

GRAPHICAL AND NON-SPEECH SOUND METAPHORS IN EMAIL BROWSING: AN EMPIRICAL APPROACH

**A Usability Based Study Investigating the Role of Incorporating Visual
and Non-Speech Sound Metaphors to Communicate Email Data and
Threads**

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Abstract

This thesis investigates the effect of incorporating various information visualisation techniques and non-speech sounds (i.e. auditory icons and earcons) in email browsing. This empirical work consisted of three experimental phases. The first experimental phase aimed at finding out the most usable visualisation techniques for presenting email information. This experiment involved the development of two experimental email visualisation approaches which were called LinearVis and MatrixVis. These approaches visualised email messages based on a dateline together with various types of email information such as the time and the senders. The findings of this experiment were used as a basis for the development of a further email visualisation approach which was called LinearVis II. This novel approach presented email data based on multi-coordinated views. The usability of messages retrieval in this approach was investigated and compared to a typical email client in the second experimental phase. Users were required to retrieve email messages in the two experiments with the provided relevant information such as the subject, status and priority. The third experimental phase aimed at exploring the usability of retrieving email messages by using other type of email data, particularly email threads. This experiment investigated the synergic use of graphical representations with non-speech sounds (Multimodal Metaphors), graphical representations and textual display to present email threads and to communicate contextual information about email threads. The findings of this empirical study demonstrated that there is a high potential for using information visualisation techniques and non-speech sounds (i.e. auditory icons and earcons) to improve the usability of email message retrieval. Furthermore, the thesis concludes with a set of empirically derived guidelines for the use of information visualisation techniques and non-speech sound to improve email browsing.

Keywords

Browsing, Design, Effectiveness, Efficiency, Email, Graphical, Multimodal Interaction, Satisfaction, Usability, User Interface, Visualisation