



Can enforced behaviour change attitudes: Exploring the influence of Intelligent Speed Adaptation

Kathryn Chorlton^{a,*}, Mark Conner^b

^a Institute for Transport Studies, University of Leeds, Leeds LS2 9JT, United Kingdom

^b Institute of Psychological Sciences, University of Leeds, United Kingdom

ARTICLE INFO

Article history:

Received 11 September 2009

Received in revised form 5 February 2010

Accepted 9 June 2010

Keywords:

Intelligent Speed Adaptation

Theory of Planned Behaviour

Cognitions

Attitudes

Speeding

Intervention

ABSTRACT

The Theory of Planned Behaviour model (Ajzen, 1985) was used to determine whether long-term experience with Intelligent Speed Adaptation (ISA) prompts a change in speed related cognitions. The study examines data collected as part of a project examining driver behaviour with an intervening but over-ridable ISA system. Data was collected in four six-month field trials. The trials followed an A-B-A design (28 days driving with no ISA, 112 days driving with ISA, 28 days driving without ISA) to monitor changes in speeding behaviour as a result of the ISA system and any carry-over effect of the system. Findings suggested that following experience with the system, drivers' intention to speed significantly weakened, beyond the removal of ISA support. Drivers were also less likely to believe that exceeding the speed would 'get them to their destination more quickly' and less likely to believe that 'being in a hurry' would facilitate speeding. However, the positive change in intentions and beliefs failed to translate into behaviour. Experience with the ISA system significantly reduced the percentage of distance travelled whilst exceeding the speed limit but this effect was not evident when the ISA support was removed.

© 2010 Elsevier Ltd. All rights reserved.

1. Introduction

Travelling at excessive or inappropriate speeds is not only endemic, but one of the largest single contributory factors in road traffic accidents in the U.K. (Carsten et al., 1989; Mosedale and Purdy, 2004; Robinson and Campbell, 2006). In recognition that alternative and novel remedial measures may be required if significant improvements in road safety are to be achieved via reducing speed, there is now growing world-wide interest in the potential of intelligent transport systems.

Intelligent Speed Adaptation (ISA) is a general term for intelligent transport systems that serve to limit the speed of a vehicle. The least intrusive forms of ISA provide continual speed limit information to the driver but there is no link to vehicle control. At the other end of the scale, an ISA system can interfere with the vehicle control, permanently limiting the speed of the vehicle to that of the posted speed limit. Unsurprisingly, the latter form of ISA offers the greatest potential to modify behaviour, however, changes in speeds have also been noted with systems which exert no control over the vehicle (e.g., Carsten et al., 2001), which could imply that the observed behavioural changes are caused by underlying changes in cognitions.

Despite the wealth of literature documenting the behavioural impact of ISA systems, few studies have examined the effect of ISA upon cognitions relating to speeding, concentrating instead on drivers' attitudes towards the ISA system itself. Nevertheless, it seems reasonable to suppose that experience with an ISA system may prompt a change in drivers' cognitions. This is important given the wealth of literature which has argued that speed choice depends on psychological factors such as beliefs and attitudes (e.g., Conner et al., 2007; Elliott et al., 2007). If experience with ISA modified cognitions relating to speeding, this could contribute to a lasting change in behaviour. The Theory of Planned Behaviour (TPB; Ajzen, 1985), for example, is a social cognition model that can be used to describe the psychological determinants of speeding behaviour. The model proposes that intentions and perceived behavioural control (PBC) are the proximal determinants of behaviour. Intentions reflect the cognitive representation of an individual's readiness to perform a given behaviour (Ajzen, 1991); PBC describes the individuals' perception of the ease or difficulty of performing any given behaviour (Ajzen, 1991). It is assumed that PBC indirectly (via intentions) and directly influences behaviour. As intentions and PBC are held to be direct antecedents of behaviour, the model also states that intentions are influenced by three additional factors. Attitudes, subjective norms, and PBC are direct determinants of intentions. Attitude towards a behaviour reflects the overall evaluation of the behaviour and is believed to be determined by the product of the perceived likelihood

* Corresponding author. Tel.: +44 0113 343 6609; fax: +44 0113 343 5334.

E-mail address: k.chorlton@its.leeds.ac.uk (K. Chorlton).