Title: Investigating the psychological effects of worksites on road users and drivers' behavior in field studies

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A large part of German motorways is increasingly overaged and in need of maintenance. In addition, the dimensioning of traffic routes has to be adapted to consistently growing traffic volumes. Thus, many worksites for road preservation and development are already installed and even more are planned, following the existing technical regulations. However, the human factor is only considered poorly. Nevertheless the drivers' behavior needs to be considered into the construction process, because the interaction between the human factor, drivers' behavior and the road is not trivial. (e.g. \textsc{ECHTERHOFF}, 1991)

Therefore, also psychological aspects should be taken into account for the design of worksites in the future. Some studies have shown that route constructions are associated with a changing driver behavior. Yet, appraisal about the subjective influence of route constructions is missing. The aim of the present study was to investigate how drivers' state is modified, behavior-related and emotional, when confronted with different challenges due to construction works.

In the study, three German worksites were selected, differing in length, width of lane, staggered arrangement and design. Eye-tracking data and heart rate of the driver were monitored to assess gaze behavior and autonomic nervous system activation in order to detect episodes and antecedents of drivers' perception and activation. In addition, the drivers' behavior was investigated by recording speed and distance to other vehicles, breaking behavior and standard deviation of lane position. Current traffic conditions were additionally documented. The combined captured data allow a detailed evaluation of the different driving episodes, the drivers' behavior and the psychological effects of worksites on road users. In total 150 segments of eye-tracking data in various particular driving events were classified and further investigated. To capture the road users' subjective attitude, a questionnaire was additionally created and evaluated not only among the probands but also among road users via internet and personally on lay-bys near the worksites.

Based on the findings, recommendations for the installation and arrangement of worksites will be compiled which lead to considerations to the driving behavior. Overall, the strains for road users in areas of worksites are thereby to be reduced and a reduction of accidents is to be achieved.