Facilitating Adaptation to Driving Simulators FREE Webinar

Friday, November 15, 2013
11:00 am to 12:30 pm (Montreal time)
Registration mandatory

The Webinar is intended for all current and prospective users of driving simulators and is free of charge. Participation is limited and pre-registration is required.

The Webinar will consist of four presentations of about ten to fifteen minutes each followed by a period of questions and discussion with all attendees.

Below are the descriptions of the four presentations.

MULTIPLE-EXPOSURE REDUCES SIMULATOR SICKNESS IN OLDER DRIVERS. IS THIS A CASE OF BUILDING AN INTERNAL MODEL?

Normand Teasdale, Université Laval

ABSTRACT: Data will be presented from older drivers who were exposed to five simulator sessions within a 2-week period. After the first session, half of the participants reported mild symptoms, measured with the Simulator Sickness Questionnaire and a Visual Analog Scale, and another half reported hardly any symptoms. We compared sickness symptoms, braking responses and postural stability between the two groups for the first (Pre-test) and last (Post-test) simulator sessions. Compared to participants showing no symptoms, participants with mild symptoms braked earlier, showed longer time of deceleration, a greater number of pedal activations and showed increased irregularities in their deceleration profile. Through repeated exposure, the driving patterns were less variable and sickness symptoms were reduced. A more gradual exposure to simulated environment might be required before evaluating the driving performance of individuals prone to simulator sickness. We suggest that sickness symptoms arise because of the absence of a proper internal model of the visual flow offered by the simulator. Multiple exposures allow participants with symptoms to build a proper internal model of the visuo-motor configuration associated with a

given simulator, thus displaying more stable driving patterns and reducing symptoms.

Bio: Normand Teasdale is a professor at Laval University (Faculty of medicine, Department of kinesiology). He has been interested in human factors affecting driving since his days as a graduate student at UCLA (PhD kinesiology, 1987) and he has been using driving simulators for nearly 15 years.

Correlates of simulator adaptation syndrome and the development of an effective screening process

Nicholas J. Reed, Transportation Research Laboratory

Abstract: TRL was commissioned by the Scottish Executive to train 700 professional commercial vehicle drivers on two full mission truck simulators. Drivers on the programme completed a short familiarization drive before completing two sets of four exercises, spending about an hour in the simulator in total. Drivers also completed questionnaires as part of the training programme, including the simulator sickness questionnaire (SSQ), completed before and after driving the simulator. Drivers rated their experience highly and showed significant improvements in their driving performance. Driver age and previous experience of motion sickness were both correlated with reported sickness level. There was also a significant correlation between drivers' attitudes to technology and their susceptibility to simulator adaptation syndrome. The implications of these results for the development of screening processes to reduce the incidence of simulator adaptation syndrome and the consequences for the use of simulators for driver training are discussed.

Bio: Nick is a Principal Human Factors Researcher at TRL and was technical lead on the UK's largest programme of truck driver training using full mission simulators. He has also conducted numerous studies using TRL's car simulator, DigiCar.

The Driver Training Benefits of Simulator Adaptation Syndrome

Pierro Hirsch, Virage Simulation Inc.

Abstract: The presentation explore the hypothesis that (by some lucky coincidence), drivers who practice the correct vision habits for more controlled and safer driving on the simulator will be rewarded by experiencing less discomfort from Simulator Adaptation Syndrome (SAS). The support for this hypothesis derives

from an analysis of the cue conflict hypothesis, results of a recent PhD research project and some tangential evidence from corroborating studies.

BIO: Pierro Hirsch is Director of Road Safety Research at Virage Simulation where he develops and evaluates driving simulator-based training and assessments aimed at reducing crash risk for novice car and truck drivers, commercial and emergency drivers, clinical populations and aging drivers.

A CLINICAL ANTI-SIMULATION SICKNESS PROTOCOL USING THE PERSON, ENVIRONMENT, OCCUPATIONAL, PERFORMANCE (PEOP) MODEL

Erica Stern, University of Minnesota

ABSTRACT: This presentation will discuss a clinical protocol developed by the Minnesota Driving Simulator User Group, a consortium of several occupational therapists to successfully control simulation sickness among clients and clinical subjects. The protocol uses the PEOP model to organize an evidence and experience-based multi-factorial approach to reducing the likelihood of simulator sickness and controlling any mild sickness when it begins. The protocol emphasizes cool environment, moving air, repeated brief exposure to simple drives, controlled lighting, controlled vestibular stimulation, grounding, reduced texture, and - fundamental to the protocol - a respectful empowering collaboration with an informed client.

BIO: Erica Stern, PhD, OTR/L, FAOTA is an Associate Professor in University of Minnesota's Program of Occupational Therapy, and is PI on a CDMRP grant studying driving reintegration of post-deployment military service members. Dr. Stern's 14 years of work in driving includes two federally funded studies of driving simulation as an appropriate screen or potential alternative to on-road assessment, and as a means of improving driving behaviors and self-awareness in persons with acquired brain injury. It was as part of this research that she and her research group developed the simulator sickness protocol presented here that has since been refined and used successfully in clinical research and clinical practice.