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 and will surely be welcomed by millennials, right? Actually, like so many things in life, the truth is more complicated.

Training?

Let us 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 required, otherwise any outcome during training could be dismissed 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 could be dismissed due to a lack of realism of the simulated weapon. But, if both de-escalation and marksmanship are to be trained, these problems are only magnified.

Imagine practicing on a simulator that shows video game-like characters and the impact of all rounds are 5 inches to the left. After, the officer is informed they failed the hostage scenario—but did they? If the hostage taker was a real human, the officer could have read their body language, the look in their eyes, the tightness of their grip and, if the officer fired a real pistol, they know they would have hit the hostage taker instead of the hostage.

If officers adjust to the training, intentionally firing 5 inches to the right, they might do better in the next scenario but far worse in real life. This situation is a textbook example of the term “negative training”, when training actually hampers performance. There is no room for this in 2021 America, when perfected policing is demanded now more than any other time in history.

One inconvenient training challenge lies with human realism. For VR headset-based training, it is very common to use computer game-looking avatars. Keep in mind that people are astonishingly capable at reading subtle clues presented by humans in real encounters, but cannot ‘read’ these computer-generated avatar humans. This all but eliminates the effectiveness of gaining new insights and skills during the training session. An indicator of being on the wrong path is when a trainee reports to their fellow officers after VR training, “The avatars were a joke – nothing like talking with a *real* person.”

Officers must rely on nuanced verbal cues in de-escalation and judgmental use of force situations in order to predict what might happen next. This is how officers make split-second to raise their tone of voice, lowering a weapon or choosing to fire.

Our reliance on subtle cues is reinforced by multiple research studies. These state, on average, people 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 nonverbal communication alone, then naturally, computer avatars—with their lack of ability to recreate subtle body language—do not equal effective training[1]. Especially in decision-making training where human interaction is critical. But a solution exists. Instead of VR, certified video-based training is needed, as it utilizes photorealistic people who present accurate cues for officers, which makes life-saving training effective. Since video-based training varies immensely from supplier to supplier, it is equally important that the simulation training content be high-quality and certified by IADLEST or another respected national or international association. Relying on certified curriculum is also legally prudent – if shots are fired, a law suit can occur and juries will want to know if the agency provided effective training or not.

Show Stoppers

If you've ever experienced sea sickness or vertigo, you know the definition of a "show stopper" All that matters is getting back to normal. A common mistake to overlook in VR headsets is the downside of causing 'Simulator Sickness' or 'Cybersickness'—something that does not occur in screen-based training. For many individuals, Cybersickness results in disorientation, nausea and/or eye fatigue[2].

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—there is always the chance of experiencing 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 over 24 hours[5]. Of these participants, 12.9% prematurely ended their exposure because of the harshness of the Cybersickness. 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 unique simulation engineering expertise that few companies possess, it is possible to reduce the frequency and intensity of VR sickness. However, a 100% elimination of Cybersickness when using headsets is unlikely, and officers who continue to get sick will not receive effective 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 do not destroy creditability, handing officers a firearm with strange tracking pods or a video game controller will surely signal this is not serious training. Instead, training equipment must closely match the equipment officers will actually use. It is well established that during training, people form habits. If trainees use altered firearms or game controllers rather than realistic drop-in recoil kits into real firearms, incorrect psycho-motor skills are reinforced.

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 to entrench 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 is a 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 trainees 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 veteran officers are expected 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 win business. The problem with this is that being startled is far different than feeling pain.

Researchers have repeatedly proven 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 making in real world environments[6]. It is not an exaggeration— the quality and intensity of the training can determine how well a trainee can accomplish their mission—without costing innocent lives or losing their own.

The truth of the matter is the latest high-tech gadget does not always make for the most effective professional officer training system. Although VR tech can be impressive and generates 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 trusted 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, criteria of maximum positive skills gained per unit time.

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 stand their ground and insist that new training gear must be effective or must be rejected?

Those who care enough to read this article care enough to ensure their department has a training tool that truly accomplishes the goal of providing superior skills to their officers. Since there is no gatekeeper, any company can simply release a "training simulator" with any type of content without passing a single certification requirement. Training simulators are NOT created equal, VR or otherwise.

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

Sources:

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