

TEACHING DRIVERS WHERE TO LOOK: IDENTIFYING AND PRIORITISING POTENTIALLY HAZARDOUS AREAS OF THE VISUAL SCENE

Research Aims

Training in higher-order cognitive skills (HP) addresses the broader driving context, in particular anticipating or avoiding hazardous situations (Beanland et al., 2013).

- To assess the effect of the video-based Proactive Listening to a Training Commentary on participants' hazard perception performance.
- To compare the improvement of performance in hazard perception skills of groups of different driving experience and non-offenders vs. re-offenders, in various types of hazardous situation.



"We are on the A-92 heading towards Guadix at the height of Loma Verde, where it crosses the motorway from Granada to Jaen. The truck in front of us has just left the highway to Jaen. A red car on the motorway access lane is trying to join our lane. ATTENTION, perhaps we cannot facilitate its access to the lane because another vehicle behind us is approaching fast, so we would not be able to perform the manoeuvre."

Proactive Listening to a Training Commentary (PL-TC)

Results

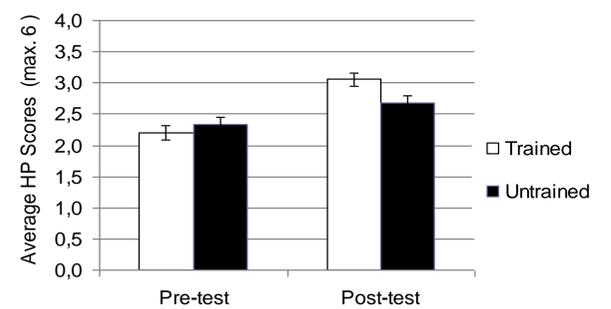


Figure 1. Performance in hazard prediction can be improved after PL-TC training but also by practice.

TRAINING X TYPE OF HAZARD

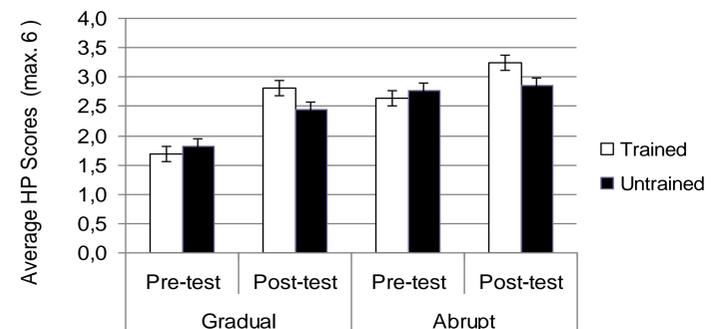


Figure 2. The PL-TC is essential and especially beneficial for training the ability to detect hazards that appear abruptly (which seems to be difficult to improve just by practice). Performance in gradual-onset hazard events can be improved after training but also by practice.

TRAINING X DRIVING EXPERIENCE

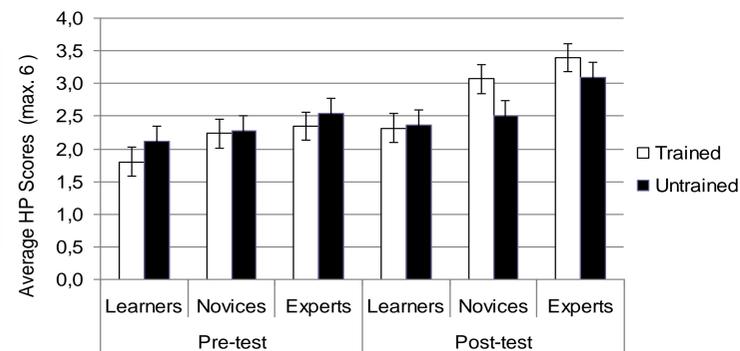


Figure 3. This training shows significant positive effects for all types and groups of participants.

Conclusions

- Top-down processes play a dominant role in the guidance of eye-movement (e.g. Henderson et al. 2007, Petter and Itti, 2007, Pomplum, 2006, Zelinsky, et al., 2006).
- The Proactive Listening to a Training Commentary helps drivers not only by providing knowledge but also by increasing sensitivity to hazards.

Future Research

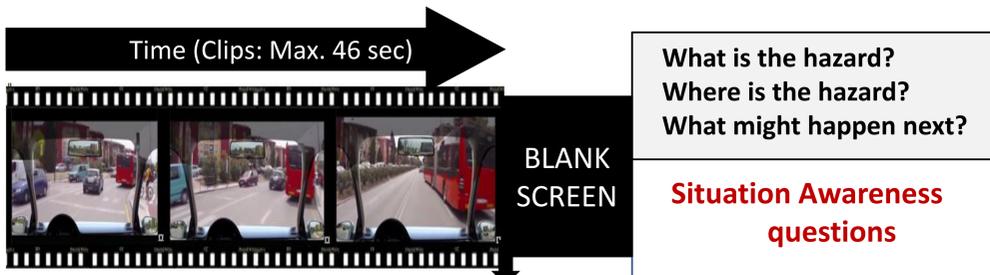
- Determine the effect that different hazards have on learners, novices and expert drivers.
- Explore whether this kind of training would be effective long term and whether a transfer occurs in HP during real driving.
- Analyse the trade-off between Proactive Listening to a Training Commentary and other training methods.

References

- Castro, C., Ventsislavova, P, Peña-Suarez, E, Gugliotta, A., Garcia-Fernandez, P, Eisman, E., & Crundall, D. (2016). [Proactive listening to a training commentary improves hazard prediction](#), *Safety Science*, Vol. 82, Pág. 144-154 DOI:10.1016/j.ssci.2015.09.018. ISSN: 0925-7535 Q1
- Ventsislavova, P, Gugliotta, A., Peña-Suarez, E., Garcia-Fernandez, P., Eisman, E., Crundall, D. & Castro, C. (2016). What happens when drivers face hazards on the road? *Accident, Analysis and Prevention*, Vol. 91, Pág. 43-54 DOI:10.1016/j.aap.2016.02.013 ISSN:0001-4575 Q1

HAZARD PREDICTION

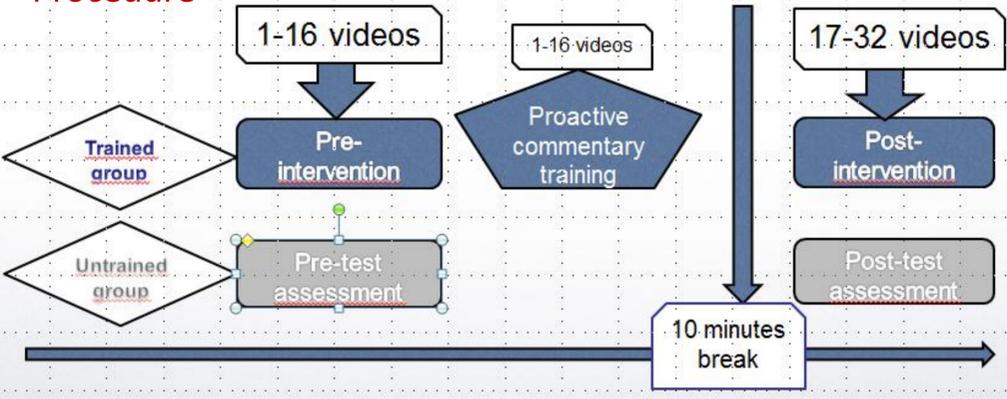
A new and improved version of the Hazard Perception Test adapted to a Spanish driving context (HP-WHN, Castro, et al. 2014; Castro, et al. 2016))



METHOD

Videos: Clips between 6 and 46 seconds long
Stopped immediately prior to the hazardous situation
What? Where? and WHN?

Procedure



Participants

121 drivers (52 female & 69 male)

(a) 20 (16.5%) learner drivers (18-37 years) who were attending lessons to obtain a driving licence for the first time

(b) 62 (50.4%) novice drivers (18-39 years) who were in possession of a driving licence and had less than eight years' driving experience,

(c) 40 (31.1%) expert drivers (26-53 years) who possessed different types of driving licence.

Drivers' profile
20 novice &
20 experienced offender drivers

