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Editorial: Communicate and observe

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It is a truism that we can make many mistakes as road users – drive too fast, drive under the influence of alcohol or drugs, overtake in a risky manner, etc. etc. – without getting involved in an accident. Thus, accident data do not reflect traffic safety in a deterministic sense. This means that it is difficult to learn from accident data and, on basis of such a learning process, to eliminate safety-critical elements in the traffic system before having to cope with severe consequences of an undiscovered safety problem. As Iversen and Rundmo (2002, p1253) put it like this: "Many studies relate personality factors to the number of accidents. Accidents are rare events, and it is difficult to obtain valid information about occurrence and preceding behaviour. The shortcomings of accident data are well known, and an alternative criterion measure could be to include the behavioural level, not only outcomes." Moreover, accident data do not provide much information about what really went wrong when an accident happened. Even in-depth analyses do not provide satisfying information in this respect as the events have to be reconstructed – with a lot of guessing - and do not have a sound empirical basis unless one could make use of camera- or black-box recordings. Therefore, nowadays more and more studies are carried out that collect empirical data, in the frame of naturalistic-driving data collection studies with the help of cameras and sensors, of behaviour observation studies on the road side or from with observed subjects' cars, of communication processes in the frame of testing, rehabilitation or survey settings, etc. The validity discussion is still going on: are data collected in the frame of such studies valid predictors of accident risk? Validity is depending on reliability of the data collection, first of all, and there one could refer to Shinar et al. (1983, p175): "The most reliably reported data were those concerned with the accident location, date, and number of drivers, passengers, and vehicles. The informativeness of the police reports with respect to driver/vehicle characteristics was practically nil, with the exception of driver age, sex and vehicle model for which the police were correct most of the time (but not errorless)." This study is old but there is no new literature that would show that things have changed in a fundamental way.

Thus, if accident data themselves are no valid predictors, why wait for the unwanted things to happen (in order to be able to work on basis of accident data), and why not try to assess and improve traffic safety with the help of the analysis of traffic processes and the background and contributing factors for those processes? When doing so, one often has to rely on the plausibility of one's conclusions, as figures reflecting the validity of the findings are not available. But the same is the case for measures taken on basis of accident data.

In this issue of the TOTS journal we have a look at traffic safety studies where verbal data and observation data were used in order to understand road user behaviour and what aspects thereof may be considered critical in the sense that they endanger traffic safety. All studies referred to were carried out in the Czech Republic by Czech researchers. To arrange the papers that present the results of these studies in an appropriate order one can make use of the model of Michon (1985). He suggested a hierarchical model with three levels to describe the driving task:

- The control (operational) level: car handling like steering or braking, even acting in emergency situations in order to avoid an accident, with little or no time to decide what to do; many activities on this level are highly automated.
- The manoeuvring (tactical) level: the driver has to react to specific traffic situations, to road signs or other road users (lane changes, distance keeping, speed choice) with some more time to decide than on the operational level.
- The strategic level: this level encompasses trip planning (when to start, which road to take etc.), mode choice (e.g. if it is raining or snowing take the bus) and other more general aspects; on this level there is as much time to decide as one wants to dedicate.

Two papers in this journal deal with behaviour on the strategic level. Zamecnik et al. asked drivers about motivational aspects, risk-reducing strategies and opinions about sanctions in connection with the drunk driving offenses. One main problem seems to be that problem awareness among those drivers is quite low. Sucha et al. show what measures – e.g. driver improvement courses - are taken in different European countries in order to rehabilitate drivers who have lost their licence due to, e.g., driving under the influence of alcohol, or due to other law infringements. As the article displays, to raise problem awareness is one of the goals of such courses, among many others.

Two more papers reflect analyses of behaviour and communication on the operational and on the tactical level. Infrastructure characteristics and how they affect pedestrians and pedestrian safety are discussed in the article by Bulicek and Brozova. They registered traffic processes with the help of observations at three different sites. In order to improve communication between pedestrians and other road users, especially car drivers, measures like traffic-calming, enforcement, and better traffic signing are suggested. In their paper, Zaoral et el. analysed the impact of in-vehicle technology on driving behaviour, with the help of driver observation carried out by accompanying drivers in their cars under the conditions Without and With (technology equipment). The authors compare their results – changes in speed, in distance to cars ahead, in usage of the indicator etc. – to results of earlier studies and find satisfying concordance.

The last paper by Tokar focusses solely on the operational level by trying to find a clear boundary between safe and unsafe driving manoeuvres. They make test persons assess driving manoeuvres with varying decelerations. The subjects should decide what degrees of deceleration they find so quick and sudden that they would be taken by surprise, with potential dangerous consequences. The experiments were carried out with equipped cars where the degrees of deceleration could be programmed exactly, and in a delimited experimental area.

Iversen, H. & Rundmo, T. (2002), Personality, risky driving and accident involvement among Norwegian drivers, Personality and Individual Differences 33 (2002) (pp. 1251–1263).

Michon, J.A. (1985), A critical view of driver behaviour models: What do we know, what should we do? In: Evans L. & Schwing R.C. (Eds.), Human behavior and traffic safety (pp. 485-520). New York: Plenum Press.

Shinar, D., Treat, J.R. & McDonald, S.T. (1983), The validity of police reported accident data, Accident Analysis and Prevention 15(3), (pp 175-191).