

Slovenia Rider/Driver Gaze Behavior Comparative Analysis

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Abstract : Motorcycle riders are an increasing group of road users. The intrinsic characteristics of powered two-wheelers (PTW) allow them to be particularly flexible, both in urban and extra-urban environments. Nevertheless, crash statistics indicate that riders involved in road accidents are highly likely to suffer severe injuries, underlining the vulnerability of this group of road users. An element that can greatly affect the safety of PTW users is road design, as roads are usually designed for two-track vehicles (cars, buses, and lorries) and usually do not consider the needs of PTWs. Additionally, handling a motorcycle is quite different from driving a car; thus, the behavior of riders is different from that of drivers. The aim of this research was to compare how different road designs are perceived by riders and drivers and to preliminarily assess if riders' behavior and attention allocation are related. For this research, an eye-tracking experiment was developed outdoors. Both drivers and riders travelled along a route comprising four different road designs and various road layouts, and the output was analyzed both qualitatively and quantitatively. Although it was not possible to carry out a statistical analysis due to the limited number of participants, the results demonstrate that there is a difference in the gaze behavior of drivers and riders, with the latter being far more focused on the left-hand side of the road and concentrating on defined elements of road design. Furthermore, the experiment demonstrated that a higher number of fixations is related to lower speeds. Finally, it was noted that both kinds of road users focus well on the carriageway, leading to the conclusion that the indications given through road markings may be much more effective than vertical signalization, which has rarely been observed.

Keywords : road safety, powered two-wheelers, eye-tracking, gaze behavior

Conference Title : ICTTE 2023 : International Conference on Traffic and Transportation Engineering

Conference Location : Houston, United States

Conference Dates : October 23-24, 2023