O.O.D.A Loop and the Tactical Response

The O.O.D.A. Loop is a process we go through hundreds if not thousands of times in a single day. It is a process that defines how we humans react to stimulus. Colonel John Boyd coined the term O.O.D.A. Loop, in the 1950’s. Colonel Boyd, known as the “Fighter Pilot who changed the Art of War”, was an F-86 pilot and commander of a fighter group during the latter part of the Korean War. He believed that when at a disadvantage a competent pilot could still overcome that disadvantage by “Attacking the Mind” of his opponent. His observations led him to a greater understanding of Human reaction time and the coining of the term O.O.D.A. Loop. Colonel Boyd trained his pilots based upon his observations of Human reaction time and as a result his pilots had a 10 to 1 kill ratio over the superior Mig-15’s.

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Human reaction time is defined as the time elapsing between the onset of a stimulus and the onset of a response to that stimulus. The O.O.D.A. Loop, which stands for Observe, Orient, Decide and Act, is Boyd’s way of explaining how we go through the process of reacting to stimulus. First we Observe, and keep in mind that although we process approximately 80% of the information we receive with our sense of sight, we can and do make observations with our other senses. For instance you might hear a gunshot and not see the person who fired it. Once you look and see the source of the gunfire you are now in the Orient stage of the process. In the Orient stage you are now focusing your attention on what you have just observed. The next step is the Decide step in which you have to make a decision on what to do about what you have just observed and focused your attention on. Finally you have made your decision and the last step is to Act upon that decision. Keep in mind that the O.O.D.A loop is what happens between the onset of a stimulus and the onset of a reaction to that stimulus.

How fast is your O.O.D.A. Loop? Well, that depends on several factors that can affect your reaction time. Simple Reaction Time is generally accepted to be around 220 milliseconds (Laming 1968). In simple reaction time experiments, there is only one stimulus and one response. Simple reaction time can be gauged in a variety of ways but basically a person is asked to place their finger on a button or a switch and told to manipulate that button or switch in response to a light or a sound. In this case the person is reacting to a “Known Stimulus” during the observe step and using a pre-determined response during the decide step. It should be noted here that many researchers have found that reaction to Auditory Stimulus is faster than reaction to Visual Stimulus. Perhaps this is because an Auditory Stimulus only takes 8-10 Milliseconds to reach the brain (Kemp et al., 1973), but a visual stimulus takes 20-40 milliseconds to reach the brain (Marshall et al., 1943). A more familiar example of simple reaction time is the “Brake Light Theory” You are driving down the road and you “Observe” the brake lights of the car in front of you come on. This is a “Known Stimulus” because you expect while driving to have this happen and because you expect this, you already have a predetermined response, which is to remove your foot from the accelerator and apply the brake. From the time we Observe the brake light (Onset of Stimulus) to the time we begin to remove our foot from the accelerator, (Onset of a reaction to Stimulus) less time has elapsed than if we were responding to an Unknown Stimulus, which brings us to the Flash Bang Theory. Our reaction time is slower when we are responding to “Unknown Stimulus” such as when Joe Drug Dealer is sitting in his living room watching the Simpson’s on TV after a long day of cooking Meth. Suddenly he hears and sees an object fly through the window. Just before it (A Flashbang) goes off is the point at which Joe is saying “What the &%@#”! His reaction time is slowed by the fact that he has to respond to unknown stimulus and this does not include what the effects of the Flashbang going off will further do to disorient him. Had he been watching the Discovery channel he might have known that Police sometimes use this tactic when raiding drug dealer’s homes and it might have been known stimulus had he been expecting it.

There are other factors that can affect your O.O.D.A. Loop, some of which can be overcome with training. In 1952 a researcher named Hick confirmed that by going from one response choice (Decision Step) to two, response time increased by 58%. This is widely known as “Hick’s Law” and has been repeatedly confirmed by subsequent research. It is because of this that we teach some of the things we teach such as various malfunction drills. If the weapon does not go bang when it should, the more choices our students have to choose from, the slower they will react. As an example if a student through training has learned that at any given time his/her firearm may experience a type one malfunction and he/she has trained to have a single response (move, tap, rack bang) then as in the “Brake Light” example, through training and experience the malfunction has become a “Known Stimulus” and the solution has become a predetermined response and reaction time is faster.

Two factors that affect your O.O.D.A. loop during the Orient step are Denial and Emotional Filter. Denial is when you

refuse to accept or Deny that this is happening to you. Emotional Filter is a lot like Denial except that you wish that this were not happening. “Oh man, please don’t let this be happening”. Both of these things can and will affect your reaction time but fortunately they can be overcome with training as this commonly happens with people who have little or no training.

In 1960 Researchers Franklin Henry and Donald Rogers found that not only does increasing the number of responses affect your reaction time, but also by increasing the complexity of the tasks, induces stress that can adversely affect your reaction time. While doing simple reaction time test, they told each subject to place their finger next to a switch and when they hear a certain sound, they are to flip the switch. After each subject’s time was registered and recorded they used the same group and did the same test but added another task to do after flipping the switch. The subjects were told to flip a second switch after completing the second task. In both tests, the only time recorded was the time it took to push the first button and Henry and Rogers found that the added stress of having a more complex task to perform caused each subject’s reaction time to increase by an average of 31%.

Colonel Boyd also knew that other factors could affect your O.O.D.A. Loop. During his research he found that Fatigue was also a factor. He and his pilots were flying F-86’s and although they were slower and less maneuverable than the Mig 15’s they were flying against, The F-86 was fully hydraulically controlled and the Mig 15 was only hydraulically assisted. This meant that Boyd’s pilots could operate their aircraft with easy and gentle manipulation of the controls, while the Mig pilots had to work harder to maneuver their aircraft. Boyd found that the more his pilots maneuvered and the longer a dogfight persisted the more fatigued the Mig pilots became and the slower their reaction time became until the F-86 pilots were able to maneuver their aircraft into a position of dominance.

As Instructors we are always striving to find ways to give our students the advantage in a fight while diminishing their opponents will and ability to fight back effectively. Making sure our students understand the O.O.D.A. Loop and how we react as humans can go a long way toward accomplishing that goal. The really great thing about understanding the O.O.D.A. Loop is the realization that everybody has one and their O.O.D.A. Loop is affected by the same factors that yours is. This is one of the reasons why in nearly every drill we teach it incorporates moving. This has the effect of resetting your opponent’s O.O.D.A. Loop and giving you still another advantage. Learning how your opponent’s mind works and using tactics that allow you to take advantage of that knowledge is what we should strive to do.

Colonel Boyd had it right, know your opponent’s mind and then attack it.

We thank Tracy Hightower of Tactical Response for allowing us to share his article with our members.Please visit the Tactical Response website at;
www.TacticalResponse.com