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Eye Tracking Analysis of Learnability of Various User Interfaces

Our everyday life requires the use of numerous different software and applications; the computer's and mobile phone's operating system, web and mobile applications, the television's menu system, navigation system, or a self-service cashier at the supermarket, just to name a few of them. Each and every object has its own user interface and users have to operate them in a fast and efficient way. Therefore learnability and memorability are essential components of usability (Nielsen, 2003, cf. http://www.useit.com/alertbox/20030825.html). According to Nielsen, learnability measures the difficulty of task accomplishment for users the first time they come across the design, while memorability refers to the difficulty of returning to the previously achieved level of proficiency.

Eye gaze tracking is a powerful tool to evaluate these attributes. The number, duration, and distribution of fixations, as well as the sequence of eye gazes allow us to analyze task accomplishment and the user's interaction in detail, identifying problem areas of the design and they can suggest ways of improvement.

In our empirical study we asked users to carry out common tasks or find fundamental elements to test learnability of various user interfaces. We also evaluated memorability with the repetition of these basic tasks.

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