

# FLETC Journal

VOLUME 20 • Spring-Summer 2018

Federal Law Enforcement Training Centers

Artesia ★ Charleston ★ Cheltenham ★ Glynco



## BEHIND THE SCENES

Supporting the Mission

# EVALUATING REALISM IN POLICE DRIVING

BY DR. RICK GIOVENGO, Training Innovation Division  
TROY ROWELL, Driver & Marine Division



*Driving simulators are tested to determine the benefits in use of this type of training technology. (FLETC Archive Photo)*

The Federal Law Enforcement Training Centers (FLETC) employs a methodical process to validate and support the use of new technologies to achieve critical training objectives. One of the areas where new technologies have been evaluated and found to be effective in training students are the driving simulators administered by the Driver and Marine Division (DMD).

Recently, DMD explored the utilization of a newer choice of driver simulators to determine if an upgrade to more advanced simulators would improve the quality of training.

There are many schools of thought on what constitutes an effective simulated experience. Typically, effectiveness of a driving simulator depends on its ability to accurately reproduce realism, sometimes called fidelity. The combined realism of an experience results from a number of factors such as visual representation, auditory stimulation, and physical motion. Of course, as each of these areas becomes more refined, so too does the cost of a simulator system capable of producing each realistic sensation. The question then becomes, which of these areas must be realistic to achieve the most effective learning experience, and is it worth an additional expense?

An increasing number of simulation manufacturers in this field have asserted that motion in a driving simulator plays a significant role in a driver's behavior and consequent training experience. Simulators with motion, they would argue, provide the driver physical feedback such as feeling acceleration by tilting the seat back, just like driving a real car. However, these motion platform simulators can easily cost more than a real vehicle. Additionally, the maintenance requirements of the motion platform can be significant. In light of the volume of students expected to train on these simulators day after day, the potential of having training interrupted due to overuse and maintenance needs is a very real consideration. For these reasons, the upgrade to a more realistic motion-enabled driver simulator would have to result in a significant increase in learning and performance to justify the additional expense.

Thus, a partnership was born and a collaborative study developed by DMD and the Training Innovation Division to determine the most important aspect of a driving simulator, that is, physical realism, auditory realism, visual realism, or graphic realism in regards to a motion versus non-motion platform.

For the past decade, FLETC has used mid-fidelity simulators. A mid-fidelity simulator has advanced graphics, large projector screens, a realistic configuration, and a simple motion base. A high-fidelity simulator provides close to a 360-degree view and an extensive moving base. FLETC

simulators currently support absolute realism for decision-making skills, such as route choice behavior, and relative realism for velocity and lateral control measures. However, because driving simulators have progressed over the last 10 years, DMD wanted to explore the newer choices of driver simulators. This would determine whether an upgrade to a more advanced motion-base simulator would truly improve the quality of the training product.

The study lasted two weeks, and 105 volunteers were recruited from FLETC staff and FLETC partner organizations. All volunteers were 18 years or older and possessed a valid driver's license. Each volunteer was allowed to drive in the simulator to compare driving performance; some experienced the simulator with motion turned on and others with motion turned off. Participants were not informed about the exact reason for the experiment, and instructions were kept to a minimum.

While using the more advanced motion base simulator, participants first drove on a bumpy dirt road, then turned left onto a flattop highway that took them into a city-type environment. The city environment had several street lights that changed color, along with some erratic drivers, pedestrians, and animals walking into the intersections. Participants were told a green vehicle was going to pull out in front of them, and they would pursue that vehicle with lights and sirens. The green vehicle would drive out of town onto the back roads. There were some stop signs and turns that participants were expected to safely negotiate. The green vehicle would take the participants on an interstate where it would eventually pull over, thus ending the exercise.

After each participant completed driving in the simulator, with either the motion enabled or disabled, they were asked to fill out a questionnaire asking them to rate the realism and functions of the simulator on a five-point scale from very good to very poor. The fidelities rated on a scale included physical realism (motion), visual realism, audio realism, and graphic realism.

The results indicated that while visual and graphic realism were found to be significant factors in the participants' training experience, motion (physical realism) scored only marginally better than non-motion simulators. Audio realism was found to be insignificant. As a result of the study, this team of researchers were able to conclude that the quality of the training experience between non-motion and motion simulators was not demonstrably different. Therefore, it would be difficult to justify the substantial increase in cost for a simulator that did not measurably improve the overall training experience.

The construction, administration, and results of this study illustrate FLETC's commitment to balance the desire

for cutting-edge technology with the requirement that technology ultimately augment the training objective. In this way, FLETC ensures its partner organizations receive the most valuable training experience with the most responsible expenditure of resources.

For more information on this study or DMD training, visit the FLETC website at [www.FLETC.gov](http://www.FLETC.gov).



*Driving simulators allow trainees to practice varied scenarios. (Photo by David Tucker, FLETC)*



Troy Rowell began his law enforcement career in 1998 in Georgia, where he served in the traffic unit as a traffic officer, DUI task force officer, commander of the Traffic Enforcement Team, commander of the Special Operations Unit, and Watch Commander. Rowell was also assigned to the Criminal Investigations Division, where he served as assistant division commander. He completed his career as the departmental training coordinator assigned to the Support Services Division. He also served as assistant division commander and acting division commander in addition to his training responsibilities. Rowell began his career at FLETC in May 2016. He is currently assigned to the Driver Marine Division, Simulator Instructor Branch in Glynco, Georgia, where he has helped to establish new curriculum in several areas.



Dr. Rick D. Giovengo is an organizational psychologist with 30 years of law enforcement experience as both a state law enforcement officer and a federal agent. His specialized skills include undercover investigations, criminal investigations, personnel development, leadership coaching, and training. He is the author of the book *Training Law Enforcement Officers*. Giovengo designed the Covert Operator Selection School, which was considered a premier undercover school in federal law enforcement training. He was an adjunct instructor for the Federal Law Enforcement Leadership Institute from 2004 to 2009. He has trained law enforcement officers in Botswana, Brazil, Canada, Cambodia and South Africa. He proudly served as a platoon sergeant in the U.S. Marine Corps.

# WE TRAIN THOSE WHO PROTECT OUR HOMELAND



*Trainees practice the Precision Immobilization Technique (PIT), which is used to reduce risk during motor vehicle pursuits. (Photo by David Tucker, FLETC)*

Federal Law Enforcement Training Centers  
1131 Chapel Crossing Road  
Glynco, GA 31524



Homeland  
Security