University of Stuttgart
Germany
Institute for Visualization and
Interactive Systems

Master Thesis

Online study on reading behavior of texts with integrated word-sized visualizations

Background

To augment text with information, word-sized visualizations (WSV) have proven effective. However, there is still little knowledge about how WSV influence reading behaviour and whether there are differences between different kinds of WSV. With an online study, it can be examined how much faster or slower people read texts with WSV, as well as how well they retain information from that text. A suitable text type for this task are news articles that contain factual and statistical information, e.g, on the corona crisis, sports, or finances. The goal of this master thesis is to plan, implement, and evaluate an online study to test which different kinds of WSV have which effects on how people read texts with or without WSVs embedded.

Task

The tasks of this master thesis are to

1. Research studies on word-sized visualizations (WSV), their use in texts, as well as cognitive aspects of reading and understanding texts and images.

2. Develop hypotheses for the influence of WSV on reading behaviour.

3. Develop a study design that is suited to evaluate the influence of WSV on reading behaviour. Different WSV versions such as bar charts, line charts, and pie charts should be evaluated.

4. Extract data from news articles on different topics and visualize it for the different study conditions.

5. Conduct an online study on Prolific according to the previously developed study design to test the hypothesis and statistically evaluate the study results.

6. Write up the master thesis and present your results in our VIS-Colloquium.

Reference Literature

[1]   Pascal Goffin, Wesley Willett, Anastasia Bezerianos, and Petra Isenberg. "Exploring the effect of word-scale visualizations on reading behavior". In: Proceedings of the 33rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems. ACM, 2015, pp. 1827–1832.

[2]   Franziska Huth, Miriam Awad-Mohammed, Johannes Knittel, Tanja Blascheck, and Petra Isenberg. "Online Study of Word-Sized Visualizations in Social Media". In: EuroVIS posters (2021).

[3]   Michael Sedlmair, Miriah Meyer, and Tamara Munzner. "Design study methodology: Reflections from the trenches and the stacks". In: IEEE transactions on visualization and computer graphics 18.12 (2012), pp. 2431–2440.

Tutor/Contact persons:

Franziska Huth   Franziska.Huth@vis.uni-stuttgart.de
Fairouz Grioui   Fairouz.Grioui@vis.uni-stuttgart.de

Examiner: Dr. Tanja Blascheck