

HUMANIST Workshop

Task Force F

Driver Needs Related to ITS

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Target User Groups



- Standard drivers
 - Limited knowledge on ITS use
 - Major group for ITS use
- Professional drivers
 - High mileage, trucks, long driving durations, Irregular hours (high risk)
 - High ITS use, early adopters
- Drivers with special needs (disabled)
 - Limitations in task performance could be overcome by ITS
- Elderly road users
 - Fast increasing in number
 - Limitations due to ageing can be overcome by use of ITS
 - ITS use disrupts well trained driving routine
- Novice drivers
 - Lack of driving experience
 - Over-confident

Novice drivers training concerns



- Refrain from ITS systems that encourage “playing and risk-taken”
- Emphasize the higher order skills (risk awareness)
- Stimulate correct assessments of their skills and also of the ITS in use.
- Use ITS to discourage novices to violate intentionally the traffic rules.

DSN drivers Training needs



- Practical training is needed for “new tasks” due to the loss of function.
- When ITS is used to compensate for function loss, the use of the ITS is a component of the new task and the corresponding training is needed.
- The types of impairments that could be compensated with ITS have to be identified.

Professional drivers training needs



- Highly competent and experienced drivers
- ITS is used to increase “productivity”
- ITS might interrupt highly practiced driving routines
- Practical training is needed to learn about the interaction with the systems
- Sensitivity is needed to raise problem awareness on
 - Fatigue and Driver Monitoring systems
 - Mental overload and ITS

Major Concerns Related to Older Drivers



- ❖ Increasing representation in the population
- ❖ The declines of visual, cognitive and motor abilities
- ❖ Difficulties in discriminating relevant information and in the need for more time to process it
- ❖ The size of the useful field of view (UFOV) declines with increasing age
- ❖ UFOV could be temporary reduced with increasing attentional demands resulting from complex traffic conditions or the performance of a secondary task
- ❖ Declines in selective attention and attention switching
- ❖ Highly distractible and may easily be confused by competing sources of information

Compensatory Strategies



Although the increasing variability with aging, it seems that for the same task performance, the same type of compensations for functional losses lead to common patterns:

- ❖ driving at reduced speeds
- ❖ stopping night driving or with poor weather conditions
- ❖ avoiding freeway driving
- ❖ driving only in familiar areas
- ❖ planning routes where protected left turns can be made
- ❖ driving with a co-pilot
- ❖ and finally, stopping driving

Training Programs in USA



- ❖ The 55 Alive/Mature Driving program (two four-hour sessions) – AAA and NSC
- ❖ The Coaching Mature Drivers program (four-hour program or eight-hour program) – NSC
- ❖ The Safe Driving for Mature Operators program (three half-day sessions) – AAA
- ❖ The GrandDriver program – a pilot program providing information about ageing and driving
- ❖ The Maryland model – directed to older drivers who are considered to be at risk of unsafe driving.

Training Programs in USA



Program implementation

- Television Advertising
- Radio Advertising
- Billboard Advertising
- Metro Advertising
- Public Service Announcements
- Media Relations
- Expert Spokesperson
- Special Events
- Professional Outreach
- Web site
- Toll-free number
- Corporate Partnerships
- Speakers Bureau
- Brochures (over 30,000 distributed)

What You Should Know
About Aging and Driving.

GrandDriver

Learn More.
www.GrandDriver.info | 1-888-GRAND03

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The advertisement features a portrait of an elderly man with glasses and a mustache on the left. The text is centered and right-aligned, with the 'GrandDriver' logo in blue and red. At the bottom, there is a small disclaimer in grey text.

Training Programs in Canada



80 and over Licence Renewal Program

Every 2 years:

- Vision Test
- Written Test
- Driver's Record Review
- Group Education Session
- Road test, if necessary

70 and over Collision Program

- 70+ drivers involved in at-fault reportable collision must pass vision, knowledge & road test to maintain licence

65 and over Commercial Driver Licence Renewal Program

- 65+ commercial vehicle drivers must pass vision, knowledge & road tests and submit medical report to renew licence each year

Physician Mandatory Reporting Program

- Physician has duty to report persons with medical conditions that impair driving

Driver Assessment Referrals

- Drivers of all ages may be referred to approved third-party assessors

Older Drivers and ITS



According to Mitchell & Suen (1997), the following ITS might be able to provide assistance for difficulties resulting from limitations in (a) motion perception, (b) peripheral vision and (c) selective attention:

- ⇒ Collision avoidance systems aimed at intersections (a), fitting the difficulties found by older drivers in turning left on an intersection;
- ⇒ Automated lane changing and merging systems (a, b), assisting the driver in selecting a gap and also taking care of the actual changing or merging;
- ⇒ Blind spot and obstacle detection (a, b), providing support on the detection of objects close to a slow-moving vehicle;
- ⇒ In-vehicle signs and warnings (c), projecting signs and warnings from the roadside into the vehicle.

Older Drivers and ITS



- ⇒ Intelligent cruise control may not be much relevant for older drivers unless they incorporate functions to prevent common errors, such as failure to comply with rights of way (yield or stop signs) or traffic signs.
- ⇒ Driver information system for demanding urban traffic situations, assisting the driver in crossing complex intersections.

Older Drivers Needs and ITS



Systems functions that could be useful for older drivers:

- ⇒ Route guidance for mobility increase, allowing for the feeling of independence and safety (if incorporating assistance for the driver in crossing complex intersections its usefulness should be increased);
- ⇒ Collision avoidance, which could be very useful on intersections, allowing for increased safety on left-turns;
- ⇒ Obstacle detection, being very useful for parking, particularly the reversing manoeuvres;
- ⇒ Assistance on lane changing and merging (the automatic control of the vehicle should be more tested with older drivers before recommending its use).

Conclusive remarks on older drivers' training needs related to ITS



- ⇒ Training is an important issue for slowing down and/or preventing age-related declines and providing some knowledge and experience on the use of ITS.
- ⇒ Aiming at being effective, training programs should focus on the set of cognitive abilities related to safe driving, particularly those involved in driving a vehicle equipped with ITS.
- ⇒ Older drivers should be encouraged to apply for specific re-training programs, which should be developed and largely disseminated.
- ⇒ A generational effect could lead older drivers to avoid the use of ITS, as they are not familiarised with new technologies.
- ⇒ The use of these systems in training is necessary to ensure road safety and induce older drivers' willingness to use and purchase them as they have difficulties in self-learning, particularly concerning new technologies.