

Comprehension of alternative road signs

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Abstract

One of the instruments for road authorities to convey information to the road user is by means of signs. To give a road the image of "dangerous", in order to elicit safer driving behaviour, a number of symbols were designed that were different from the uniform and regulated traffic signs, road delineation and road markings. The present study was done to explore which meaning drivers would give to these alternative symbols, and also to explore their possible emotional connotation. Subjects were presented with slides of a standard 80-km/h road, in which the symbols were inserted, and had to complete a questionnaire. It appeared that the symbols could be divided into three groups: symbols indicating "Reduce driving-speed" and "Do not overtake (i.e., explicit indication of traffic behaviours), symbols for general danger and symbols which meaning was not clear. With respect to emotion, symbols with a cross (i.e. referring to death) were appreciated negatively. Based on this laboratory study it can be concluded that to warn for high speed, warn for the risk of overtaking or warn for general danger are clear and unambiguous symbols are available. To which extent emotional acceptance may influence the effectiveness of this communication should be studied in a field experiment with assessment of on-road driving behaviour.

Introduction

On operational and manoeuvre level of the driving task (see Michon, 1985), driving generally is guided by the processing of visual information of the road, the road environment and the other traffic participants. One may assume (e.g. Gugerty, 1997) that drivers keep a dynamic model of their surrounding in working memory to plan their actions of the immediate future. This is called situation awareness (see e.g. Endsley, 1995). Beside information about the location, speed and direction of other traffic participants, knowledge from long-term memory may help to keep an as accurate as possible picture of the situation. It may be useful to explicitly warn for the possibility of various dangerous traffic situations on a particular road or road section. Repeated exposure to a dangerous situation on a particular road may induce a sense of danger to the location where this happens. Driving behaviour on a road with the image of a "death road" is different, hopefully more cautious, than on a road with a safer image. Road maintenance authorities may give a road a particular image, in order to induce safe driving behaviour (i.e., slower driving, less overtaking). In The Netherlands the concept of "sustainable road safety" implies that all roads have to be designed in an inherently safe and self-explaining way