Web Applications Usability Testing by means of Eyetracking

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In present a big part of software applications has transferred to web. When we speak about how naturally can user use a specific application in a way of its purpose we refer to its' usability. Usability of an application has great impact on applications success. Because of that, the question of applications usability is a subject of active research which is focused on how to effectively monitor users while interacting with application, analyze users activity and identify certain patterns of behavior that could cause a problematic situation. Purpose of this research is not just to identify problematic situations, but also to categorize them and recommend actions to solve the problems [1].

In the process of evaluation of usability, users' feedback has a great importance. We distinguish between explicit feedback which involves ratings or votings and implicit feedback, including time spent on web page, mouse clicks, key typing or gaze tracking. While explicit feedback data are more accurate but are harder to obtain, implicit feedback data are easily acquired but because of difficulties to interpret them, they are often less accurate [2].

Gaze tracking studies discovered that the eye movement of the user, while reading, creates a characteristic pattern made from fixations and saccades. During a fixation, eyes are intently staring at one point. Saccades are fast movements between two fixations. Gaze tracking analysis is based on an important presumption that there is a relation between fixations, our gaze and our actual thoughts. This kind of analysis is difficult because of the need of special, eye tracking device. On the other hand, it has a great potential to achieve new results in evaluation of applications usability through evaluation of specific application or by discovering new relations between various signals of implicit feedback, where gaze tracking can serve as feedback type and validity confirmation [3].

In our study, we would like to focus on implicit feedback which is acquired through quantitative testing. While qualitative testing can point out the problems relating to

* Supervisor: Mária Bieliková, Institute of Informatics and Software Engineering

Spring 2014 PeWe Workshop, March 21, 2014, pp. 55–56.

design of the application, we cannot find those problems accurately through quantitative testing. We would like to research this problem through usability testing including gaze tracking.

Gaze tracking brings new aspect for evaluating usability. It offers information of which objects attract attention and why. By following the object gaze order we can tell how users search through web applications, creating specific gaze pattern. Based on gaze patterns we can identify users' patterns of behavior. Specific unwanted patterns of behavior, which the owners of web applications would like to eliminate, are also present. Aimless movement across the web application, long time of users' inactivity, user repeatedly visiting the same web element, are some of the undesirable patterns of behavior.

We aim to create a method which will be able to identify unwanted patterns of behavior in domain of content management systems. Identification will be based on implicit feedback, particularly on feedback from gaze tracking. Our goal, next to identification of unwanted patterns of behavior, is to recommend a set of steps to resolve a problem, which is likely the cause of specific pattern of behavior. By improving our method we would like to be able to predict undesirable patterns of behavior to avoid their creation.

Acknowledgement. This contribution was partially supported by the Research and Development Operational Programme for the project "University Science Park of STU Bratislava", ITMS 26240220084, co-funded by the European Regional Development Fund.

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