The ILEETA Journal

ILEETA

International Law Enforcement
Educators and Trainers Association

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Part one of this article, published in ILEETA Journal Vol. 12, Ed. 2 (2022), discussed a question on gaze behavior.

Are there more optimal places for an officer to look when they are in a situation?

Part one discussed Vickers & Lewinski (2012) and Underwood (2007) and how their findings indicated strong evidence to suggest there are more advantageous places for an officer to be 'fixating' (looking). These advantageous places set an officer up to make more accurate, split-second decisions.

By coupling this concept with our first ILEETA Journal article (Vol. 11 Ed. 2, 2021) on the use of the 'Quiet Eye' you create a strong foundation for pairing a visual fixation with the act of presenting and accurately firing one's own weapon (refer to our second ILEETA Journal article on gaze-action coupling in Vol. 11 Ed. 3, 2021).

Together those articles lay out the split-second gaze behavior for identifying a shoot/no shoot while simultaneously performing firearm acquisition, then allows for shifting the gaze and firearm presentation to perform accurate shooting. All those things are taking place in a few seconds or less and they can be taught on purpose with various training drills. We have done this with positive results in performance as measured by reaction time, speed, and accuracy of decisions.

This article will conclude our discussion on gaze behavior by addressing the second question posed in part one of these articles;

Are there any research supported methods for how to actually train an officer's gaze behavior for an entire situation?

We have chosen two articles to present the tested set training program for officer gaze behavior. The first one was initially discussed in our article from ILEETA Journal Vol. 12 Ed. 2 on officer driving. Underwood (2007) offered a specific training to novice drivers to bring their gaze behavior closer to that of experts.

The goal of the training was for novice drivers to have more fixations in the horizontal plane over the vertical one, especially at higher vehicle speeds. Novices were given training in a simulator and were tested in the lab. Then they were tested during open road driving. Testing the novices after the training, both in the lab and on the open road is key for LE trainers. The testing's results speak to the trainee's ability to retain and recall the information and techniques.

The concepts in the scientific community are called, Retention & Transfer

Retention: Did the learner remember the training for a time period? Did they store the training in long term memory?

Transfer: Were they able to do the learned skill in a novel environment after time passed? Were they able to bring the skill out in a similar but not identical situation to the one they learned it in?

Retention and Transfer testing forms the foundation of every evidence-based training program. If you are not testing your people weeks and even months after a training program, how do you know if your training program is optimal or not?

> Note: The concepts of Retention & Transfer are absolutely key for LE Trainers to understand. Please see the Methods of Instruction (MOI) course taught by Force Science in the USA and Raptor Protection everywhere else in the world to learn much more.

As you can see from the graphs taken from Underwood (2007) below, the training ranked highly on both Retention and Transfer. If this was not seen the training intervention would not be a good one. (Are your agencies trainers evaluating all your training programs with Transfer testing?)

(A) Laboratory viewing of hazard perception film clips
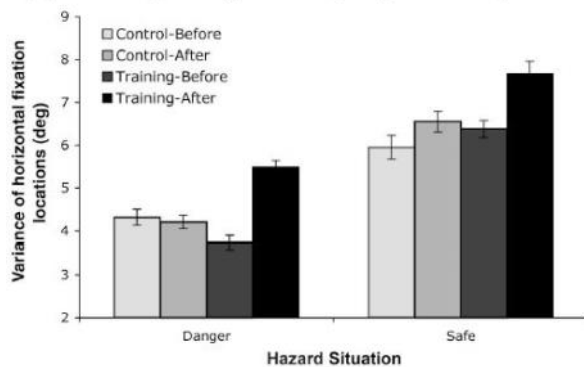
(B) Driving on three types of roads
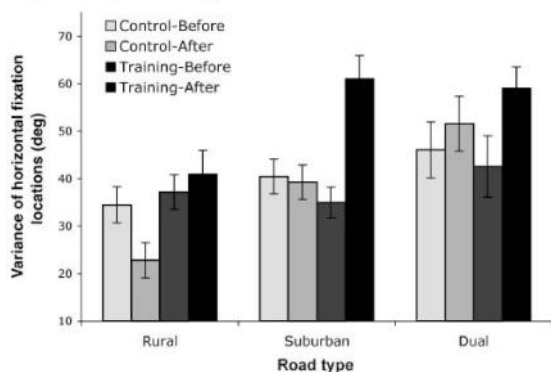
To train the novice drivers Underwood (2007) first brought their attention to the fact that they were having far fewer fixations on the horizontal plane when driving at higher speeds as the expert drivers did. The novices were then given opportunity to practice this experientially and in context by being placed into a driving simulator.

On the surface the training protocol seems to be quite simple. Identify the gaze behavior of experts and how it differs from novices. Then teach the novices to replicate that patterning of experts through experiential based learning. This gives novices repetitions in a contextual environment of doing the skill.

A key point multiple authors discuss is, although the focal vision of an officer can be measured with eye tracking technology,

That only informs us to where the persons attention may possibly be directed (Lewinski & Vickers, 2012.) This is important as the purpose of training an officer's gaze is to gain information and use it. If they are 'looking but not attending' to the information or if they do not understand the relevance of the information, they cannot optimally use it.

The goal of officer gaze training is to improve officer performance and decision-making. Measuring novice drivers and seeing them after training have more expert gaze patterns does not mean the novice drivers are performing safer, or more optimally. Further, it does not mean they will retain the skill or be able to transfer it to a unique situation on the street.

One key to the Underwood (2007) driving training success was that the novices already had contextual knowledge for what they were looking for and then how to react once a possible issue was identified. Officers already had competency with the tool, the vehicle, and what to specifically do when a potential hazard was identified.

The linking of the visual stimulus (road hazard) to a response was already 'wired in' so to speak. The officers already had a high degree of familiarity and competence with the tool and how to utilise it. They already knew they could slow down, steer to avoid or even take more drastic measures like moving into the ditch if necessary.

The novices were told where and when to look. Already coupled was the *why* and the *what* to do if a threat was ID.

This brings an important point to understand, training an officer where to look in a non-driving situation does not come with it the tacit knowledge of what to do immediately upon discovering a potential issue like it does when driving a vehicle.

In driving there are many more rules and structures in place. There are dozens of 'rules of the road'. Even if these rules are not followed, intersections, boulevards, traffic lights and even the physical makeup of a road are all known. Patterns and heuristics are all deeply ingrained for anyone who has been driving for a length of time. Perception-and-Action are coupled as officers learned how to manipulate the vehicle (tool) in context to their environment.

Contrasted driving to dealing with a subject or multiple subjects at a scene and the complexity for what can happen and what you can do greatly increases. There is far more variability to what people can do then what vehicles can do.

All this is to say that there are more defined ways to create advantage or safety when driving. To be able to slow, accelerate or steer is orders of magnitude more complex when dealing with a person or persons at a scene outside of a vehicle. We will now examine a few of these ways in the second article.

In the article done by Heusler, B., & Sutter, C. (2022) titled, Shoot or don't shoot? Tactical gaze control and visual attention training improves police cadets' Decision-Making performance in Live-Fire scenarios, they trained two groups of recruits for 90 minutes each. One group was trained in a more traditional Law enforcement way. Identifying and engaging targets quickly with emphasis on the speed-accuracy trade off. All done with live fire on a range, again focusing on precision and speed with different sizes of target shapes.

The other group was trained for 30 minutes in the classroom on what authors called tactical gaze control, their focus of attention, what cues to look for and where they would be, how human vision works and overall situational awareness for detecting weapons on a suspect. The last 60 minutes were done on the live fire range then practicing on sterile targets then human silhouettes and finally various photo realistic human targets with weapons or not.

> Note: The Heusler & Sutter (2022) study examined multiple measures outside the scope of this article, I urge all LE trainers, not just firearms trainers to ponder all its data in their respective skill areas.

Post training performance was compared to pre-training performance for both groups. Multiple measures showed the gaze behavior training had positive implications. This included response time and correct decision-making.

With only one, 90 minute training intervention.

Also examined was muzzle position during the event. The gaze trained group had more optimal muzzle position for much longer which allowed the opportunity to perceive more information and make a better decision. This was specifically trained in the intervention (Taylor, 2020; Heusler & Sutter, 2022.)

Muzzle position is one way to "create safety or advantage" in a situation when an officer is unsure if the subject has a weapon. This addresses one intervention to train officers on purpose so it becomes automatic in those types of situations. Thus, linking perception-to-action for nondriving situations, the question we posed earlier.

Summary

This article looked to discuss evidence-based training on the concept of officer gaze and the importance that training has on setting up an officer to make better decisions.

We found a strong correlation that training on officer gaze behavior can have positive effects on decision-making and performance.

Training officers on the human factors involved in decision making and performance, the way human vision works, how it correlates with attention, the critical cues to look for with a subject, and possibly most important, giving the officers real experiences for identifying these. Then coupling that identification to a response is also a key idea for effective Retention and Transfer.

We have been a part of implementing this training and we can tell you it does not need to be only high-fidelity scenario training. We have had amazing outcomes from doing lower context drilling. Please do not hesitate to reach out to us if you would like a hand implementing these concepts in your training.

Citations

Heusler, B., & Sutter, C. (2020). Gaze Control in Law Enforcement: Comparing a Tactical Police Unit to Patrol Officers. *Journal of Police and Criminal Psychology*. Published. https://doi.org/10.1007/s11896-020-09412-z

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