Abstract

Future challenges in driver instructor education with increased automation in cars.

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The last years we have seen an increase in automation in cars. These driver support systems are designed to prevent human error (Reason, 1990) from devastating consequences, and are probably an accomplice factor in the decrease of road deaths in the EU (ETSC, 2016). However, the development seem to support a further increase of more automation in cars, and the main objective here is thus to explore challenges this could provide the driver instructor education in Norway.

First of all, the requirements in cars used for driver learning includes only basic equipment for cars. Thus, in order to learn how to drive a car today, there are no requirement that there for instance is a touchscreen in the car even though so to say all cars made today include a touchscreen for the driver to handle. We argue that this is an important element to reflect upon as a touchscreen will most likely make the driver take the eyes off the road while driving, which could be argued not to be in accordance to human factors engineering in car design (Wickens et al., 2004), as it consequently moves attention from the driving ativity.

Second, cars will have a large variety of degrees of automation and driver support systems, because cars only a few years back had less such technology included. This results in a motor vehicle population with large varieties in regard to degree of automation and driver support technology. In this regard, we would like to discuss some issues such as which degree of automation would be optimal for the driver learner to learn how to drive with. Should the driver learners thus learn how to drive a more basic car or a car with the most standard automated equipment? Or, should the driver learner know how to handle a car with the most updated technology? This could be depending on which car the person is most likely to drive when completed the course, but that can be hard to predict and a factor that could be hard to generalize. Another factor could be to evaluate different situations' learning outcome in regard of which degree of technology would give the best learning outcome. Some situations might have more optimal learning outcome when using an updated vehicle, and some might

be better taught with more basic systems. A challenge though, might be that the driver schools might not find it beneficial to have different cars for different situation. Additionally, a second issue is related to which kind of software should the driver learner use in a learning situation? Most car models have different software systems such as for instance different software for usage of the touchscreen.

A third issue we see a need to reflect upon in this matter, is how the technology development could affect the testing of driver skills. What kind of skills are optimal for drivers in regard of technology updates? Are basic skills for instance without ABS breaks necessary to know and test? Which other driver support systems should be taught and skill tested? What factors should be taken in consideration when deciding such optimal skill level for the driver?

We argue the need for an assessment on what competence level and skills are needed for driver instructors to have on automation in cars. Further, we argue the need for assessing on how technological development should be taught optimal to the driver learners on how to use and keep updated on the new technology when they become licensed drivers.

References:

ETSC (2016) European Transport Safety Council http://etsc.eu/20-june-2016-road-safety-performance-index-pin-conference/

Reason, J. (1990). *Human* error. Cambridge: Cambridge University Press.

Wickens et al. (2004). *An introduction to human factors engineering*. London: Prentice Hall