Behavioural adaptation: friend or foe?

Oliver Carsten
Institute for Transport Studies, University of Leeds
Leeds, UK

Abstract

Behavioural adaptation has been a much-debated topic in driver behaviour with the controversy rooted in the Risk Homeostasis process advocated by Wilde. It is rather interesting to note that the debate has very much been a heated and localised one in road traffic and particularly in driver studies, and has not extended much to other modes. This paper reviews the debate, looking particularly at attempts to caste the process of behavioural adaptation in terms of a model. It asks whether the models proposed models are coherent, whether they state anything more than the obvious "users will use systems for their own personal goals", and whether they can act as predictors of behaviour. Has the concept reached the end of its useful shelf life or can it formulated in a way that can aid product designers to foresee misuse and to produce more satisfying and therefore more used systems?

Introduction

Behavioural Adaptation can be treated as a concept or set of concepts, which argues (perhaps rather obviously) that drivers adapt their behaviour to a new situation or new system, often in ways that are not intended by the situation or system implementers.. These adjustments in behaviour have sometimes been termed "indirect effects" (e.g. Draskóczy, Carsten, & Kulmala, 1998). But many proponents of Behavioural Adaptation have tended to have a higher scale of ambition for the concept, and have argued that is a "theory" (see for example Wilde, 1982; Koornstra, 2009). Even those who treat behavioural adaptation as a process or phenomenon, tend to have an implicit theoretical construct in mind as an explanation of the process. Indeed it is hard to see how there could be a concept of the process without an underlying theoretical construct.

A theory can be defined as model that can be can be formalised in terms of a set of predictive relationships, which can then be tested for validity, reformulated, and so on. In other words, a theory has to provide predictions that can be empirically tested. It also has to provide mechanisms that link cause and effect. Otherwise a theory is not proving enlightenment but merely observing the existence of an inexplicable phenomenon.