

**Title:** EFFECTS OF INDIVIDUALIZED FEEDBACK ON CAR DRIVERS' SPEED AT PEDESTRIAN CROSSINGS

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**Abstract:**

The present study investigates the effects of a device (Dialogue-Display) which has been developed to mitigate risk of pedestrians during street crossing decreasing of car drivers' speed level and facilitating their attention to vulnerable road users. The display is located at the roadside in advance of critical pedestrian crossing zones. It provides a visual message to the drivers according to his speed level: if a driver exceeds the speed limit the display will present the message "Slow down!" in red letters if the driver is at or below the correct speed level a "Thank you!" in green letters will appear. These messages are combined with a situation specific and emotive representation of vulnerable road users. Hence, the Dialogue-Display gives an individualized feedback to drivers. Because of its dynamical characteristic, it should attract the attention of drivers to safety adequate behavior in a higher extent than conventional static speed limit signs.

The effects of eight Dialogue-Displays on drivers' speed have been measured at four local spots in Germany. Additionally pedestrians have been asked for their perceptions of car drivers' behaviour and perceived safety during crossing the street.

The effects of the Dialogue-Display on relevant variables have been investigated by an A-B-A research design, i.e. baseline (without Dialogue-Display), treatment phase (with Dialogue-Display) and finally post phase (again without Dialogue-Display). During the treatment phases, significant and time stable changes of car drivers' speed have been observed. Relevant speed parameters decreased in a range from 1.8 km/h to 6 km/h depending on the local spot. The percentage of car drivers violating the speed limit decreased markedly: speed limit violations decreased at least to a half of the baseline. The reductions in speed are particularly significant in safety relevant higher speed ranges.

At the same time, pedestrians questioned on the spot felt safer at crossing sections during the treatment phases and they felt the interactions between pedestrians and car drivers became safer with a Dialogue-Display.

The results of that study emphasize that the implementation of such dynamic feedback-systems have systematic positive impacts on important criteria of traffic safety. Based on the present results and on further studies the implementation of Dialogue-Displays is discussed against the background of safety improvements at pedestrian crossings, kindergarten, schools, bus stops but also concerning noise abatement and other conflict spots, as contact between car and train traffic or between car/lorry and cyclists.