

# Integrating Semiotics Perception in Usability Testing to Improve Usability Evaluation

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## **EXECUTIVE SUMMARY**

*User interfaces of computer applications encompass a number of objects such as navigation links, buttons, icons, and thumbnails. In this chapter, these are called interface signs. The content and functions of a computer application are generally directed by interface signs to provide the system's logic to the end users. The interface signs of a usable application need to be intuitive to end users and therefore a necessary part of usability evaluation. Assessing sign intuitiveness can be achieved through a semiotic analysis. This study demonstrates how a semiotic assessment of interface signs' intuitiveness yielded a number of benefits. For instance, (i) it provides an overall idea of interface signs' intuitiveness to the end users to interpret the meaning of interface signs, (ii) it assists in finding usability problems and also in (iii) recommending possible solutions, (iv) provides background for introducing guidelines to design user-intuitive interface signs, (v) helps in constructing heuristic checklist from semiotics perspective to evaluate an application, (vi) no additional resource and extra budget are needed. This study also presents a list of methodological guidelines to obtain the perceived benefits of integrating semiotic perception in usability testing for practitioners.*

## **ORGANIZATIONAL BACKGROUND**

*Assess our designs and test our systems to ensure that they actually behave as we expect and meet the requirements of the user (Dix, Finlay, Abowd, & Beale, 1998)*

The user interface (UI) is a crucial as well as complicated component of computer applications. The activities of UI design and development are naturally costly as well as valuable (Janeiro, Barbosa, Springer, & Schill, 2009). Considering only the functional aspect to develop UI is not sufficient to optimize the user experience and usability of a computer application. In several cases, though usability aspects are considered as an additional and optional specification in UI design, but still usability lacks proper association with the functional aspects. However, to optimize the user experience and usability of an application it is rather important to consider usability aspect with each functional aspect to develop UI (Sousa & Furtado, 2005).

Again, from the point of view of users who need to use interactive as well as information intensive web applications, usability is considered as a vital aspect. Usability is also treated as a key quality of an application since high-quality and successful computer applications show a good level of usability. Designers always need to keep usability issues in their mind to design user interfaces of computer applications. In this vein, Greenberg & Buxton (2008) stated that “usability evaluation is one of the major cornerstones of user interface design” (Greenberg & Buxton, 2008). As a result, usability testing is treated as an important part of effective UI design process.

Despite many research efforts in UI design, it still lacks adequate focus on user interface objects like navigation links, buttons, icons, thumbnails, or other symbols, which are called in this chapter interface signs. Interface signs convey the presence of function, navigation, button, image, content, and the like, and are thus treated as the medium of users’ interaction and communication with an application. An example of interface signs is presented in Figure 1. This figure presents a weekly calendar view page taken from an online calendar, Ovi calendar by Nokia (<http://calendar.ovi.com>; copyright © 2010 Nokia). A number of interface signs are marked by rectangles. These signs act as communication artefacts for users to provide information as well as to perform specific tasks with the Ovi calendar. For instance, interface signs ‘29 Nov – 5 Dec 2010’ and ‘week’ (marked by ellipses) provide information that the current view of calendar body is presented as weekly view. A user needs to click on an interface sign ‘month’ (marked by an ellipse) to see the calendar body as monthly view.

As a result, interface signs need to be intuitive to the end users in order to maintain user satisfaction, to ensure understanding, or to provide the means to communicate (Bolchini, Chatterji, & Speroni, 2009; Speroni, 2006; Islam, 2008; de Souza,

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