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IS VERBAL RETROSPECTIVE OF EYE-MOVEMENTS A BETTER METHOD FOR EVALUATING AUTOMOBILE INTERIOR DESIGN?

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Abstract

Eye tracking is used in the automotive industry mainly for two reasons: To study driver behaviour, e.g. Gale 1997, and in order to evaluate the interior design, in particular the control panels e.g. Hella 1987.

In the analysis of other interfaces, typically computers, verbal protocols have been used in order to get a deeper understanding of subjects' cognition when working with the interface (Preece et al 1994,). Comments from the subjects can motivate their actions and explain their difficulties.

Hansen (1990), in an analysis of computer interfaces, found that a combination of these two methods is superior to each of the methods used in isolation. Hansen found more problem-oriented comments and more comments on manipulation in the task, when combining eye tracking with retrospective verbal protocols from subjects that see their own eye movements.

Can the same advantages be attained when the combined methodology is applied to the interface of automobile interiors? We tested this hypothesis in a study using a Volvo 850 mock-up and a VR simulator, together with an SMI eye-tracker and video-cameras. Eight male subjects were asked to drive a 30 km route on a simulated public highway. When driving, the subjects operated the temperature, air condition and radio buttons placed in the centre console. After driving, the subjects commented on their thinking and actions when watching a video. Four of the subjects watched a tape with a split screen showing both the road and a side view of their movements. The other four watched a tape of eye movements plus a side view picture.

In our paper, we discuss the results of the study, focussing on the possible advantages of the combined methodology in the design of car interiors.

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