

Driving behavior pattern analysis for elderly people

Guan-Lun Chen¹ Jia-Yuarn Guo² Chia-Tso Huang³

¹Graduate school of Vehicle & Mechatronic Industry, Nan Kai University of Technology

²Industrial Management , Nan Kai University of Technology

³Company: Pitotech Co, Ltd

Abstract

The study aims at evaluating factors associated with driving patterns and self-reported driving difficulty, with particular attention to vision and cognitive impairment. This study uses cross-sectional data from 10 elderly participants (65 years old or older) and 10 young participants along with simulation program, and comparison is by putting on mobile eye tractor. Neurocognitive tests, driving simulation, and road tests provide complementary sources of evidence to evaluate driver safety. No single test is sufficient to determine who should drive and who should not. Finally, we compare the concentration ability and reaction ability between elderly and young participants.

Physical performance was measured by the driving simulation pathway with unexpected conditions (including roadblock; tree tumble down; pedestrians' crossing; a ball crossing), participants were asked to put on mobile-eye tractor while sitting on a driving simulator and follow GPS direction to reach the destination. The synchronous recording cameras record all the procedure during the simulation program. The number of steps taken to complete each circle was recorded such that fewer accidents reflected better performance. This program often involves a concatenation of factors or events, some of which can be prevented or controlled. FOR older adults, remaining an active driver is important for maintaining independence and well-being. The result shows that the reaction ability of elderly participants is worse than those of young participants, so that the accident occurrence of elderly participants is higher than those of young participants and the distribution of gazing points of elderly participants is more dispersed.

Key words : Mobile-eye tractor, driving simulator, synchronous recording, ripening old