Locating task-objective relevant information in text

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Abstract

Human task performance in dynamic and complex systems is considerably impaired by the reduced ability of operators to locate and act on task-relevant information. It is suggested that the highlighting of task-relevant information would facilitate expedient establishment of task objectives. This suggestion has been tested experimentally by investigating whether this task-relevant information can be located with *relevancy markers*. In telephone and email conversations it was found that across task (i.e. finance and logistics) and language (i.e. Dutch, English and Mandarin-Chinese) domains, humans seem to benefit from the presence of these markers when localising relevant information. It is suggested that this work has the potential to be used to inform the design of tasks and user interfaces of complex and other systems where user interaction is needed.

Background

Complex systems embody complex tasks, which are characterised by (a) the number of different information cues that must be processed; (b) the number of distinct processes that must be executed; and (c) the relationship between the cues and the processes (Speier, 2006). Dynamic complex systems add the continuous provision of new or changed information. The inherent challenges of complex tasks further aggravate the predicament of the human operator interacting with complex and dynamic automated systems. Over time, the situation awareness (SA) of the operator might diminish leading to the out-of-the-loop situation which might prohibit operators taking appropriate action if needed (Endsley & Kiris, 1995).

The problem of reduced SA is defined as an impaired "perception of the elements of the environment within a volume of time and space, the comprehension of their meaning, and the projection of their status in the near future" (Endsley, 1995, p. 36). The components of this definition which provide the current focus are those 'elements of the environment'. What are they? Are they all the elements in the environment or merely the task-related ones? How does the operator discriminate between task-relevant and irrelevant information? A review of research into SA is presented, with a focus on whether they address these questions. Following this, an alternative view is presented and the opportunities this promises to bring to the current practice are discussed.