ABSTRACT

mgr inż. Julia Falkowska

Title: **Assessment of website users' experiences based on eye-tracking measures**

In the theoretical part, the paper focuses on discussing issues related to eye tracking and user experiences. Aspects concerning eye tracking include: the anatomy and functions of the eye, methods and devices for data recording, theories justifying the use of eye-tracking metrics as valuable indicators of perception, and attention. The possibilities of interpreting
results in the research review were also presented, along with a review of the interpretation of eye-tracking metrics. In the section related to user experiences, the application of various user research methods was described, focusing on the potential utilization of eye-tracking data in these studies.

In the practical part, usability tests of websites in versions A (better designed) and B (poorly designed) were described, conducted on 102 users. The websites represented three design issues: contrast, labeling of links, and the use of icons. The hypotheses assumed that the values of eye-tracking metrics would be lower for variant A, and that the user evaluation of task ease would be better for variant A.

Twelve metrics were analyzed across three areas of interest on each of the pages. The statistical analysis, aimed at examining the multifactorial effects of page/project group, area of interest, and variant on individual metrics, utilized estimates from fitted linear mixedeffects regression models. Simultaneously, the estimation of the target interaction effect in the models was conducted using a simple contrast analysis as paired differences of estimated marginal means (EMM), allowing for the identification of the difference between variants and whether it aligned with the hypothesis.

The presented and thoroughly discussed study results indicate which metrics were significantly lower for variant A, as well as which groups or specific websites exhibited these differences. The issue related to contrast and link readability yielded the most statistically significant results.

However, it is worth noting that despite these results, the data collected in the studies lacked clear differentiation among participants due to the similar characteristics of the individuals involved. Therefore, we cannot conclusively state whether eye-tracking data can fully assist in identifying a better solution for websites.

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