Novice and Young Drivers’ Driving Behavior in a Positive vs. Negative Affective State
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Abstract:
Although general car safety has increased considerably and at the same time accident numbers have decreased remarkably on average in the European Union during the last years, the percentage of novice and young car drivers involved in heavy car accidents is still remaining dramatically high, e.g., in Germany more than twice as high compared to older and more experienced drivers based on their proportion of the driving population (DESTATIS, 2013). Traffic psychological research shows that maladjusted driving behavior caused by affective states can be a main contributor to traffic accidents (e.g., Deffenbacher et al., 1994; Mesken et al., 2007; Nesbit et al., 2007; Roidl et al., 2013). Therefore, our current experimental study analyzes this influence of affective states on driving performance with regard to novice and young drivers. In an experimental scenario affective states (positive vs. negative valence) were induced in participants and subjects were then asked to drive predefined routes in a driving simulator.

Central research question:
Are there any influences of affective states (positive vs. negative) on driving behavior of novice (≤ 1 year driving experience) and young drivers (> 1 year driving experience)?

2x2-factorial design (N = 80 participants)

Factor 1:
• Novice drivers (≤ 1 year since licensed; n = 25; 60% female; M = 18.00 years of age; MD = 800.00 km driven since licensed)
• Young drivers (> 1 year since licensed; n = 55; 60% female; M = 21.56 years of age; MD = 800.00 km driven since licensed)

Factor 2:
• Affective states (positive vs. negative valence) were induced by movies in participants and measured with SAM.

Experimental Measures:
• Driving patterns (velocity, acceleration, lateral acceleration, speeding)

Procedure:
• Subjects were asked to drive predefined routes in a driving simulator (Fig. 1; 2; 3) covering a broad range of road designs.

Young drivers (1 year +) drove significantly faster than the novice drivers (1 year -) in the positive affective state on the complete route (R2; Z = 1.39; p < .05) as well as on the expressway section (R2; Z = 1.48; p < .05). We found no significant differences in this respect for the negative affective state (all p > .05).

Differences (A R2-R1) of mean speed of the first, non-affective drive (R1) versus the second, affective drive (R2) for all road sections overall (\(t_{d=27.5} = 2.75\); p < .01) and the expressway section (\(t_{d=27.5} = 2.66\); p < .01) showed differences in driving speed. On R2 drivers drove faster in a positive affective state compared with drivers in a negative affective state. This effect was pronounced for novice drivers by trend.

References:

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