

Automation in Usability Validation

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Quality Assurance (QA) professionals are challenged by the need to identify design deficiencies that result in reduced usability. In this article the term “usability” refers to friendliness, ease of use, ease of learning, user productivity and resistance to user errors.

Designers of Graphical User Interfaces (GUI) of Windows applications often fail to predict the situations in which end users will experience difficulties in operating the applications. Therefore, usability validation should not rely on the GUI specification, which formalizes the GUI design.

Applications that follow style guides are convenient for multi-application users, such as programmers, because the similarity facilitates the learning process. However, they are not necessarily easy to use by many single-application users, because style guides limit usability optimization. For this reason, usability validation should not rely on style guides as well.

Recently, QA professionals agreed that usability should be tested for the user’s expectation and productivity, by observing the real end user during the interaction with the software application. To validate the usability of an application, software testers need to examine the ways that end users behave while operating the application.

Common practices for usability validations are by manual procedures, using questionnaires, video recording and observations. These techniques are typically used in beta sites and in usability labs. The procedures involved in manual validation are lengthy and expensive and the results are incomplete - they lack the means for quantifying the costs of usability problems. None of the many available tools for Software Quality Assurance (SQA) address the issue of resolving problems that end users encounter during operation.

Automating usability testing is required to satisfy three main needs:

- The need to reduce the costs of testing procedures;
- The need to shorten testing cycles;
- The need to identify severe usability problems that are difficult to detect manually.

ErgoLight integrates methodologies of Human Factors Engineering in software tools.

ErgoLight allows QA experts to identify problems in the user interface design, in the user education and training programs, in the user documentation and in the on-line help system. The problems *ErgoLight* identifies are of user conceptual difficulties, using the wrong terminology, orientation problems caused by mode discrepancy and wrong response to user errors. For all problems identified, *ErgoLight* provides backtrack to the record of user actions. For repeated difficulties, *ErgoLight* provides a statistics of the user wasted time, used as a measure of costs of usability deficiencies.

ErgoLight addresses the full development cycle, from product specification to deployment. The procedures *ErgoLight* automates are mainly of usability validation, but also of design, on-line assistance and Help Desk. The solutions are based on a unique, patent pending technology of on-line identification and analysis of the difficulties end users encounter during the application operation.

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