Put That Pistol Away and Set Your PHASER to Stun

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The Command College Futures Study Project is a FUTURES study of a particular emerging issue of relevance to law enforcement. Its purpose is NOT to predict the future; rather, to project a variety of possible scenarios useful for strategic planning in anticipation of the emerging landscape facing policing organizations.

This journal article was created using the futures forecasting process of Command College and its outcomes. Defining the future differs from analyzing the past, because it has not yet happened. In this article, methodologies have been used to discern useful alternatives to enhance the success of planners and leaders in their response to a range of possible future environments.

Managing the future means influencing it—creating, constraining and adapting to emerging trends and events in a way that optimizes the opportunities and minimizes the threats of relevance to the profession.

The views and conclusions expressed in the Command College Futures Project and journal article are those of the author, and are not necessarily those of the CA Commission on Peace Office Standards and Training (POST).

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The officer and his partner were first to land at the school. Children lay face down in puddles of blood near the entrance and the veteran officer recognized the popping sounds from his youth when he use to hunt with his father using ammunition and a centerfire rifle. As quickly as the memory came, it disappeared with the sounds of gunshots that could be heard in the near distance. The officers followed the sounds of screaming students and caught a glimpse of the shooter darting into the kindergarten class. As they deployed, more muffled shots could be heard along with the shrieks of the young trapped inside. They "button hooked" through the door and saw the shooter clad in camouflage holding one child by the neck. The other 23 children were between the officers and the shooter causing the officers to have an obstructed view of the suspect. The officers took aim and fired their PHASER, striking the students and shooter. All collapsed to the ground, temporarily incapacitated. The officers moved in and secured the shooter. A few moments later, the young students awoke and, though dazed, were safe.

Even though we have had advancements in lethal force weapons over the past 500 years, there has been limited to stagnant improvements to less lethal weapons. This is especially true for law enforcement officers and agencies that are hesitant to utilize a less lethal source due to fears of civil and criminal liability and litigation. These fears are caused by a lack of foresight in addressing the future challenges of violence officers will face. The advantage to the use of the less lethal weapon is that it is a "useful tool to make the public and officers safer and to resolve potentially violent situations effectively and rapidly (Choudhary, 2010).

The elimination of lethal weapons in law enforcement could be the most significant advancement in the manner in which the police interact with the public. It would reduce the death and injury of law enforcement officers and resisting subjects, increase patrol officer safety and tactics, and eliminate or reduce civil and criminal litigation against police officers and

departments. As you will see, there are emerging technologies that will allow this one-time "pipe dream" to become reality.

The Police Arsenal

The elimination of suspect's and bystander's deaths through the sole use of advanced less lethal weapons will change how law enforcement responds to calls for service and combative subjects. Future policing both at the street and tactical levels would significantly change because of the elimination of the threat of a suspect and inadvertent civilian deaths. A 2011 Department of Justice study found 99.7 percent of those exposed to an electronic less lethal device or conducted energy device (CED) suffered no injuries or minor injuries (U.S Department of Justice, 2011). In addition, less lethal weapons would streamline officer's training standards and eliminate many traditional items of equipment commonly carried on a patrol officer's duty belt.

Currently, officers have an array of tools issued to them and secured on their duty belts. These usually include a handgun, TASER, chemical agent, baton and other lethal and non lethal weapons. Because of this, officers have had increased training and scrutiny on their reaction and deployment of weapons in response to a suspect's level of force and resistance. Violence has increased against officers and more constraints are being placed on them which have led to more questioning by specialized citizen rights groups that exploit officer's use of force incidents by bringing about litigating after a suspect's death or bodily injury (Muller, 2004). Until, something changes, these groups will continue to fight even though current government studies says there is no conclusive evidence that indicates serious injury or death occurs due to non lethal electronic weapons (U.S. Department of Justice, 2011).

The Development of Non-Lethal Weapons

The development, advancement, and research of non-lethal weapons have occurred primarily in two entities; the military and the police. These non-lethal weapons generally fall into the categories of chemical agents, impact devices, sonic and light weapons, and electrical

devices commonly known as “stun guns” or TASERs. These weapons were usually developed in a military research arena and then adopted for municipal law enforcement. The Cold War era led to additional advancements in computers; allowing for these developments in Lasers, plasma weapons and other non lethal tools (Smith, 2010). This technology led to further advancements in non lethal devices consisting of rubber bullets, pulsed powered weapons, lasers, TASERS, ultrasound, infrasound, and others (Alexander, 2010).

The military’s first use of chemical non-lethal irritants used in World War I (Davison, 2009). Their use was to incapacitate enemy soldiers to then utilize extensive lethal force. The United States Government military’s response evolved from foreign action against combatants to having to address United States citizen’s protests in the 1960s (Davison, 2009). This caused the government to reassess how to address citizen uprising in local states versus the traditional enemy soldiers and militant groups. At this same time, a variety of less than lethal weapons was introduced to law enforcement as an additional tool for their duty belts (which at the time only held a pistol, a baton and handcuffs). Amongst the most prominent of these were:

- Chemical agents - these originally consisted of CN or CS gas. Although effective, they normally cross-contaminated other responding officers, making it difficult to address a violent offender while attempting to maintain vision, breathing, and mucus secretions. To address this issue, “Law enforcement agencies rapidly adopted pepper spray in the late 1980s and early 1990s as an alternative to traditional chemical agents (U.S. Department of Justice, 2011).” The “pepper spray” caused a burning irritation to the eyes, causing vision obstructions and a burning of the face, and eyes.
- Impact weapons - these began as a wooden straight baton which evolved into the popular PR-24 baton. Now agencies have a variety of choices of collapsible batons that extend into full traditional batons. In addition to batons, other impact weapons were able

to be deployed through launching systems. These impact projectiles consisted of paint ball rounds, beanbag rounds, wooden dowels, and other unique projectiles.

- Acoustic and infrasound weapons - these sonic tools have been used in the military for crowd control and targeting individual combatants in a crowd. Sound waves affect the body in numerous ways from a slight irritation to disorientation, bowel spasms, and vomiting. One such device is the U.S Department of Defense system called the Active Denial System. This system uses radio frequencies to heat the water molecules in the skin tissue and causes an intense burning sensation (Freudenrich, 2011).

Even with the introduction of this expanded palette of force options, litigation continued to increase in response to the police use of force. Between the years of 1984 and 2000, there was a 40% increase in lawsuits due to a series of civil and criminal court decisions, high profile use of force incidents publicly criticized nationwide, and diminishing public support as the use of force incidents increased causing serious or fatal injuries to suspects (Hougland, 2009). Based on this public reaction to law enforcement, advancements in non lethal weapons led to research and serious evaluation of electrical weapons. The emerging technologies would allow police to be free from overreacting, or under reacting, allowing law enforcement to promote law and order (Koplow, 2006).

The most prominent electrical device emerged in a prototype in 1970.

The TASER, named after Thomas A. Swift's Electrical Rifle children's science fiction books series, was invented by John Cover. The device overcame many limitations of prior used electrical batons and tools (Davison, 2009). The TASER interrupts and "jams" the nervous system allowing officers to gain a tactical advantage while the combative suspect is temporarily incapacitated.

There are many choices on an officer's belt that can be chosen to address and react to a suspect's actions. With so many choices during the heat of battle, are these multiple options

causing officers to be placed in a dangerous position? The wrong split second choice or reaction during an evolving situation, which ultimately causes the death of an unarmed suspect, will lead to a magnitude of second guessing, law suits, and attacks from the media. Furthermore, many millions of dollars have been paid in civil rights lawsuits when victims or their families sue the city and police department for wrongful death or injuries related to shootings that are ruled as an illegal use of force (Lacks, 2008).

Split-Second Decision Making

The decisions an officer must process effects his reactionary time to the event. There are three types of reactionary times that officer's are exposed to while making a decision and taking action on that decision. Simple Reaction time features only one stimulus and one response (i.e. press the button when you hear the tone) (Luce, 1986). Recognition Reaction time features a memory set, to which the officer should respond, and a distracter set, which should be ignored (i.e. press the button when you see a symbol that you have seen before)(Luce,1986). The third type is Choice Reaction time which requires the officer to give a specific response to a specific stimulus (i.e. press the right button when you see stimulus X and the left button when you see stimulus y) (Luce, 1986). Choice Reaction is the most difficult and increases with difficulty when multiple choices are available such as when an officer has to select the appropriate weapon to address a threat.

Currently, when an officer is exposed to multiple subjects and threats the decision process would have to address the most dangerous threat first even though the closest threat may require a minimal use of force. The officer must perceive and absorb the visual cues that the suspect is going to present, process that information within the current context, decide on an appropriate course of action, and then signal the muscles to respond….this is referred to as the OODA loop (Observe, Orient, Decide, and Act) (Howe, 2005). Having a sole weapon or device that would address all threats in the use of force continuum would eliminate the OODA loop,

minimize reactionary time, and increase officer safety. One such potential weapon may be on the horizon.

The PHASER

A lack of foresight, influence of political entities, and fear of litigation has slowed research into advanced non lethal weapons. This is due to the disinterest of military and civilian key players, Congress has not addressed the issue, and the public is only vaguely aware of pending research and development (Koplow, 2006). As the United States Government moves into more policing type operations the nation will be motivated to accelerate their current research and deployment of non lethal weapons. These future advancements will eliminate the death and serious injuries to officers and suspects in this world in which levels of violence are increasing daily as reflected in both national and world media. These advancements will benefit officers in their decision making reactionary time, the tactics and procedures when dealing with hostile subjects, and the reduction of litigation based on officer's and department's use of force and policies.

Current government and private research has consistently supported the use of non lethal weapons in law enforcement has reduced injuries and death to both officers and suspects. (U.S. Department of Justice, 2011). The cities of Austin, Texas and Orlando, Florida were studied in 2006 to see what effect their deployment of conducted energy devices (CED) had on officer and suspect safety. The study found in both cities there was a significant drop in average injuries to officers by 30 to 50 percent and to suspects by 50 to 60 percent (U.S. Department of Justice, 2011).

With foresight and research, LASER developers can analyze the existing non-lethal weapons and envision a single sole use less lethal weapon that would eliminate death of violent suspects and any unfortunate civilians caught in the cross fire. The Defense Advanced Research Projects Agency (DARPA) has developed the Active Denial System (ADS). According to

Colonel Kirk Hymes, the head of DARPA's Joint Non-Lethal Weapons Directorate, the ADS is a parabolic antenna device that shoots a focused electromagnetic radio-frequency beam which penetrates the skin to 1/64th causing a painful physical reaction (U.S. Department of Defense, 2013). Continued DARPA research into weapons like this will benefit officers during close quarter combat with armed suspects.

Research in officer involved police shootings discovered officers, on average, were more likely to miss their targets; thus exposing those in the background to be struck by unintended bullets (White, 2006). To minimize the potential for damage to the innocent from errant weapons use, one emerging possibility is to extend on DARPA's work and that of others to develop a PHASER (Personally Held Automatic Stun Energy Ray). The PHASER, developed as a handheld LASER system, could be designed to replace all or part of the lethal and less lethal choices on an officer's duty belt.

Like other ADS, the PHASER could utilize LASER technology to disrupt the nervous system, causing involuntary muscle contractions and temporarily paralysis. This would allow the police to safely take the suspect into custody. It also significantly minimizes the potential for the innocent to be inadvertently involved in the apprehension effort. Current force options mean that, when an officer encounters a violent individual, he or she rarely have time to analyze what force option choices to select in reaction to a criminal's actions. The PHASER, with its accuracy and precision, would increase the officer's action and reaction time. In addition, bystanders being held hostage or in the background during an encounter would not be at risk of a PHASER hit because the effects are temporary and non-damaging. Retired Marine Colonel George Fenton and former director of the Department of Defense Joint Non-Lethal Weapons Program said, "…the "Holy Grail [of weapons] is neuro-muscular incapacitation" when the situation falls short of the need to use deadly force. The PHASER would give the officer this tool to win the battle and fight another day.

It is important that law enforcement continues to build relationships with less lethal research companies and government agencies in order to strive for advancements in officer safety. With the ongoing education of the public and law enforcement personnel, those forward thinking leaders and visionaries will emerge and promote a less lethal weaponry arsenal for law enforcement. The constant development of technology and bounding advancements of computers and electronics, allows these leaders to realize this reality is within their grasp.

Conclusion

Success of the PHASER will come when there is a consortium of leaders and organizations. Military and police executives with the support of Congress must set the nationwide goals and be the backbone of promoting less lethal research. Civil rights groups and the public must participate and be educated on police use of force incidents and their split second decisions that must be processed. Finally, private companies must be energized and encouraged to research and develop these less lethal tools for the good of humanity.

Unfortunately, it may take a catastrophic police event which will cost lives of police officers and innocent bystanders before there is a realization that there is a need to fund, develop and research less lethal technology. This change, though, to create and then adopt a PHASER would have worldwide influences as nations begin to police themselves and local civilians rise up to stop the irrational violence in the world and our communities.

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