinema / Art / Exhibitions
18	Aid grants to students	39	Sports at UFF
19	Outreach actions of UFF	40	Shuttle bus
20	Meeting of Outreach Scholars	41	UFF Publishing House
21	Outreach Presentation Week	42	Information and Notices

Table 2 List of predefined groups to clustering the cards [6].

Predefined groups for clustering					
Teaching	Research	Outreach	International	Institutional	News

From this structure, mounted on an online card sorting system, these test had the participation of 72 people. The result takes into account two provisions: The percentage of the card within the group repetition (which divides the number of repetitions by the total participants) and the number of repeats itself.

Through these repetitions, it is understood that content is too much or too little adherence in that group to which it is. According to Jakob Nielsen, guru of usability, *"knowing how people group certain cards provides a deeper insight into their mental models than the simple fact that they ordered the cards within the same cell."* [3]. Below goes a summary table with the results of the card sorting survey.

Table 3 Card sorting results[3] [6].

Card #	Teaching	Research	Outreach	International	Institutional	News
01	7% (5)	3% (2)	3% (2)	1% (1)	4% (3)	**33% (24)**
02	8% (6)	4% (3)	4% (3)	-	10% (7)	**18% (13)**
03	8% (6)	7% (5)	7% (5)	1% (1)	10% (7)	**13% (9)**
04	**25% (18)**	-	1% (1)	-	17% (12)	4% (3)
05	**21% (15)**	7% (5)	-	-	10% (7)	8% (6)
06	8% (6)	3% (2)	1% (1)	-	14% (10)	**19% (14)**
07	**38% (27)**	1% (1)	-	1% (1)	10% (7)	1% (1)
08	**26% (19)**	6% (4)	11% (8)	1% (1)	3% (2)	-
09	**28% (20)**	6% (4)	1% (1)	-	11% (8)	1% (1)
10	-	1% (1)	**35% (25)**	-	10% (7)	1% (1)
11	1% (1)	4% (3)	**21% (15)**	-	3% (2)	13% (9)
12	3% (2)	**15% (11)**	8% (6)	-	6% (4)	**14% (10)**
13	8% (6)	-	-	-	**38% (27)**	4% (3)
14	**22% (16)**	1% (1)	-	1% (1)	21% (15)	1% (1)
15	6% (4)	1% (1)	1% (1)	-	**39% (28)**	1% (1)
16	4% (3)	-	4% (3)	1% (1)	**38% (27)**	1% (1)
17	1% (1)	1% (1)	4% (3)	-	**43% (31)**	-
18	**13% (9)**	4% (3)	11% (8)	3% (2)	**13% (9)**	4% (3)
19	4% (3)	-	**39% (28)**	-	4% (3)	-
20	3% (2)	10% (7)	11% (8)	1% (1)	6% (4)	**18% (13)**
21	1% (1)	1% (1)	**43% (31)**	1% (1)	1% (1)	4% (3)
22	4% (3)	**19% (14)**	8% (6)	1% (1)	8% (6)	1% (1)
23	6% (4)	14% (10)	4% (3)	-	**19% (14)**	3% (2)
24	-	-	1% (1)	**40% (29)**	4% (3)	-
25	-	-	-	**47% (34)**	-	1% (1)
26	8% (6)	3% (2)	10% (7)	**22% (16)**	-	3% (2)
27	7% (5)	-	4% (3)	**36% (26)**	-	3% (2)
28	1% (1)	7% (5)	-	-	**32% (23)**	6% (4)
29	1% (1)	-	3% (2)	-	10% (7)	**36% (26)**
30	1% (1)	11% (8)	1% (1)	-	**25% (18)**	10% (7)
31	-	4% (3)	-	1% (1)	**21% (15)**	**19% (14)**
32	1% (1)	10% (7)	-	1% (1)	**26% (19)**	6% (4)
33	11% (8)	10% (7)	-	1% (1)	**15% (11)**	4% (3)
34	8% (6)	3% (2)	3% (2)	**32% (23)**	-	-
35	1% (1)	3% (2)	-	**44% (32)**	1% (1)	4% (3)
36	6% (4)	4% (3)	7% (5)	**13% (9)**	11% (8)	3% (2)
37	6% (4)	**13% (9)**	1% (1)	1% (1)	**13% (9)**	**14% (10)**
38	7% (5)	3% (2)	14% (10)	-	7% (5)	**25% (18)**
39	7% (5)	1% (1)	14% (10)	-	**22% (16)**	10% (7)
40	1% (1)	3% (2)	3% (2)	-	**49% (35)**	3% (2)
41	4% (3)	-	6% (4)	-	**29% (21)**	6% (4)
42	1% (1)	3% (2)	3% (2)	-	4% (3)	**35% (25)**

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[3] The cells marked in dark grey were the chosen one by the high number of repeats. There's the percentage of repeats and, in in parentheses, the exact number of repetitions.

By completing the survey that would define the informational architecture of the site, the next step is the production of wireframes (layout drafts) and then processing those drafts into a definitive layout.

5.1   Layout Construction

The construction of the visual structure of the site took into consideration its multiple purposes and targets that must meet. Through a blocks structure, sorted by colors, the user can identify their area in a quick "read" through the website. It also seeks to stimulate a culture of direct association to a visual element to the area the user searches on the page, optimizing navigation and better directing the user to what he is looking for.

In accordance with a main color palette, which uses shades of blue (referring to UFF logo), complemented by green (for Education/Undergraduate), purple (for Research and Graduation) and grey (for International). Outreach, Institutional and News uses other shades of blue, not used in the chromatic scale of the identity of the University. Appended to this, the use of modern and easy-reading typography dictates the tone of easing and universal access.
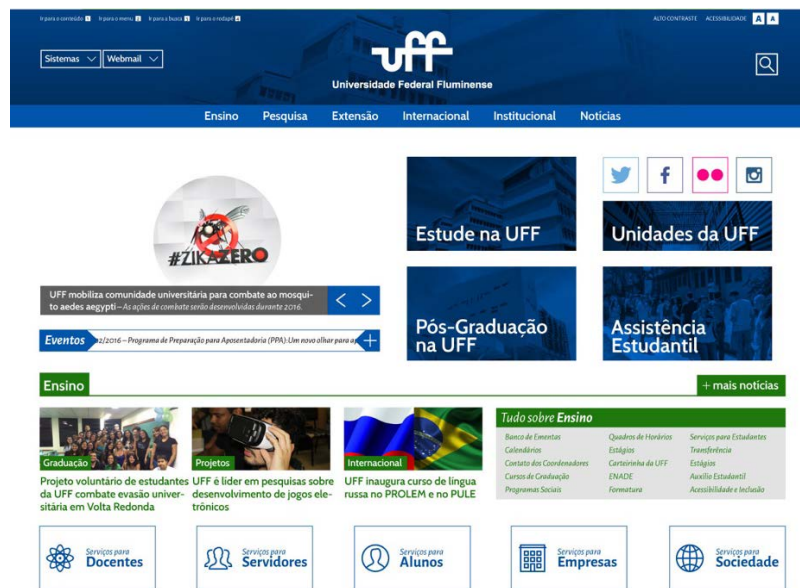

Figure 2   Final version of the layout to UFF websites [4].

The downscaling for costs already said stems from the reuse of static files of the site (such as stylesheets and theme programming files) for all portals and websites, generating better allocation of resources and site bandwidth. The final

result of the development will be shown below. Further details on the composition of the site and the modules are specified in the *Book of Guidelines for the online presence of Universidade Federal Fluminense*, available at <https://www.slideshare.net/secret/zwmqR9ElGA0gH6> (in Portuguese).

The image above has the layout finalized with a mock-up already including a provision of content on the site, especially the classification of Main Areas (Education/Undergraduate, Research/Graduation, Outreach etc.) with colors and own modular structures. In addition, the Corporate Portal includes a structure for cases in which the site is facing an internal agency (like Office, Faculty or Superintendence, for example). The result is available below and also is further detailed in the Book of Guidelines.
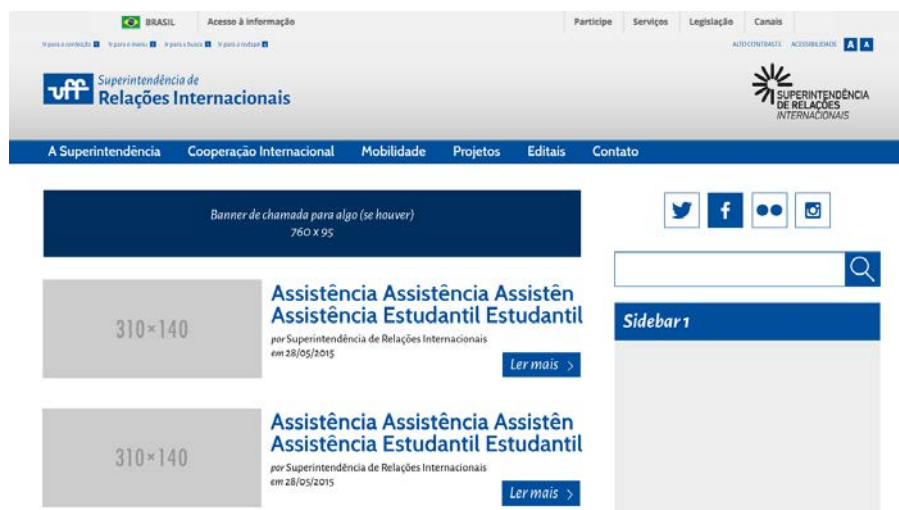

Figure 3   Default layout for internal offices websites [5].

6   Results

The assessment of the results achieved is also through qualitative research, but focused on the practice of usability. Usability tests used in this project are called *First Click Test*, which is to determine one or more tasks to the researched user and it will indicate on the site, by clicking where it would solve the task.

This research method was used given the fact that it is easy to apply (because it demanded only a screenshot of the entire page without programming structure or servers) and has also developed online form through websites that offers this service. Both on card sorting methodology and this one, the respondents were

invited to participate in the site development process as showed interest in contributing to the efforts.

The round of surveys included the development of three tasks (classified into Easy, Medium and Hard) for both the current layout as for the proposed and sent to 24 different people, where 12 people responded activities in the actual layout and 12 in the proposed layout. The three tasks were:

1. "Where you would click to find the Timesheet its course?" (Easy level question);
2. "Where you would click to read about aid grants to Undergraduate students?" (Medium level question);
3. "Where you would click to see the list of former Deans?" (Hard level question).

The results showed a substantial difference in the solution of tasks by the surveyed proposed layout in relation to the current layout. The following is a summary table of the information collected in this survey.

Table 4   First Click Test results. Values in seconds [4,7].

Task	Actual Layout		Proposed Layout	
	Time spent	Hits	Time spent	Hits
List of Deans	36s	**92%**	**20s**	67%
Aid Grants	29s	25%	**25s**	**100%**
Timesheet	43,5s	33%	**27,5s**	**67%**

In general, the required tasks have been solved in a shorter average time on the new layout than in relation to the current layout. In contrast, the task to find the list of former Deans, the hit rate was higher in the current structure than in the proposal. Also in contrast there is a quadrupling of the hit rate in the test on the aid grants in the proposed structure in relation to the current structure.

The third and final batch of inquiries consist of three Preference Tests, in which it asks the researched and the answer is between opting for one or the other website layout. The questions were:

1. "Which layout do you think it's more minimalist?";
2. "Which layout do you think it's more friendly?";
3. "If you could marry one of two layouts, what would it be?".

By being surveys that dealt with the perception and aesthetic view of each researched, the analysis needs to be done taking into account the submitted conditional. The result of the questions, conducted with 12 people, were:

Table 5 Result of the Preference Test [4,7].

Question	Actual Layout	Proposed Layout
More minimalist	**58% (7 of 12)**	42% (5 of 12)
More friendly	17% (2 of 12)	**83% (10 of 12)**
Marry one	17% (2 of 12)	**83% (10 of 12)**

For example, it is perceptible the preference of those surveyed people by the current layout in minimalism question. Taking into account the amount of content on each page, the current version is really minimal, but the proposed version is more comprehensive and detailed on page structure, so that the user doesn't get out to perform other actions. These and other conditionals should always be considered in qualitative research analysis.

In this way, it proved the effectiveness of the proposed layout of the current layout as it is statistically friendlier and accepted by the audience that uses the site, and has been developed, from the beginning, focusing on users.

7   Conclusions

This project aimed, initially, to propose a visual change in the website of the Universidade Federal Fluminense structure. However, the work has expanded to other topics and took form to something beyond than a simple graphical proposal for the online, it became a strategic plan that defines long-term standards for all the online communication of UFF.

With the exponential growth of public institutions of higher education, either in number of students, buildings or courses, it is essential to propose plans and guidelines that will dictate the way to work for months or years. This behavior is common for management on any university but was never thought to the communicational area of an institution. The competence and studies of Usability crosses decades in many countries but still crawl in others. The proposal, most of all, is that this project will serve as an additional channel of propagation and instruction for new students who have affinity with this theme.

Another conclusion that can be drawn at the end of this project is that it promotes good practice in the design oriented to the web and also encourages the enhancement of accessibility on websites of the Government. Recently the Department of Communication of the Presidency of Brazil (SECOM/PR) produced and developed a standard framework for all government websites, including there the minimum requirements for usability and accessibility. But, if any Governmental agency aims to produce its own structure, that this effort be

stimulated and that takes in consideration, as major guidelines, the universal access through accessibility and usability.

It is worth mentioning that all this plan, by the nature of the subject, is susceptible to changes. These changes are natural, because deals with people and their perception is constantly changing. The tests performed here must occasionally be re-applied to assure the efficiency of the existing structure of websites. Not only to measure the existing content but in cases of additions or content removal. The perception of the user will never be equal to the perception of the usability specialist or information architect.

I can't fail to mention the major trend and adherence of information assets (sites and portals) to the multiplicity of formats and devices (especially mobile devices). This project included visual and informational guidelines for this trend (which also has just started on the country) though it should be followed to any change in scenery, is the adoption of proprietary mobile applications or complete convergence for mobile devices. The future is in mobile but also on the desktop.

Finally, I hope that this work, thought and led for months to nail, has practical applications in the University or serve as a reference for applications at any other Brazilian institution. The important thing is to stimulate and disseminate the concepts and perceived benefits of Usability and Information Architecture in favor of users and companies.

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