Analyzing Readability Issues in an Infographic Webpage

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ABSTRACT

In this paper, we try to analyze the problems faced by users while reading an infographic web page which contains image illustrations for textual information. Such a webpage is susceptible to many design flaws. We collected data from different user groups by means of observations and survey. We established a cause-and-effect relationship between any particular design flaw and the magnitude of repercussions it has on the overall reading experience. After analyzing user feedbacks and common issues that they encounter on a daily basis, we identified potential areas of improvement. Alongside, we tried to gauge users' proclivity for a certain solution to counter aforementioned issues. In this paper, we present the findings of the quantitative and qualitative analysis of readability issues in an infographic webpage.

Keywords

Readability, Comprehension, Context, Images, Infographic, Web Page, Information, Concentration

1. INTRODUCTION

In this age of internet, World Wide Web has become a major source of information. Majority of people use internet as a knowledge repository, thanks to the zetabytes of data uploaded on webpages. This knowledge comes from variety of sources such as blogs, science magazine, social media, community forums, websites etc. One common problem with information provided on the internet is that it does not come in the form of pure text. Articles over the internet are replete with image references and tabular data. It is observed by surveys and interviews conducted by our team, that not all peoples are really comfortable with way the information is provided over the internet. In this project we try to explore reading issues, especially with "out of sync" image references on the webpage.

2. PROBLEM STATEMENT

Many a times it is observed that a web page contains images and references to these images are made at multiple places across the page. In this case the reader has to scroll back and forth through the web page every time he has to refer to an image. This is highly inconvenient. Due to this, the user faces many problems like loss of continuity, comprehension and context. It also puts stress on user's vision, due to which the user cannot concentrate fully. It also consumes considerable amount of user time. This results in spoiling the user's reading experience

3. TARGET USERS

All the people who use internet and read online content are affected by this problem. Infographic web pages are visited by users across all age groups. We have surveyed people from age groups ranging from 15 to 45 years to analyze the effect of this issue on their overall reading experience. We have surveyed around 81 people and observed and interviewed 24 people. The observations and findings are presented in this paper in sections below.

4. LITERATURE SURVEY

The readability of online web pages has been shown to be influenced by a number of variables including text size, type, positioning of image references etc. The users were more satisfied with the enhanced layout and reported it to be less fatiguing to read.[1]

4.1 Data collection

To collect the data, we created a small survey using google forms (http://goo.gl/forms/D5raoyVo2h) and posted on various social media platforms like Facebook, WhatsApp and LinkedIn.

The questionnaire used for the survey included the type of articles users read, the device on which they prefer to read and issues while moving to and fro in search of images.

From the collected data, we found that 92.6% of the people who have taken the survey prefer web pages with text and images.

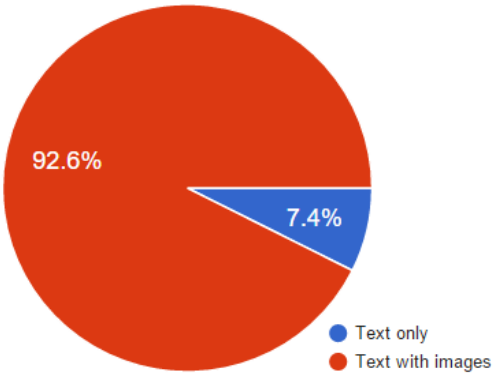

Figure 1

We asked people 'Which of the following devices do you prefer to read web articles?'

As seen from figure 2, 51.9% people prefer laptops, 25.9% people prefer mobile phones, 13.6% people prefer desktop and 8.6% prefer tablets. So now we know that majority of the users prefer laptops. That is the reason we have decided to create a plugin for desktop browser (Firefox).

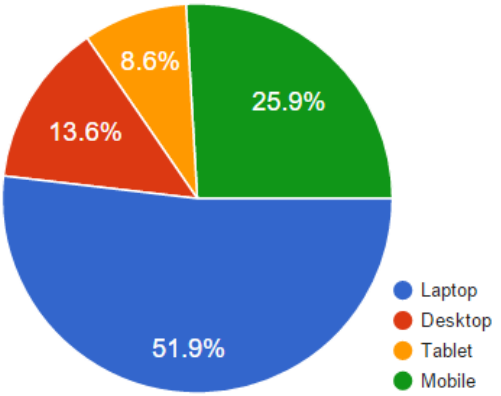

Figure 2

Another question we asked was 'Do you lose context while navigating back and forth for the images and their references?'

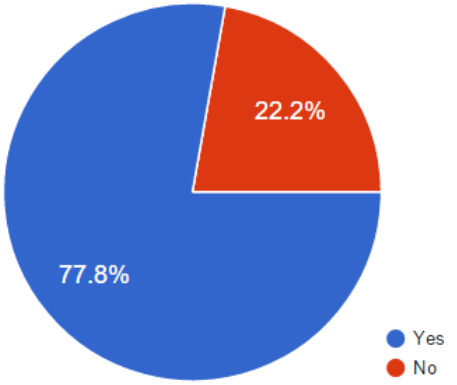

Figure 3

As shown in figure 3, 77.8% of the people said they lose context while navigating back and forth for image references. Losing the context also means losing concentration as well as spending more time on reading. This was the most crucial question in our survey as it decides the utility of our application.

When asked about the time they spent on navigating through the page, we got the following responses as shown in figure 4.

91.4% of the people generally spend 1-10 min extra on navigating through the references of images.

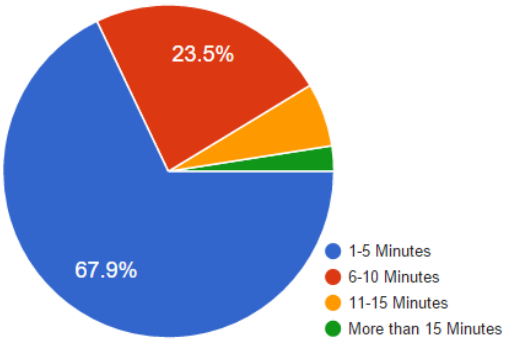

Figure 4

When asked how they dealt with the problem, the responses were something like this. Most of them (51.9%) preferred opening the image in a separate tab side by side the content. Figure 5 shows that 27.2% people still prefer to navigate to the images from their references. It was evident that users wanted an in place solution to overcome this problem.

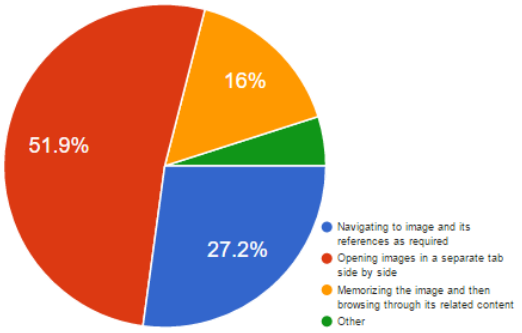

Figure 5

We also asked people how they would like this issue to be countered. We got the distributed responses from users.

Figure 6 shows, 34.3% of the people said they would prefer the image popping up on hovering over its reference in the web page.

29.9% of the people said they want thumbnails to be shown on the right side of the web page while navigating.

While 22.4% people preferred having an image widget by the side, the remaining 13.4% people want image to pop up in a separate window.

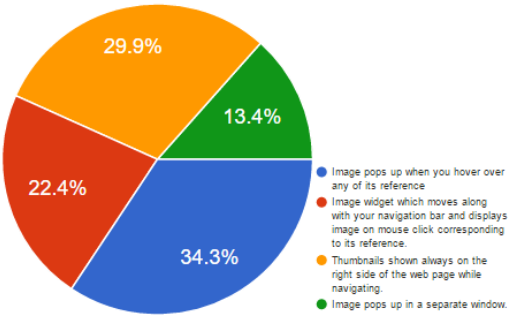

Figure 6

4.2 Results from Interviews and Observations

We conducted half hour session with 24 different people and observed their behavior while reading the web pages.[2][3]

Following are the observations:

1. People generally tend to zoom in the web page while navigating through it. This generally make people scroll more in search of images in the article.
2. In this article, although it is nicely written, there are few image references which are away from the relevant text.
3. Because of this, user lost the context a bit by moving back and forth of the web page.
4. Sometimes it becomes frustrating when you are reading deeply and you lose time because of the difficulty in finding references, resulting in loss of context as well as time.
5. This may affect the concentration of a user and thus, the overall readability experience.

We also made a questionnaire for users.
The statistics of the 24 responses are as shown in table 1.

Questions	Overall Responses
Are you satisfied with default text size and image position or you have to make some adjustments?	Not Satisfied
How many times your concentration broke during the reading of articles?	Very Often
Does frequent scrolling gives your eyes strain?	Yes

Table 1

We asked users what type of reading issues they encountered while reading the exercise. The answers were generally the loss of context, loss of flow and loss of concentration because of the need for frequent scrolling of the web page.

This questions helped us in gathering the overall summary of issues encountered by the people while reading the article.

When asked about suggestions on improving the readability, some of the user responses were as follows.

1. Image popping up where its reference has been made, would improve the viewing process.
2. Image moving along with the text, would better the readability.
3. Better positioning of texts and images can make the reading process easy.

6. CONCLUSION

After considerable analysis of the surveys and the observations from various media, it can be concluded that a reader's experience can be highly deteriorated by a poorly structured webpage. We identified the various problems and areas of improvement which lead to poor readability. These findings can be summarized as follows - Different fonts of different sizes leads the user to zoom in and out multiple times which obstructs consistent reading; Non-intuitive interfaces results in the reader spending additional time in organizing his thought process; Text intensive document with few illustrations consumes more time for comprehension; Misplacement of connected ideas in a way that ideas sharing the same context are scattered throughout the webpage causing the reader to lose concentration. For a webpage having images, the user has to scroll to the image and then get back to the location where it was referenced. It might happen that a particular figure is referenced at many places. This constant scrolling causes the reader to lose context and it takes a lot of time to get back to the general flow with the same reading speed. Moreover, it becomes difficult for the writer to convey his idea effectively. To counter these shortcomings, we propose to develop an application enriching user experience to enable fluid reading, minimize aberrations and enhance context binding.

7. REFERENCES

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