Error and motivation in driving

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Abstract

From in-depth accident studies, the human component in traffic accident causation is clear. Many studies, including the one at Leeds in the late 1980s, found that human error was the overwhelming contribution to accident causation and further found that the major type of error was the mistake. In cruder interpretations, such findings have resulted in a blame culture in which the driver is blamed for his/her errors or (in an only slightly more enlightened version) we are told that more training will improve the driver. But it has long been clear that many road user errors can be designed out of the system, and the Swedish Vision Zero makes the responsibility for safe design and operation of the traffic system on the part of system managers explicit.

As the probability of making a mistake and the seriousness of the consequences of a mistake get gradually designed out of the traffic system, then arguably violations will start to play a proportionately greater role in accident causation. Certainly there is increasing attention to this area, with concerns about a cluster of accidents involving young drivers in the UK and the European Transport Safety Council's focus on enforcement. So are there ways in which we can design out violations?

This paper highlights some recent work which indicates that such an approach is very promising. One study used as an illustration is an investigation into a Forward Collision Warning System which adapted to driving style. Another set of studies is those on Intelligent Speed Adaptation (ISA), a system which strongly discourages the driver from speeding. The paper examines the effect of experience with such a system on attitudes and speeding intention and also examines the role of ISA as an instrument to fulfil drivers' intentions.

Introduction

An invitation to give a keynote address to a conference such as this one, perhaps leads naturally to refection on why one finds the topic area so fascinating. It has to be acknowledged that I am no a human factors scientist by training. I am neither a psychologist nor an engineer, so I do not come from either of the disciplines that normally provide training in human factors. My background is in social science, so I am perhaps a bit of an interloper at an event such as this one.

On the other hand, human factors is by definition an interdisciplinary activity extending nowadays into areas such as cognitive science (including neuroscience),