

Comparison of visual gazes of pedestrians, cyclists, and electric scooter users when using shared road

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Background

Cycling and walking are typical forms of locomotion, especially common in the urban environment. Recently, portable and quite efficient electric scooters were developed and quickly gained popularity. They frequently compete with pedestrians and cyclists to occupy their spaces, which may create conflicts and cause accidents. To understand and accommodate the needs of all road users and assure road safety, differences in perception of the same environment by different road users are worth thorough analysis.

Aim

The goal of the research was comparison of visual gaze behaviour of cyclists, electric scooter users, and pedestrians passing the same route. Their interaction with other road users is analysed to understand threats and risks for each of these modes of transport during selection of the path and during common manoeuvres. Differences in perception, depending on the utilised mode of transport, should bring better understanding of their specific needs.

Method or methodological issues

Eye tracking using a small wearable device was used to analyse visual behaviour of 12 young people, each of whom was given the task of following the same quite complex urban path, approximately 1,500 m long, using the three evaluated modes of transport. Their gazes and fixations were assessed during selection of road part (pavement, bicycle path, or the roadway) and during passing, bypassing, and avoiding manoeuvres. Differences in surrounding traffic and prior knowledge of the route are seen as the biggest issues that might have affected the outcome.

Results expected

It is anticipated that there would be differences in visual attention depending on the mode of transport. The research should permit for understanding whether the differences are mainly caused by the infrastructure, by the interaction between road users, traffic load, or by other factors.

Conclusions

Understanding of visual gaze behaviour will bring an important information for engineers and local authorities while planning new infrastructure solutions and renewing old one.