

Promotion of Proactive Behavioral Change to Prevent Human Error

- Part 2 Analysis of Behavioral Change Processes in Older Drivers Through Collaborative Reflection -

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KEY WORDS: Older Drivers, Behavioral Change, Collaborative Reflection, Driving Behavior, Driver Education

Collaborative reflection has attracted increasing attention as an educational approach for promoting safe driving among older adults. Although driver assessments can identify individual driving characteristics and potential risks, little is known about how older drivers interpret these results, reflect on their driving experiences, and translate their insights into safer driving practices. This study explored the behavioral change process of older drivers participating in a workshop designed to facilitate collaborative reflection and proactive safe driving.

Nine older drivers (8 males and 1 female; mean age: 74.7 years) participated in two workshops conducted one month apart. The first workshop included hazard prediction activities using photographs, self-assessment based on the Driving Style Questionnaire (DSQ) and Workload Sensitivity Questionnaire (WSQ), and collaborative discussion. Participants then developed individualized hazard maps and action plans, which they implemented during everyday driving over the following month. They also completed a NASVA driving aptitude assessment. During the second workshop, participants reflected on their driving experiences using the assessment results, hazard maps, and action plans. Driving performance was objectively evaluated before and after the program using an AI-equipped training vehicle. Driving self-efficacy, perceived changes in driving ability, and workshop dialogues were also analyzed.

The AI-based driving evaluation demonstrated improvements in several safety-related driving behaviors, particularly those related to hazard perception, safety confirmation, and compliance with traffic regulations. In contrast, long-established driving habits, such as left-turn positioning and turning maneuvers, showed little short-term improvement. Driving self-efficacy did not increase consistently across participants, whereas perceived changes in driving ability suggested enhanced self-awareness of individual driving characteristics.

Qualitative analysis of the workshop dialogues identified five common categories: self-awareness of driving characteristics, perspective change through interaction with others, enhanced hazard perception, development of individualized improvement strategies, and transfer of learning to everyday driving. These findings suggest that collaborative reflection supports a behavioral change process in which older drivers recognize their driving characteristics, formulate personalized action plans, and apply them in daily driving.

In conclusion, the workshop, which integrated self-assessment, collaborative reflection, action planning, and daily practice, showed potential for promoting proactive safe driving behavior among older drivers. The findings provide practical insights into the design of educational programs that facilitate behavioral change in addition to objective driver assessment.