Webster

A New Information System for the Web

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Abstract. Webster is a new information system for the Web using it as a huge database and not a huge amount of pages. By concentrating on content and not on authorship, Webster offers a new way to search and browse the Web. Webster shows how the presentation and usage of the Web with new semantic technologies could work without using the metaphor of a page in all its dimensions. The metaphor of a page as well as the history of web design will be discussed in the following to present the concept and the basic ideas of Webster in an understandable way.

Keywords: information system, search engine, semantic technologies, tags.

1   A New Media Changed the World

The Internet had its worldwide breakthrough due to the World Wide Web and the E-Mail. Published in the beginning of the 1990ies the WWW was regularly advanced by its founder Tim Berners-Lee among others. Marc Andreessen developed a first graphic browser, which could be handled by private users. With this development the WWW started to become an important and widespread new medium.

Although the Web started with displaying and connecting scientific publications, it contains nowadays all kinds of data. The Social Web and other developments lead to the term Web 2.0, defined by Tim O'Reilly. But the Web itself did not change it is mainly how we use it. Platforms like Facebook or Wikipedia formed a new way of interacting with the Web using private data as their meat.

The medium Web is new, but there is a strong metaphor, which influences its appearance and media-type: the metaphor of a page. Documents on the Web are called pages and use consciously or unconsciously well known characteristics of print media. This circumstance blocks out a lot of chances and opportunities. The Web is a new way to present and manage information, but by creating pages, some of its chances are missed out. The tool Webster shows how the presentation and usage of the Web could work with new semantic technologies and without using the metaphor of a page in all its dimensions.

2   Metaphors and Mental Models

The first step to do this is to understand how and why the metaphor of a page has evolved. Metaphors make it easier to understand a new media because they contain

known characteristics. By creating pages on the Web, users are able to inform themselves online like they do offline in a familiar linear way. Hoffmann [1], a web designer and author of several web design books, points out, that also the linguistic similarity caused the strong use of the metaphor of a page. Print designers and web designers design pages. There does not seem to be such a big difference as there is. The metaphor of a page formed a mental model in the minds of the designer as well as the users.

Norman points out how such a mental model emerges: "(…) people form internal, mental models of themselves and of the things and people with whom they interact. These models provide predictive and explanatory power for understanding the interaction. Mental models evolve naturally through interaction with the world and with the particular system under consideration. These models are highly affected by the nature of the interaction, coupled with the persons prior knowledge and understanding. The models are neither complete nor accurate, but nonetheless they function to guide much human behaviour." [2, p. 46]

Mental models are flexible and extendable, which means, that the mental model of the metaphor of a web page is alterable. With this concept in mind the tool Webster was created.

3   Web Design History

Looking at the Web from the design perspective not the technical side, there are several noticeable trends. Those trends show that designers were motivated to form an independent appearance for the Web. In the early beginnings of web design in the mid 1990ies there were three different types of websites online [3]. First-Generation sites are functional and linear like it was used in the very beginnings of web design. Second-Generations sites use more images and colour to create a more lively appearance. And last but not least Third-Generation sites, which Siegel [3] focuses in his book "Creating Killer Web Sites – The Art of Third-Generation Site Design". The usage of strong metaphors is a big part within designing Third-Generation sites. "Examples of this metaphors include galleries, comic strips, television channels, magazines, tabloids, store environments, museums, postcard racks, amusement parks, inside things (computers, human body, buildings, ant farm, and so on), safaris, cities and cupboards" [3, pp. 35–36]. Beside those quite early classifications there are and were a lot of other trends of course. For example the one-page-sites, which have been a trend since about 2009. But the main quality of Siegels [3] classifications is, that it clearly shows, that early web designers were interested in building a whole new online world and experience instead of filling pages of pages with content. This seemed to fade away after the 1990ies where minimalistic design, harmonic colours and typography became more and more important.

Web design has changed in the last twenty years, it has been improved and it matured. Web designers need to be up-to-date: "The web moves fast. Really fast. What is new today, will be a convention in six months time" [4, p. 6]. The history of web design shows that the Web matured but it does not stop to evolve. New technologies enable new possibilities and they shape the online world.

As the web design becomes better in basic aspects of design (like colour, typography and layout) it offers still a lot more opportunities. By using design knowledge about the mentioned basic aspects of design many print designers made websites as well. And they wanted the same control as in print within the media Web: A predefined, stable width and everything should be in the right place. This behaviour worked for a few years until responsive layouts became more and more important. Smartphones and tablets changed the way of looking at things.

But not only the attractive representation of a website should work for mobile users. Little applications (apps) formed and showed a new way to use the Web. Apps often use the Web as a database while they combine static and dynamic content focused on the users interest/request.

4   Web vs. Print

John Allsopp wrote an article, which was published at "A List Apart" that points out that its time to create and treat the Web differently than print media. "What I sense is a real tension between the web as we know it, and the web as it would be. It's the tension between an existing medium, the printed page, and its child, the web. And it's time to really understand the relationship between the parent and the child, and let the child go its own way in the world." [5] The relation between a new and an older media also manifests in other examples. The first TV shows were influenced by the media radio. "Television was at that time often referred to as 'radio with pictures', and that's a pretty accurate description. Much of television followed the format of popular radio at that time. Indeed programs like the Tonight Show, with its variants found on virtually every channel in the world (featuring a band, the talk to the camera host, and seated guests), or the news, with the suited sober news reader, remain as traces of the medium television grew out of. A palimpsest of media past." [5]

The Web was influenced by the print media, "but its time to move on, to embrace the web as its own medium. It's time to throw out the rituals of the printed page, and to engage the medium of web and its own nature." [5] Designers need to think different about the Web and its characteristics. While print media allows full control over colour, widths and positions, control has to be released in a certain amount while doing web design. But this is caused due to an important characteristic of the Web: flexibility instead of rigidity. And this characteristic stands right beside the main ability of the Web: networking.

Semantic technologies might help to use the Web differently than the print media. "The Semantic Web is a Web of actionable information – information derived from data through a semantic theory for interpreting the symbols." [6]. How to use this new ability of the Web and work against the metaphor of a page was the main dispute while creating Webster – a new information system for the Web. Even the inventor of the WWW, Tim Berners-Lee hold a TED-talk [7], where he pointed out his wish to the users that they should share RAW-data. With this data many different mash-ups could be formed. This circumstance would lead to new opportunities, which would not be possible offline. While thinking of the Web as a huge database not a huge amount of pages the idea of Webster was born.

5   Webster in Detail

The WWW offers such a huge amount of data, that it is not possible for the user to get through all of it anymore. The developed tool should help to get an overview of online information about a specific topic. It works like a search engine but it is different to Google for example. Google presents the user a list of relevant links to different web pages, Webster leads the user directly to information. The search term "drive" for example is connected to the "computer drive", "Google Drive" as well as the movie "Drive" from Nicolas Winding Refn in 2011 and a lot more. The algorithm used by Google works best with personal profiles to manage the page rank whereas Webster works also with semantic tags for the single data to put content about the same topic together. Therefore the first screen after typing in the search term in Webster is a selection of tags related to the searched term. In our example those selections would be "Google Drive", "Drive (2011)", the "computer drive" and so on. All this can be realized without stressing the page metaphor further as the first drafts of Webster can show.

   Every tap the user makes to select a specific tag forms a new request for the Web extending the search term with the selected topic. This strategy leads to a new experience in searching the Web thinking about data and content not about a specific author in the first place. Different sources are combined and form a so called "Abstract" about a specific topic. The user always gets a chance to easily see where the content comes from and is able to influence the sources of the abstract.

Fig. 1. Different screens of Webster within a specific use case

   The tool was created by exploring specific use cases with the search engine Google and using its algorithm as an example. The link list was put into categories with tags, which can already be done by using semantic technologies. The exploration showed that Googles link list shows on the one hand links to pages, which matches exactly to the search term as well as on the other hand content up to something completely different. Lets work with the same search term like before: If the user searches for the

term "drive" and is looking for the movie from Niclas Winding Refn, the search engine will show him information about the plot of the movie, the actors of the movie, the trailer and in between there are links to pages about Google Drive, a company called Watt Drive and so on.

This use case showed that using tags could really help to guide the user to the content he really wants. One click in Webster is enough to define the search term again without any need to type something in again. Every tap is a new request to the Web using Googles algorithm to manage the results. But how does the user actually see the content?

The very first tag displayed on the top of the selection is able to extend directly to show the found content on the Web. Like mentioned before this is called the "Abstract" in Webster and shows a text combined by the machine from different sources to offer an overview of the most important (decided by the algorithm) content about the searched term. If the search term is the movie "Drive" the extendable part would be the plot of the movie followed by the tags "trailer" and "cast". Webster forms a new way of searching and exploring the Web using semantic technologies.

Fig. 2. The design of Webster showed on a tablet PC

6   Conclusion

Webster is a concept for a search engine, which uses tag annotations to present relevant information for the user. It was designed during a master thesis and stands at the very beginning. First small usability studies were made; a significant study with a bigger group is planned.

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