Comparative Analysis of Covid-19 Infected Information Sites

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Abstract

In order to perform a heuristic analysis on two information sites in the fight against coronavirus, the search criteria and analysis methods were taken from the Human Computer Interface discipline, from the Instituto Federal Catarinense de Rio do Sul, thus making an analysis as demonstrated by Jakob Nielsen, analyzing its 10 heuristics and thus making a comparison between the two websites coronavirus.sc.gov.br and Defesacivil.riodosul.sc.gov.br, reaching a result through the analysis with the aid of the Macbeth method. The analysis of the heuristics proposed by Jakob Nielsen revealed differences between sites that have the same proposal, which is to inform about the fight against the coronavirus, thus keeping the population informed. As can be seen on the website of the municipality of Rio do Sul, the defensecivil.riodosul.sc.gov.br won in the comparison of the two websites, having a score of 237 against 190 of the website of the state of Santa Catarina, the coronavirus.sc.gov.br, also highlighting that the municipality's website had the highest score in terms of visibility and correspondence between the system and the real world.

Keywords
Covid-19 Sites, Heurístic, Nielsen

1. Introduction
In the 1940s, when the first computers appeared, not everyone could use them. It was necessary to be an expert for this. However, over time, the scenario has changed. Computers were gaining popularity among companies and families with excellent financial conditions.

In this context, for the use of computers to be easier, several usability studies were carried out and Nielsen's 10 heuristics are among the most famous until today. Currently, if we can easily interact with systems, much is due to that. Jakob Nielsen and Rolf Molich proposed, in 1990, these usability heuristics, to be considered in any interface development.

1.1 Objectives

The objective of the paper is to analyze two websites of public organizations, which have a duty to be transparent with the information and data captured in the fight against the coronavirus pandemic (covid-19), the study is about verifying from the heuristics created by Jakob Nielsen points out the positives and negatives of two websites in the state of Santa Catarina https://www.coronavirus.sc.gov.br/, and in the municipality of Rio do Sul https://defesacivil.riodosul.sc.gov. br/. In this article we will see the 10 heuristics proposed by Jakob Nielsen and observations of the two sites cited.

2. Literature Review

According to Castells, the evolution of technology is inherent to human progress, manifesting itself according to the context of each era, since it is stimulated from needs, values and interests. Due to such a wide advance, we are exposed to a range of countless possibilities of information, values and interests. About 10 years ago, when a company wanted to develop an interface for an interactive product, she was looking for interface designers. Such professionals were mainly involved with the design and evaluation of products for desktop applications (Rogers et al. 2000,).

It is important to bear in mind that software development, web development and other items go hand in hand with design, as a poorly designed interface will result in a poor user experience, which is why it is important to consider the user experience (ux design) linked to interface design (ui design), before, during and at the end of the development of a project. To help with this, the ten Nielsen Heuristics are the way to design a good interface and excellent user experience.

The MACBETH method is to allow measuring attractiveness or values of different options through a non-numerical peer-to-peer questioning model, based on seven qualitative categories of judgment for differences between attractiveness: indifferent, very weak, weak, moderate, strong, very strong, or extreme. MACBETH's key distinction from other numerical value measurement methods is that it uses only qualitative judgments to differentiate attractiveness and generate, through mathematical programming, scores for options and criteria weights (BANA E COSTA et al., 2012) .

3. Methods

In order to have a better understanding of the characteristics that most please or least please on the websites, we must carry out a qualitative analysis, with the objective of seeking to understand the individual experiences of the users.

In this article, the Macbeth method was used, where it was analyzed which heuristics had the greatest importance and then the weight per heuristic was defined from this study, where VERY STRONG has a weight of 5, and ends in VERY WEAK with a weight of 1.

4. Data Collection

The survey was carried out in June 2022 and, as a result, another table was created where scores were given for the two sites for each heuristic, where the value of the score was multiplied by the weight, thus obtaining a final result as shown in Table 1.

Table 1. Heuristic in the Macbeth method

ORDER	HEURISTIC NUMBER	%	A-Z	WEIGHT
1	1	20	1	VERY STRONG (5)
2	2	17,77	2	STRONG (4)
3	7	13,33	3	MODERATE (3)
4	9			
5	3	11,11	4	
6	4	8,88	5	
7	10			
8	8	4,45	6	WEAK (2)
9	5	2,22	7	
10	6	0	8	VERY WEAK (1)

TOTAL	99,97	

It can be seen in Figures 1 and 2 that the websites present different situations because they are a little different, but some situations we can see that they are similar, such as an accessible banner about the transparency of public money coming to face the Coronavirus.

On both sites there is news or information about cases, obviously because it is just a municipality, the information on the civil defense website of Rio do Sul, defensecivil.riodosul.sc.gov.br (Figure 4), demonstrates greater visibility of information making this type of information very accessible, since on the website of the government of the state of Santa Catarina, coronavirus.sc.gov.br (Figure 3), the data is not visible on the first page, requiring greater observation to find this type of information.

Figure 1. (https://www.coronavirus.sc.gov.br/)
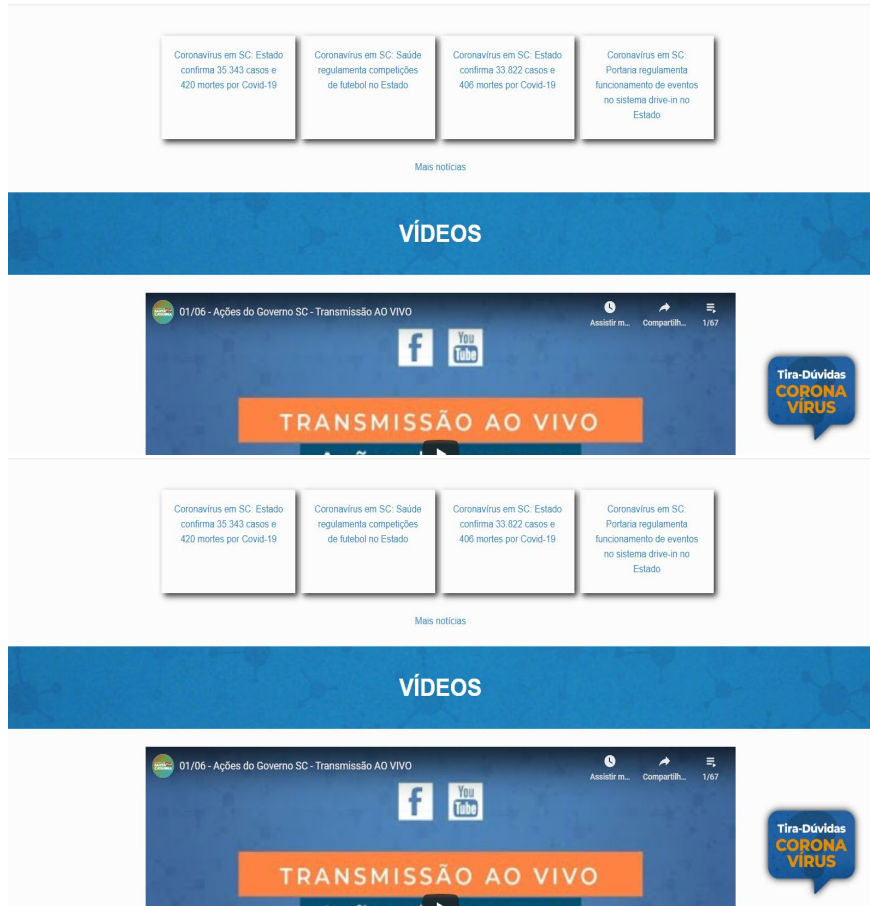

Figure 2. (https://defesacivil.riodosul.sc.gov.br/)

Figure 3. (https://www.coronavirus.sc.gov.br/)

Figure 4. (https://defesacivil.riodosul.sc.gov.br/)
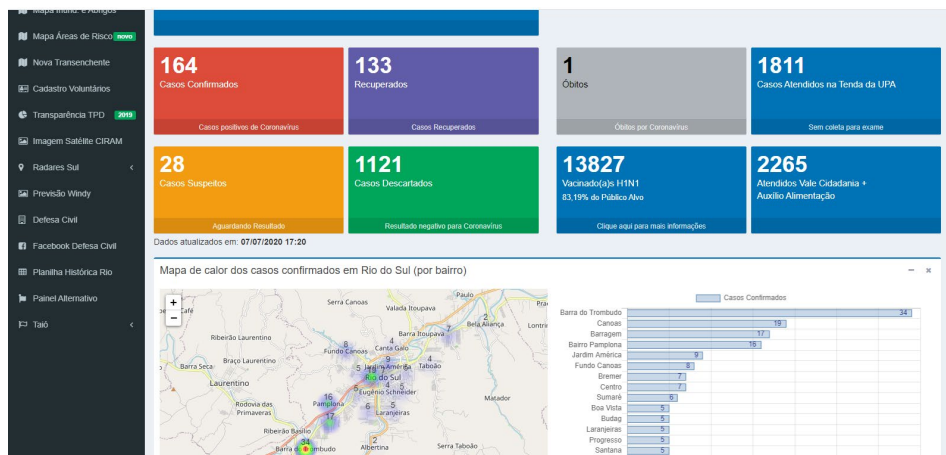
There is a greater correspondence between the system and the real world in the civil defense portal of Rio do Sul, when there is an interest in verifying the number of infected, recovered, and assisted as well as discarded cases, easily showing the population that accesses pandemic statistical data, since it is the coronavirus.sc website, we see that there is a need to search for information through tabs, and even so it only shows the positives and deaths by municipality, lacking some information so that those who access it can verify the real case of each municipality, in addition to the

data arriving late, queries made on the same day show a delay of more than a week in the information, thus leaving the website of the state government of Santa Catarina out of date.

Here it was verified that the website of the municipality of Rio do Sul, the developer made it very easy to search for information with colors changing the information, leaving it, in addition to being pleasant, very intuitive.
The ease and freedom of the user to search for information on the website of the municipality of Rio do Sul, because all information is already on its homepage and if the user wants other information such as the current decrees, there are easy-to-access links to search for this information, on the website of the Government of the State of Santa Catarina, the search is complex, in its upper right corner there is a symbol of a magnifying glass, which determines the place to search for information that the user needs.

The two web pages have a common pattern, but making a comparison between them we see that they are very different, the one for the municipality of Rio do Sul brings a lot of information, already relevant on its first page and also symbols to facilitate the visualization of certain information that the user may want it, on the website of the government of the state of Santa Catarina, coronavirus.sc, we also see a pattern, but something less colorful and with fewer symbols, but with a differential of artificial intelligence.that the user needs.

The website of the municipality of Rio do Sul, is easier to recognize, as the information is more visible and is on the home page, making it easy for the user to view it without the need to search for information, as is the case with the coronavirus website .sc where, in order to find some information, the user must do a search on the site itself, making recognition difficult and requiring greater memorization of where this information is.

Thus, the comparison here demonstrates that the website of the government of the state of Santa Catarina, coronavirus.sc.gov.br, is very difficult to navigate through, requiring greater computer knowledge, as the user needs to look for information.

5. Results and Discussion
5.1 Numerical Results
After the survey, another table was created where scores were given for the two sites for each heuristic, where the value of the score was multiplied by the weight, thus having a final result according to Table 2.

Table 2. Heuristic in the Macbeth method

Number	HEURÍSTIC	WEIGHT	coronavirus .sc NOTE	Points	defesacivil.riodos ul.sc NOTE	Points
1	System state visibility	Very Strong (5)	6	30	10	50
2	Correspondence between System and real world	Strong (4)	5	20	10	40
3	User control and freedom	Moderate (3)	7	21	8	24
4	Consistency and Standardization	Moderate (3)	8	24	9	27
5	Error Prevention	Weak (2)	6	12	8	16
6	Help to recognize, diagnose and remedy errors	Very Weak (1)	4	4	4	4
7	Recognition instead of memorization	Moderate (3)	6	18	9	27
8	Flexibility and efficiency in use	Weak (2)	8	16	5	10
9	Design estético e minimalista	Moderate (3)	7	21	9	27
10	Help and documentation	Moderater (3)	8	24	4	12
TOTAL				190		237

5.2 Graphical Results

The graphical results in Figure 5 has the heuristic´s points about the Website coronavirus.sc and defesacivil.riodosul.sc in line system.
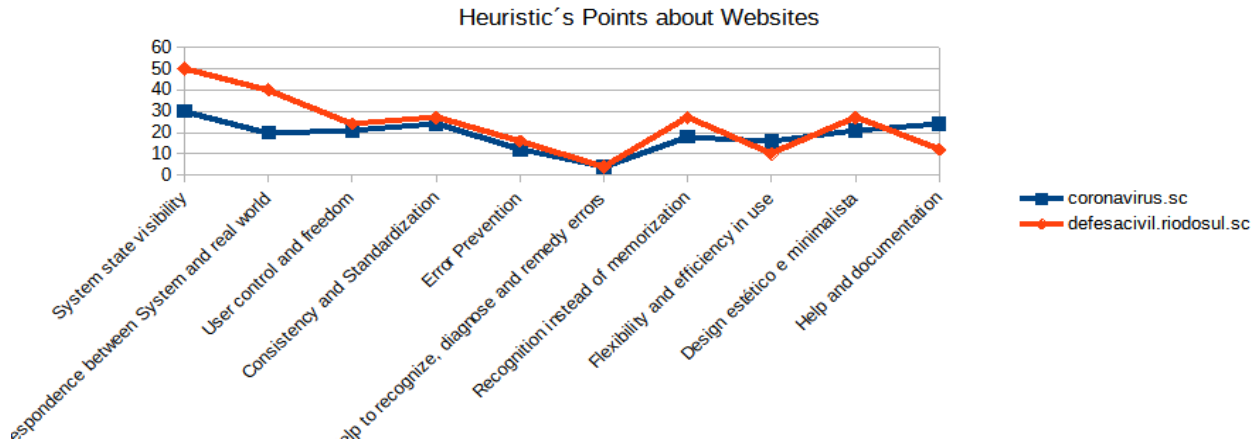

Figure 5. Line graph of dots in website heuristics

5.3 Proposed Improvements

As can be seen, the website of the municipality of Rio do Sul, the defensecivil.riodosul.sc.gov.br won in the comparison of the two websites, having a score of 237 against 190 of the website of the state of Santa Catarina, the coronavirus.sc.gov.br, also highlighting that the municipality's website had the highest score in terms of visibility and correspondence between the system and the real world.

Naturally, websites can be improved to meet the demands of the population in a possible new wave of the coronavirus pandemic.

5.4 Validation

For additional validation, it is proposed to increase the number of people evaluating the websites, which are currently no longer being updated due to the regression in the number of active cases in the year 2022. As well as the relaxation of all health restrictions.

6. Conclusion

The analysis of the 10 heuristics proposed by Jakob Nielsen were achieved in this article, thus managing to verify differences between sites that have the same proposal, which is to inform about the fight against the coronavirus, thus keeping the population informed.

As can be seen, the website of the municipality of Rio do Sul, the defensecivil.riodosul.sc.gov.br won in the comparison of the two websites, having a score of 237 against 190 of the website of the state of Santa Catarina, the coronavirus.sc.gov.br, also highlighting that the municipality's website had the highest score in terms of visibility and correspondence between the system and the real world.

Naturally, websites can be improved to meet the demands of the population in a possible new wave of the coronavirus pandemic.

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