

## **Do drivers lack hazard prediction skills: the experience and lessons from online hazard prediction training program?**

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**Background.** Hazard perception and prediction skills are seen as important contributor of road safety (Horswill et al., 2021; Zhang et al., 2018). Scholars found that after introducing hazard perception testing in the licensing system road in UK crashes with novice drivers at fault reduced by 11 percent (Wells et al., 2008). Hazard perception skills improve as drivers get more experience – they face precursors of the hazards and hazards during each travel and gradually gain the skill to predict, anticipate, and avoid the upcoming road hazard. To some extent hazard perception skills account for the difference in crash involvement between novice and experienced drivers. Still, some researchers revealed that even experienced drivers made relatively big number of mistakes in experimental conditions of hazard prediction testing (Crundall, 2016). Therefore, all groups of drivers might benefit from hazard perception training programs.

The aim of this presentation is to introduce a newly developed hazard perception training program, its effectiveness for novice and experienced drivers and share the experience of conducting training and effectiveness research online.

**Program.** The program was developed by authors of the presentation and aimed at enhancing hazard perception skills for novice and experienced drivers. It has a slogan “obstacle on the road is not an obstacle to drive safely”. The group training consists of two 45-minute sessions with theoretical knowledge delivery, active participation in specially created video exercises, and discussions. The main strength of the program is the theoretical basis which often lack in training measures. The program was constructed following Pradhan and Crundall (2018) model of Hazard Avoidance. Several subprocesses of hazard avoidance are approached during training: active hazard search, analysis of precursors, hazard evaluation, selection of response, rapid return to hazard search.

**Program effectiveness.** Eighty learner drivers who participated in standard driving training and sixty-nine experienced drivers-volunteers took part in the study. The experimental

groups were exposed to online training sessions; control groups received no treatment. The effectiveness of the program was measured by the difference between Hazard prediction test scores assessed in pre-test and post-test.

At the beginning of training both novice and experienced drivers demonstrated relatively weak skills of hazard prediction (novices had 3.3 and experienced drivers – 4.21 correct decisions in 12 situations) at least in experimental conditions. Results showed that hazard prediction skills improved slightly in both experimental and control groups. But significant effect was obtained only in training group: for men in learner driver group and women in experienced driver group. Gender effect was newly discovered in this study, but it should be admitted that no previous research that had addressed the different receptiveness to hazard perception training was found. Thus, replication of the gender effect is necessary.

**Conclusions and insights about online implementation.** The newly developed hazard perception training program shows promising results for both learner and experienced drivers, even fully delivered and tested online. Still, only short-term effect was tested. Authors don't have data if the obtained improvement would hold out for significant period.

Online implementation of hazard perception training program has substantial challenges. Training material includes video clips that are streamed by trainer. Low resolution of trainees' electronic device and speed of internet may affect the quality of scene which is crucial for message delivery. Trainees were encouraged to participate in the program using personal computer, not other mobile electronic devices to ensure the bigger screen as details mattered substantially. Even though, some trainees reported using other devices, mostly mobile phones. Participation in discussions and exercises was planned, but not all trainees were verbally active. Their actual participation level could not be evaluated due to technical reasons. In the future, more precise digitalization solutions should be introduced to tackle these issues.