Summary:

Hazard perception testing of drivers

In order to drive safely car drivers must be able to detect potentially dangerous traffic situations early enough to take adequate action. They must have sufficient safety margins for braking, stopping or making avoidance manoeuvres. The importance of hazard perception for traffic safety is the topic of this report. We ask whether hazard perception skills vary between drivers, whether this is a skill that develops gradually with driving practice, and whether it can be improved by special training procedures. The main focus is on possible ways of measuring hazard perception skills.

Research on hazard perception in traffic has been carried out since the mid-1960s, and the concept has been defined and measured in different ways. One has investigated *which* situations drivers consider hazardous, *how hazardous* various situations are judged to be, or *how fast* drivers react to different kinds of hazardous situations. These variables have been investigated by a variety of methodological approaches, including questionnaires, still pictures, film, video, driving simulator, and driving in real traffic.

Several studies have shown that young or inexperienced drivers are less able to react adequately to traffic hazards, compared to more experienced drivers. Concerning the relationship between measures of hazard perception and crash involvement risk, the research results are somewhat mixed.

It is therefore still uncertain to what extent various tests of hazard perception are valid instruments for predicting crash involvement risk. In spite of this, some countries (Great Britain, Australia) have implemented hazard perception testing as a mandatory part of the driver licensing test.

The Institute of Transport Economics has previously developed a test of hazard perception as part of a research project. The test has been used in a study of traffic skills among novice drivers with varying amount of driving experience. Further trials of the test may give a better basis for concluding whether driver reactions to certain types of traffic situations may differentiate between safe and less safe drivers. In that case, situations with a high discriminative power can be included in a future test for practical purposes.

In the present project a prototype DVD version of the previous hazard perception test was developed, for administration on a standard PC. The main purpose of the PC version is to do further validation studies.

In addition to the driver licensing test, a hazard perception test could possibly be used even for driver training, both as a training tool and as an instrument for assessment of the effects of various types of training.

Research has shown that hazard perception skills can be improved by training, but it remains to be seen whether this results in a concomitant reduction in crash risk.

On the basis of the experiences with hazard perception testing so far, it is recommended that one awaits further validation studies, both with the tests in practical use abroad and with our newly developed test, before considering its use as part of driver licensing.

The report can be ordered from:
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