Chapter XII

Remote Usability Evaluation of Web Interfaces

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ABSTRACT
Usability testing is a process that employs a sample of future users to evaluate software according to specific usability criteria. With the unprecedented growth and reach of the Internet, it is hard to reach representative users of Web sites across the world. The new branch of remote usability testing has emerged as an alternative. While it is prohibitively expensive to conduct usability testing on a global range of users, it is technically possible and is more feasible to remotely collect the necessary information about usability problems and to analyze them the same way we do local tests. In this chapter, we present systematic methods and tools to support remote usability testing and evaluation of Web interfaces.

INTRODUCTION
Before launching a Web site on the Internet, one should test and validate it in order to ensure that the software fulfills the criteria defined in the requirements stage. The costs and the benefits of usability tests are largely demonstrated by the human-computer interaction (HCI) community (Karat, 1990; Pressman, 1992). Therefore, different types of usability
labs have been proposed and implemented in order to offer organizational, physical, and software infrastructure to support and conduct these tests. These laboratories are used to observe, gather, and analyze different data generated during test sessions.

However, research shows that only large companies and big research centers can afford fixed usability labs because of their relatively high costs. Small companies have neither enough financial resources to equip themselves with usability labs nor the expertise to conduct usability tests (Moha, Li, Seffah, & Michel, 2004). Furthermore, for small companies, investing in the equipment of such a system is not an economically viable solution. A usability lab requires large investment in terms of well-equipped rooms and qualified personnel in order to successfully undertake usability tests.

Moreover, fixed usability labs cover only local population. But Web interfaces are often dedicated to a large public and accessible by users across the world. Users have different languages, different cultures, and are geographically separated. Taking these factors into account is essential for effective use of Web sites. Besides translating a Web site or a Web-based application into different languages, cultural views and concepts for different populations should be integrated in the design in order to be well perceived. After these aspects have been considered and modifications added, the resultant Web interfaces need to be tested to ensure the new versions are equally usable by different populations (Nielsen, 1996). It is technically impossible to test those interfaces by physically displacing testers and test materials to different countries. It is equally costly to invite representative users to a local test lab because it necessitates acquiring the staff and the material and financial resources to support the tests, making it prohibitively expensive.

Mobile usability labs essentially emerged to compensate for the economical and logistical disadvantages of fixed test platforms. However, these laboratories provide only a subset of the facilities offered in fixed labs. And above all, they do not remedy the major disadvantage of fixed labs: the recruitment of a sufficiently large number of test subjects that accurately represent the population of actual users.

An emerging trend to efficiently solve this problem is to test the usability of Web interfaces remotely. Several companies are building software to support the infrastructure needed for remote testing. The idea is based on enabling small and big companies alike, employing usability professionals or not, to integrate remote usability tests in their software development process; remote usability tests appear to be a less expensive and effective solution.

Remote Usability Testing

Remote usability tests can be defined as the usability tests where the testers performing observation and analysis are separated in space and/or time from the participants (Hartson, Castillo, Kelso, Kamler, & Neale, 1996). One of the undeniable advantages of remote usability testing is the fact that it is a cost-effective solution; it enables testing a large panel of participants in their own environment by remotely located testers and observers. In addition to identifying major usability problems similar to those found in traditional lab testing, remote tests uncover more problems because of the larger number of test participants (Tullis, Flieschman, McNulty, Cianchette, & Bergel, 2002a).

The emphasis of this chapter is on systematic methods and tools to support remote usability testing and evaluation of Web interfaces. It also presents the advantages and limitations associated with the different infrastructures for conducting usability testing (Moha...
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