

# Is there such a thing as a mental representation for interface layouts?

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## **Abstract**

The Cognitive GeoConcept was introduced as a method for finding geometrical associations between meaningful objects (links or functions) in web pages and it is supposed to elicit users' spatial schemata or representations underlying the way people look for information within a web page. The procedure itself is based on the analysis of users' click responses to verbal labels indicating web objects on a large number of trials. In this study, ten words indicating links often found in the navigational menu of Italian academic web sites were used as stimuli, and eye movements were collected together with clicks. Results showed that fixations were better suited to differentiate experts' patterns from novices'. Moreover, differential groupings were found depending on expertise. Particularly, experts organise the stimuli according to a prototypical interface deployment, whereas novices seem to organise stimuli according to personal criteria that get lost in the overall pattern. Overall, results confirmed the usefulness of the procedure as a technique for eventually supporting information architects' decisions.

## **Introduction**

Assessing whether individuals might expect particular objects at specific locations in a web page is a necessary step for effective design. Indeed, interfaces that are designed consistently with the type of organisation the user expects will be likely more accessible, easy to browse, and satisfactory. Although this concern over users' expectations is common among designers, there is a lack of sound theory and methods, leaving this assessment to rather casual approaches.

Research attempts in this direction are sparse, and cannot be considered conclusive. Bernard (2001), for example, asked a large number of subjects to arrange pictures of web objects (internal and external links, advertisement banners, and the like) on a depiction of a browser window, finding regularity in the arrangement of most of them, and no differences in the deployment between Internet experts and novices. Contrarily, Di Nocera, Capponi, and Ferlazzo (2004) found differences due to expertise when analysing users' click responses to verbal labels indicating web objects on a large number of trials. Particularly, expert individuals responded to the verbal labels by clicking in a clearly interpretable spatially ordered fashion, whereas

In D. de Waard, K.A. Brookhuis, R. van Egmond, and Th. Boersema (Eds.) (2005), *Human Factors in Design, Safety, and Management* (pp. 121 - 128). Maastricht, the Netherlands: Shaker Publishing.