

Integrating Cognitive Training for Performance Optimization

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Leaders at all levels now face a dynamic environment where they cannot plan for every contingency, and the enemy is as fluid and reactive as a social-media newsfeed. With that in mind, the ability of Soldiers and leaders to focus their minds and make coherent decisions has never been more relevant or necessary for our military force on the battlefield and during training.

In 2nd Battalion, 504th Parachute Infantry Regiment (PIR) (White Devils), we recently explored a training approach designed to maximize human performance by helping our paratroopers understand when they are in a “coherent” state. Our aim was to ensure they knew the difference between being in a coherent or incoherent state, showing them how that knowledge correlates to their ability to accomplish individual tasks from the Paratrooper Essential Task List (PETL).¹ We believe this training approach will benefit all Army leaders, who should deliberately incorporate human-performance experts into all mission-essential task list (METL)-focused training.

During the past seven months, our battalion integrated performance experts from the Comprehensive Soldier and Family Fitness (CSF2) team into three initial focus areas: airborne, marksmanship and leader training. Though not yet quantifiable, this threefold initiative demonstrated tremendous benefits to adding deliberate mental training to improve our paratroopers’ confidence and lethality. It proved that deliberate mental training can maximize human performance. Moreover, the method we used explored the science of sports psychology, proven on the fields of professional and collegiate teams, to bridge the gap between mental coherence and physical performance.

In the resource-constrained environment, this approach didn’t add to existing training plans; it simply substantiated techniques previously honed during decades of military experience by noncommissioned officers (NCOs) and senior leaders that were previously unintelligible to new Soldiers. The result was new warriors who could make clearer decisions and precisely control physical actions in a complex environment.

Background

Improvements in technology and techniques during the last few years have significantly shifted the focus for performance in an airborne unit. Paratroopers exiting an aircraft 1,000 feet above a drop zone can no longer simply rely on “keeping their feet and knees together” because seemingly innocuous errors during the first three points of performance could cost them their lives or the lives of fellow paratroopers. Likewise, snipers who once were consigned to a novel supplementary mission now bear the weight of strategic relevance with each trigger squeeze.

Gone are the days when commanders bore the sole responsibility of decision-making. Training must now apply these mental-concentration skills at all levels so that Soldiers can make the right decisions in the violence of a propeller blast, the tension of a hide site or on the chaos of a battlefield.

What was needed was a way to use existing resources found within the CSF2 program to maximize performance through enhanced mental concentration. Rather than just relying on physical repetition, we needed a way to promote individual engagement with every training situation.

Recommendation

The way ahead begins by understanding the approach we used. Recognizing the potential behind performance science and applying the expertise of performance experts needs to be a deliberate effort by leaders. Since this method simply augments existing training events, executing this approach becomes nearly transparent. The next step dedicates performance experts at the battalion level to coach, assess and reinforce coherence training using common biometric technology and quantifiable analysis. Finally, individual paratroopers will overcome the cognitive doldrums that restrain them to leverage the capabilities of consciousness and achieve optimal performance.



Figure1. 2-504 PIR snipers and CFS2 performance experts incorporate cognitive-domain training into marksmanship. *(Photo by 2-504 unit public-affairs representative)*

Leveraging maximum capability

Paratroopers stand inside the mock-up of a C-130 Hercules aircraft, grasping the yellow static line in their fists, waiting for the command to “go.” As they walk toward the door, hundreds of tasks circle through their minds: spacing between the jumpers to their front, covering the rip-cord handle of their reserve parachute, keeping a steady pace toward the door and so on. When their turn to execute proper exiting procedures arrives, the paratroopers hand the static line to the safety, making eye-to-eye contact, turn toward the paratrooper door and jump. They snap into a good tight-body position just as the “black hat” instructors taught them at Airborne School. After a six-second count, they confidently reach their arms into the air to simulate controlling the parachute canopy, certain they performed the task flawlessly.

The jumpmaster then calls some of them back to explain they did not fully turn 90 degrees into the paratrooper door, causing them to exit at a dangerously wide angle. The jumpmaster has the paratroopers repeat the drill until success is achieved. However, this common retraining approach may not fully address the gaps in physical performance when executing in real-time conditions.

Training a Soldier to perform specific tasks under conditions that are both cognitively and physically demanding is a common Army approach within the “train as we fight” mindset. This approach typically allows leaders and Soldiers to achieve a level of confidence that each Soldier trained is an expert at what he or she does and that the unit can accomplish its mission. It is when a Soldier fails to execute mastered tasks to prescribed standards that leaders are faced with a unique training opportunity to truly increase their level of proficiency.

Often, a leader’s approach is to ask, “Why did you do that? You know how to do this; I have seen you do it correctly.” When the response from the Soldier is “I don’t know,” he or she then physically repeats the training until the task standards are met.

However, getting that Soldier to understand why he/she failed the task physically – and not just retraining the task – may prevent failure from happening in the future. This is not an institutionally intuitive approach. Seasoned leaders often forget their anxiety levels are reduced based on their experience level, which allows them to focus, gaining and maintaining an optimal state of coherence. Coherence is what happens when experienced leaders achieve a state of concentration in which they can think clearly, understand their environment, recall their training and apply their mind to executing a physical task. This balanced application of cognitive and physical ability stands

in sharp contrast to the response of the Soldier described in the previous scenario who simply didn't know what happened, functioning in an incoherent state.

Therefore, training must be about leveraging maximum physical and mental capability to achieve optimal performance potential every time and in any condition. The ultimate goal to addressing the cognitive component² into our training is to prevent any paratrooper from saying, "I don't know why I did that."

Airborne initiative

For years, with use of the T-10 parachute, leaders emphasized keeping your feet and knees together to prevent serious injury during an airborne operation. This applies to the final steps of the "five points of performance," when the paratrooper makes contact with the ground.

Recently, technological innovation with the T-11 advanced tactical-parachute system has significantly decreased the average rate of descent and the likelihood of injury during this time, while increasing the importance of properly executing the first three points of performance. The introduction of pre-mock door training and many revisions of pre-jump enables leaders to ensure proper repetitive training and that paratroopers conduct adequate rehearsals during sustained airborne training to achieve task mastery prior to an actual jump. Reduction of the weight in the paratrooper's load during airborne operations and enhanced physical-fitness training initiatives are additional ongoing efforts to help the paratrooper execute the first three points of performance.³

Our training approach took into consideration all these initiatives and attempted to add in the understanding of the cognitive burden on the paratrooper's physical performance. We composed a test group of 25 paratroopers with varied airborne experience, ranging from recent graduates of Airborne School to master-rated jumpmasters. The group had one classroom session about two hours long about various techniques to enhance coherence during an airborne operation. The session focused on the start of the airborne timeline through landing on the drop zone.

Civilian performance experts from the CSF2 program initially taught the techniques. These techniques included mental imagery, breathing exercises and cue words to return to an optimal state of coherence.

The company first sergeant then led the test group in several mock-door rehearsals, mainly tied to physical training, twice a week for about four weeks. During this mock-door training, paratroopers deliberately conducted mental imagery where they would conduct a cognitive rehearsal of each task from those in the aircraft through landing. The mental-imagery technique allowed paratroopers to focus their minds on each task, preventing them from allowing their minds to wander or increase their anxiety.

Next, they received instructions to practice diaphragmatic breathing to prevent them from raising their shoulders, which bear most of the additional weight. This breathing technique maximizes the amount of oxygen in the bloodstream and is a method to interrupt the "fight or flight" response and trigger the body's normal relaxation response. By doing this, paratroopers were empowered to further focus and continue their mental rehearsals.

During the last step, paratroopers used "word cueing" to help them remain in a focused state during execution of each task, rather than solely relying on muscle memory to accomplish them. The use of word cueing during execution is an effective method to help paratroopers coherently execute each task. More importantly, it helps them identify potential performance errors so they can fix them.

The results of this training were not quantifiable due to the lack of technology being readily available to provide feedback to paratroopers who employed these techniques during both training and actual airborne operations. However, we did find that participating senior NCOs who were seasoned parachutists reported they already unintentionally applied several of these techniques. Our findings during this training were that we had bridged the gap of experience between new and senior parachutists in a shorter period. This happened through the teaching techniques that our senior NCOs had intuitively employed and learned on their own during the course of their careers.

Marksmanship initiative

We leveraged the same performance experts, Dr. Katy Turner and Brian Wade, that we used during the airborne initiative to enhance the precision and lethality of our battalion snipers. Our approach to cognitive training for shooting was to integrate the performance experts into the battalion sniper training without adding time or

interrupting the training schedule. We also knew that a test group comprised of all our battalion snipers had received training through the Army Sniper Course or from someone who had graduated the course. Therefore, our assumption was that they would not be naturally open to take advice from civilian performance experts with limited marksmanship training.

With that in mind, our performance experts had to build a relationship with the snipers for their feedback to be effective. They only worked with the snipers on the ranges while they were shooting. They were able to provide instant feedback on the snipers' ability to hit the target based on their level of coherence. Over multiple sessions, the performance experts were able to introduce the same techniques used in the airborne initiative to improve overall performance for the group of snipers.



Figure 2. A 2-504 PIR sniper incorporates cognitive-domain training into marksmanship, focusing on coherence.
(Photo by 2-504 unit public-affairs representative)

The result was immediate and quantifiable for the snipers based on the use of combined factors: monitoring heart rates via an electronic tablet while shooting, the accuracy of the shooting and performance observations by the experts. After a couple iterations that incorporated the techniques, our snipers could articulate their cognitive state and personal coherence with each shot taken.

Junior snipers now understood when and why they should not have taken a shot in haste; something briefly caused them to lose focus, and they had not regained a coherent state before pulling the trigger. What we learned from this was that this focus on the cognitive aspect of training transcends shooting and, over time, it will accelerate the snipers' ability to make clear concise decisions and judgements in a complex environment.⁴

Leader initiative

The final White Devil initiative was the integration of performance experts into a rifle company, with a focus on developing leaders. In June 2015, we first had the opportunity to integrate Turner and Wade into collective training at Range 74 with Alpha Company.

The team came out and watched fire teams execute drills on entering and clearing a room. The initial reaction, especially from the senior NCOs of the company, was wary skepticism – about the value of the skills presented by the performance experts and the potential cost in valuable training time. Fortunately, Turner and Wade went to great lengths to ensure they came alongside our training instead of pulling leaders away for an entirely separate

event. During the course of several weeks of intense training, the two performance experts gained the trust of the Alpha Company team by integrating into the training progression for platoon external evaluations (exevals) in August 2015. They ate Meals Ready to Eat, stayed out in the rain and walked every iteration of the squad live-fire exercises at West McKiethan Pond. The only cost to the unit in terms of training time was the five minutes they took at every after-action review to coach squad leaders on coherence, visualization and breathing techniques.

During platoon exevals, it was evident the training had paid off. The platoons of Alpha Company were incredibly successful, and the mantra of the senior NCOs of the company changed from “I don’t buy that performance stuff” to “they’re just coaching us on what we already do.” This is the crux of mental-performance training: the most successful leaders in our organization already use these skills, developed during years of experience in training and combat deployments. Once again, this approach to training allowed us to bridge the time gap between experienced leaders and paratroopers while passing these critical skills on to the next generation.

The overall result of this training was improved mentoring by our leaders. They not only maintained the level of professionalism as they instructed a task to mastery level, they also were able to identify when a paratrooper’s anxiety or excitement level was going to hinder successful accomplishment of the collective task. The leader could then move to that paratrooper and coach him or her back into a state of coherence and cognitive focus. A side benefit of this training was that it also developed leaders’ decision-making and confidence in leading.

Conclusion

We found the incorporation of the performance experts into our training was beneficial at the individual Soldier and leader level. Unfortunately, with the focus on Department of the Army requirements, our performance experts are routinely required to pull away from our training to conduct Army Regulation 350-1-required master-resiliency-training courses as well as unit training. Having the performance experts routinely pulled for other training does not maximize their potential.

What do we need?

We recommend the number of performance experts be increased to no fewer than two per brigade combat team (BCT), and leaders should deliberately incorporate them into all METL-focused training. Also, we need to increase our performance experts’ technological capability to enable them with the tools to provide quantitative feedback and training enhancement.

The ultimate goal of incorporating the cognitive-domain focus into our training is to prevent Soldiers from saying “I don’t know why I did that” when they make a mistake. Helping them understand why they made a mistake increases their speed of learning and their mastery of tasks. The NCOs of our battalion are masters at training competence. We now need the expertise provided by the performance experts to train coherence to simultaneously improve the performance of our paratroopers.

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Notes

¹ The PETL is leader development, physical and mental readiness, small-unit battle drills, airborne proficiency, weapons proficiency and medical-skills proficiency, according to 82nd Airborne Division Pamphlet 600-2, ***The All American Standard***, January 2015.

² "The cognitive component refers to the mental activity pertaining to the act or process of perception, memory, judgment and reasoning." – U.S. Army Training and Doctrine Command Pamphlet 525-3-7, ***The U.S. Army Human Dimension Concept***, May 2014.

³ "Developing holistic health and fitness for members of the Army profession requires that the Army clearly define fitness; determine how it assesses individual and unit measures; develop monitoring strategies to detect and prevent decreases in physical performance; identify how to apply requirements to all members; identify training requirements; and identify the desired endstate." – TRADOC Pamphlet 525-3-7.

⁴ A complex environment consists of many autonomous factors that link together through diverse, interrelated and interdependent connections. Leaders cannot contain or reduce such an environment into a single rule or description, as it is intrinsically unpredictable.