



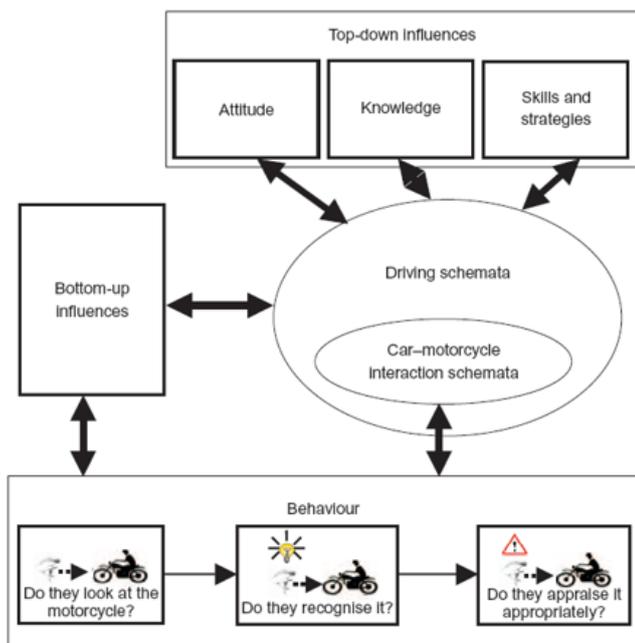
What Motorists Know and Don't Know (about motorcyclists)

Prof. David Crundall
Nottingham Trent University (UK)
david.Crundall@ntu.ac.uk

The UK Context

- 1,732 fatalities and 22,137 serious injuries in 2015
- 365 fatalities were motorcyclists (with 5,037 serious injuries)
- 21% of deaths but only 1% of traffic!
- This increased risk is reflected across Europe (EC, 2015), America (NHTSA, 2007), Australia (Johnston, Brooks & Savage, 2008), China (Chang et al., 2016), and New Zealand (Walton, Buchanan & Murray, 2013).
- **Most likely cause?** Other roads fail to give way at T-junctions (ACEM, 2009; Clarke et al. 2007). See www.maids-study.eu.

Targeting other road users for intervention



Attitudes and Knowledge

- Questionnaire with 1355 responses
- Inexperienced drivers, moderate experience, highly experienced, & dual drivers
- Four factors emerged: Negative Attitudes, Empathic Attitudes, Perceptual Problems, Spatial Understanding
- Dual Drivers had better empathy and lower negative attitudes towards riders than all other car drivers
- Highly experienced car drivers also had better empathy and attitudes compared to less experienced drivers

- Novice car drivers thought motorcyclists could swerve easily to avoid obstacles
- Car drivers believed the ideal lane position for a motorcycle was further towards the kerb than dual drivers
- Car drivers questioned the legality of filtering, and reported being surprised when this happened

Improving attitudes

- If dual drivers have best empathy and attitudes, we should just make all drivers ride motorcycles
- Or at least take on the perspective of a motorcyclist!

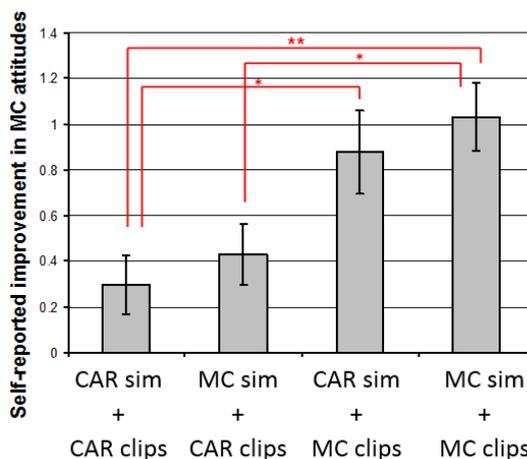


Honda Motorcycle Trainer

Motorcycle-perspective Hazard Perception clips

		Simulator	
		Car	Motorcycle
Pre-intervention Qs Hazard clips	Car	N = 32	N = 36
	Motorcycle	N = 33	N = 35

Post-intervention Qs

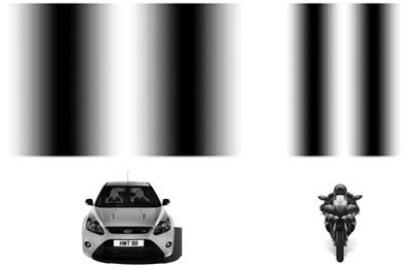




So less of this...

... and more of this?

(But instead we got this!)



I.e. Big fat cars are processed before narrow motorcycles. A short glance down the road may not be enough to spot a motorcycle.

Why don't people look for longer down the road? Because they do not expect to see a motorcycle (they represent 1% of UK traffic) so drivers are happy simply knowing whether or not a car is approaching!

Look But Fail To See Errors

- Drivers involved in a collision tend to say they looked, but just did not see the approaching motorcycle
- Are these errors real? Or just a way for drivers to mitigate their blame?
- We have undertaken studies with still images presented very briefly, and with dynamic video of motorcycles approaching a junction that suggests they are real



But why do they occur?

High Spatial Frequencies + Low Expectations
=
The perfect storm for missing motorcycles

No, really, why do they occur?

Global Precedence Theory notes that viewers are usually faster to process an object as a whole (holistically) than to identify a part of an object. This appears due to the priority access of low spatial frequencies over high spatial frequencies to the visual system.

Pelmanism trains processing speed



A player matches pairs of motorcycles. To do this they must pay particular attention to the details of the motorcycles (sub-category classification) which in turn improves their base-level identification (i.e. they are quicker to realise that they are looking at a motorcycle when they fixate one in the real world).

Final Conclusions

- If you want to change car driver attitudes, change their perspective
- Video might be better than simulation
- Inform drivers of legal and likely motorcycle beh.
- If you want to reduce Look But Fail To See errors, train their processing speed
- Gamification opens the way to viral training

Selected References

- <http://www.maids-study.eu>
- Crundall, D., et al (2008). Car drivers' attitudes towards motorcyclists: a survey. *Acc. Anal. & Prev.* 40, 3, 983–993.
- Crundall, D., et al. (2012). Why do car drivers fail to give way to motorcycles at T-junctions? *Acc. Anal. & Prev.*, 44, 1, 88-96.
- Shahar, A. et al. (2011). Applying the motorcyclist's perspective to improve car drivers' attitudes towards motorcyclists *Acc. Anal. & Prev.*, 43 (2011) 1743–1750.

