

# A Hybrid Approach for Qualitative and Quantitative Usability Studies

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## Abstract

Hybrid testing combines the need for qualitative recommendations to improve a user interface with the need for quantitative figures to express the user experience of the user interface. On one hand, the recruitment, the structure of the sessions and the tasks are standardized so that controlled and repeated measurements are possible under the same conditions over time. During task solving, certain measures are taken and observations

recorded. In conjunction with subjective assessments, these measurements form the base of a calibrated and condensed index that express the user experience of the user interface in one figure. On the other hand, it is possible to explore usability problems qualitatively after each task so that deep insights into user behaviour are achievable. These data allow recommendations to be made that help to improve the interface.

## Keywords

User Experience, qualitative and quantitative testing, hybrid testing

## 1.0 Introduction

Qualitative usability tests belong to the standard repertoire of companies who want to design user-friendly websites or to develop computer applications best suited to the users (cf. Nielsen 1993, Mayhew 1999, Travis 2003). In general, these tests are conducted with 10 to 20 participants who represent the potential or actual user group. The objective is to find problems as effectively as possible in order to be able to improve the user interface. If the company really takes the topic seriously, usability tests are carried out not only with the final product but iteratively throughout the entire development process. This way, awful blunders can be discovered early, and, at the same time, expensive mistakes are avoided.

The costs associated with the iterative qualitative approach can be considerable. Where ever costs are incurred, the investment must be justified. Thus a method of making usability measurable is sought-after; for this is the only way to quantita-

tively assess the optimizations initiated through the qualitative tests.

Whereas qualitative testing is invaluable for product design, it cannot produce data for quantitative indices. Even worse, the qualitative approach interferes with a pure quantitative approach because the facilitator's interventions introduce side effects on the participant's actions. Objective and repeatable measurements are not possible under these conditions.

The objective for the presented approach is to express the usability of a software product numerically by ascertaining data with a sufficient number of cases via observations and other measurements that are as objective as possible. Subjective factors should not be disregarded, for they also contribute to an integrated user experience. These factors are above all those which describe the dimensions usefulness, appearance/design, and emotional quality (or »joy of use«).

## 2.0 The Hybrid Approach

The hybrid approach for usability testing consists of two phases. A pre-phase is needed to prepare for the hybrid testing sessions, to adjust the measurement tools, and most important to define the usability metric. The act of measuring takes place in the following hybrid phase. For iterative usability tests the hybrid phase is repeated over time.

### 2.1 Pre-Phase

#### 2.1.1. Pilot Study

During the pre-phase, 3 to 6 classic usability testing sessions are conducted: performance of task, thinking aloud, observing the participant's behaviour, etc. Usability issues are assembled in an initial list of usability problems. The list will be used to observe and count problems in the subsequent measuring phase. The pilot study also provides some indication for the expected duration of the performance of the tasks. This defines a time limit