

Determinants of route choice when riding e-scooters – an empirical study

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Since the introduction of standing electric scooters (e-scooters), research focused on user behavior and traffic injury causation. However, the question of where e-scooters can or should be legally used and in consequence, the encounters with other road users are still points of discussion. In Germany, e-scooter riding shows many parallels to the use of bicycles as e-scooter riders are required to use cycling infrastructure where it is available. If not, they must ride on the road. First studies indicate that e-scooter riders encounter specific hazards (cobblestones, high curbs on the sidewalk) and show an increased sidewalk use in the absence of adequate bicycle facilities. On a superordinate level, we are interested in how relevant these and other factors are for e-scooter riders' wayfinding. Therefore, the aim of the study is to analyze in a field study the determinants of e-scooter riders' route choice. In a field study in summer 2021, 30 participants will drive with two equipped e-scooters between several origin-destination pairs in public traffic of a major city. As a prerequisite, the subjects are subdivided according to their previous experience with e-scooters. Origin-destination pairs will be selected to take the available traffic infrastructure facilities of the route options into account. Based on a smartphone application we measure GPS and velocity of e-scooter riders. After completion of the trip, a standardized interview will be conducted to discuss route choice decisions, key characteristics of route options, and assess the importance of route choice factors. We will analyze the chosen routes and their underlying route options as well as subjective data of the interview. Finally, we will show a ranking of the importance of e-scooter riders' route choice factors and give feedback on the reported difficulties in wayfinding. With this study, we want to increase the understanding of route choice determinants when riding e-scooters in the context of shared traffic facilities with cyclists. Ultimately, the study results may provide guidance on whether and how much e-scooter riders need to be considered in addition to cyclists in transportation planning and what knowledge can be transferred from bicycle traffic.