VirTra

All That Glitters is Not Gold!
The Inconvenient Truths About VR-based Goggle Training
By Lon Bartel and Bob Ferris

It is tempting to embrace VR training. After all, VR headsets are high-tech, "cool" and will surely be well received by millennials, right? Actually, like so many things in life, the truth is more complicated.

Training?

We'll start with the fundamentals. Is the trainee receiving important and valid training? If de-escalation training is needed, then realistic and accurate human appearance, speech and movement is needed, otherwise any outcome during training would be dismissed since it could be due to the lack of realism. Likewise, if marksmanship training is needed then a realistic and accurately tracked weapon is needed, otherwise any outcomes during training would be dismissed since they could be due to a lack of realism of the simulated weapon. If both de-escalation and marksmanship are to be trained the problems are only magnified. Imagine practicing on a simulator that shows video game characters without emotion and the impact of your rounds are 5 inches to the left. You are told that you failed the hostage scenario, but did you? If the hostage taker was a real human, you could have read their body language, the look in their eyes, the tightness of their grip and if you fired a real pistol, you're pretty sure you would have hit the hostage taker instead of the hostage. If you adjust to the training, intentionally firing 5 inches to the right, you might do better in the next scenario but far worse in real life. This situation is a text book example of the term "negative training". Especially in 2021 America, few topics are more critically impactful than proper police de-escalation training. **Valid training is more important now than maybe any other time in history.**

One inconvenient problem lies with human realism. For VR headset-based training, it is very common to use computer game-looking avatars. Keep in mind people are astonishingly good at reading subtle clues presented by humans in real encounters, but can't 'read' these computer-generated avatar humans. This all but eliminates the effectiveness of gaining new insights and skills during the training session. You know you're on the wrong path when a trainee reports to their fellow officers candidly afterward, "the avatars were a joke – nothing like talking with a person in real life."

Officers must rely on subtle verbal cues in de-escalation and judgmental use of force situations in order to predict what might happen next. This is how officers make decisions that could result in them raising their tone of voice, lowering a weapon or choosing to fire in the blink of an eye.

Our reliance on these subtle cues and nuances is reinforced by multiple research studies, which state, on average, we place 55% importance on body language, 38% importance on tone of voice and 7% importance on the words spoken by the other individual[3],[4].

If over 50% of a person's decision-making is based on non-verbal communication alone, then naturally, computer avatars don't equal effective training. At least for decision making training when human interaction is important. But a solution exists. Certified video-based training is needed, as it utilizes photorealistic people who present accurate cues for officers—making life-saving training effective. Since video-based training varies immensely from supplier to supplier, it's equally important that the simulation training content be high-quality and certified by IADLEST or another respected international association.

Show Stoppers

If you've ever experienced sea sickness, you know the definition of a "show stopper". All that matters is getting back to normal. A common mistake is to overlook what is known as 'Simulator Sickness' or 'Cybersickness'. For many individuals, this results in disorientation, nausea and/or eye fatigue[2].

To understand the risks of VR training, departments must first understand how it effects people. A recent study[2] analyzed the severity of VR sickness against various ages, genders, prior VR experiences and more. **What they discovered is that VR sickness can plague anyone**—meaning that it does not matter how seasoned an officer is, their gender or frequency of training, they may experience VR sickness.

One study discovered that when wearing VR headsets, more than 80% of participants experienced nausea, oculomotor disturbances and/or disorientation, with disorientation potentially lasting >24 hours[5]. Of these participants, 12.9% prematurely ended their exposure because of the harshness of the VR sickness. In that same study, out of the individuals who stopped their VR experience due to VR sickness, 9.2% experienced an emetic response—or in other words, vomited as a result.

Through very precise simulation engineering techniques, it is possible to reduce the frequency and intensity of VR sickness. Sadly, a 100% elimination with headsets is unlikely, meaning some officers won't receive training. For the trainee and the training staff, when VR sickness occurs, it makes a mess of an otherwise pristine training schedule.

If we call it "training" it must be helpful?

If the video game-looking characters alone doesn't destroy creditability, handing officers a video game controller will signal this is all a game. To avoid negative training, training equipment must closely match the equipment you will actually use. It is well established that during training, we form habits. If we use game controllers rather than realistic drop-in recoil kits into real firearms, we reinforce incorrect psycho-motor skills. The inconvenient truth is that trainees revert back to habits formed during training, especially when overwhelmed by severe pressure in a real-world crisis. Training sessions and adaptations that can negatively impact their real-world performance should be avoided—period. Yes, depending on the equipment and content, it is possible that not all training is superior to entrenching bad habits that can cost an officer precious time and/or accuracy in real world engagements.

For those facing life and death consequences, what really matters is not purely demonstrating correct decision making, proper tactics and handing a weapon with speed and accuracy—it is doing so under debilitating stress. The need for stress in training is not optional, like stress on the streets—it's just part of the job. Therefore, stress is necessary for proper preparation for real-life, heart-pounding encounters.

The best shooter on the range can miss the entire target with the introduction of high-stress. Training with stress, like an electronic return fire system such as VirTra's Threat-Fire® device, allows them to work through psychological and physical mistakes in a safe, controlled environment, before taking the lessons learned into the field. These "Stress Inoculation" and "experiential learning" concepts underpin why we expect veteran officers to perform better than rookies. There are patents protecting the use of electric impulses in training, so some companies have tried to use loud noise and flashes instead to create stress. The problem here is that being startled is far different than feeling pain.

Researchers have proven again and again that feeling an electric impulse greatly increases learning and memory, but the same cannot be said for being startled. In fact, some recent studies indicate having an electric impulse optimizes perceptual decision in real world environments[6]. It's not an exaggeration— the quality and intensity of the training can determine how well a trainee can accomplish their mission—without costing innocent lives.

The latest high-tech gizmo does not always make for the most effective professional officer training system. Although VR tech can be impressive and generate an immersive experience, we must ensure it is an effective training tool that does no harm. Especially prior to placing it in the hands of those who trust that their limited training time is yielding maximum positive skills for real-world performance. At present, there is no VR headset-based police training system that passes this simple, but necessary, maximum positive skills per unit time evaluation.

If a person or agency is more interested in the "appearance" of training or in saving money to the detriment of effective training – would anyone feel the need to stand up for quality training for those who need it?

I certainly hope so.

Training is too important to take a dangerous shortcut, even if it is labeled "high-tech" and adorned with appealing glitter.

Sources:

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