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Expanding Combat Hunter: The Science and Metrics of Border Hunter

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ABSTRACT

The Combat Hunter program was first conceived in 2007 to meet a training gap in small unit close combat warfighting. This US Marine Corps (USMC) program of instruction (POI) trains the fundamentals of combat profiling, tracking, and optics-based observation, helping students become successful "combat hunters" in an irregular warfare battlespace. The two lead instructors, who also designed the original course, include a former undercover inner-city police detective and a man-tracker from Africa. Both possess extraordinary innate expertise, each with over 30-years experience in their respective fields.

However, the Combat Hunter POI is not currently available outside of the USMC, and the USMC's 10-day course actually represents a shortened version of what each instructor originally desired. Ideally, they would prefer a 20-day POI that includes 10 days of tracking instruction and 10 days of observation/profiling instruction. Thus, a hybrid Combat Hunter-like POI is currently being developed as a capability for the Joint community. The first step in its development was a 20-day course delivered this April by the two subject matter experts (SME) to 43 military and law enforcement trainees. A team of researchers was also embedded with the course. The researchers' goals were to (1) capture the content of the course and package it for greater deployability, (2) assess the instructional outcomes of the course, and (3) explicitly articulate the linkages between the course content and underlying scientific principles.

This paper describes the actual experience of the April course and research endeavor. It also provides details on the overall Joint Forces Command effort, outlining its rationale, goals, logistical processes, and data collection protocol.

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"They have never seen Juba. They hear him, but by then it's too late: a shot rings out and another US soldier slumps dead or wounded. There is never a follow-up shot, never a chance for US forces to identify the origin, to make the hunter the hunted. He fires once and vanishes" (Carroll, 2005).

From 2005–2007, a man (or possibly a group) called the "Juba Sniper" terrorized American warfighters in Baghdad. In a series of Internet-published propaganda videos, Juba can be seen killing American warfighters. In one of his videos, released October 2006, Juba claims to have killed 645 US Soldiers and Marines. Regardless of whether these deaths were truly Juba's handiwork, the US casualty report verifies a dramatic increase in precision fire casualties during this period.

In January 2007, the US Marine Corps (USMC) sought a novel solution. With assistance from the Marine Corps Warfighting Lab (MCWL), a diverse group of subject matter experts (SMEs) were assembled with a common goal: Turn Marines from the *hunted* into the *hunters.* From this meeting, Combat Hunter was formed (Gideons, Padilla, & Lethin, 2008).

USMC COMBAT HUNTER

The Marine Corps realized that certain people were better able to detect snipers and improvised explosives. After examining their backgrounds, the USMC realized that the most successful "battlefield hunters" were those who could read the environment: the physical and/or social landscape.

Combat Hunter was designed to train these skills. The program focuses on enhanced observation, combat tracking (i.e., reading the physical terrain), and combat profiling (i.e., reading the human terrain). The USMC initiated the original Combat Hunter training in February 2007. A series of limited objective experiments (LOEs) were held through July of that year, refining the concepts; tasks, conditions, and standards; and course instruction (Gideons, Padilla, & Lethin, 2008). The inaugural course officially opened in July 2007, and the 2nd Battalion, 7th Marines comprised the first class.

After the 2/7 Marines returned from Afghanistan, the Marine Corps Center for Lessons Learned (MCCLL) reported on their reactions to the course. Initial responses proved overwhelming positive:

> Combat Hunter is worthwhile pre-deployment training, is viewed positively, and credited with tactical successes by those knowledgeable with the course content. The skills and techniques imparted in this training are enduring and transcend any particular theater of operations, type of operation, and seem as applicable for future military operations as today's efforts in Iraq and Afghanistan. This training is ripe for expansion…" (MCCLL, 2008: 2).

The Army began to take notice, as well. In May 2009, US Army Forces Command (FORSCOM) sent CPT Thomas Angstadt to the course. He found, "Combat Hunter was the best training I have ever received (other than Ranger School) and during the whole course I was recalling instances from engagements and situations during my last deployment in which these skills would have helped me be more successful on the battlefield" (Angstadt, 2008: 4).

Limitations

Many more after action reports and personal recommendations for Combat Hunter can be found (e.g., Knox, 2009; Department of Homeland Security, 2009; Gideons, 2008). Consequently, in order to meet the growing demand for this training, key challenges must be reconciled.

First, even with interest from the Army, Department of Homeland Security, and other agencies, the Combat Hunter curriculum is still available only through the USMC. Further, within the Marine Corps, throughput

efficiencies remained an important concern; as of December 2008 only 40 Marines could attend the 10-day course at a time (MCCLL, 2008), and as late as January 2010, this throughput issue remained an on-going challenge (Spiker & Johnston, 2010). Primarily, lack of instructors creates the bottleneck; that is, only a small number of highly-experienced instructors are qualified to teach the material. Although attempts to create train-the-trainer style instruction have been made (see Kobus et al., 2009), overall throughput remains an issue (Spiker & Johnston, 2010).

This leads to a third problem: Trainees receive little-to-no support for conducting continued in-unit training (Spiker & Johnston, 2010). They lack access to course training materials, a formalized curriculum, and measures of performance. Nonetheless, trainees who have participated in the Combat Hunter course overwhelmingly report that they attempt to train their peers back in garrison. For instance, in the MCCLL report, 27 of the 30 respondents who participated reported that they "conducted Combat Hunter training for their unit" (MCCLL, 2008: 5), and in the present study, 37 out of 40 respondents claimed they would try to train their teammates. Because these grassroots "trainers" lack access to a program of instruction, they are, at best, under-supported in their efforts; at worst, they may be delivering subpar (or erroneous) instruction back at their home units.

This suggests a fourth issue, that is, that potential take-home and reinforcement materials are lacking. Although the USMC has created a draft handbook for the course, according to Kobus et al. (2009) and Spiker and Johnston (2010) an up-to-date manual and supplemental materials have not been written. Kobus and colleagues recommend updating the USMC manual and including more consistent discussion of the scientific foundations of the material. Spiker and Johnston add that trainees could create their own "job aids" as part of the course and discuss how class lectures could also be distributed via DVD to the trainees.

Fifth, as briefly mentioned above, measurements of performance have not been formally established (Spiker & Johnston, 2010). Although the expert instructors use their judgment to assess the readiness of their classes, no explicit standards or measurement tools are available for the trainees. In their review of the course, Spiker and Johnston suggest that "scorecards" be handed out, so that personnel can self-regulate their and their teams' performance, even if the pace of the course prohibits more traditional testing. Spiker and Johnston further suggest that such scorecards could double as handouts.

Sixth, as identified by the MCCLL, the skills learned via Combat Hunter are not always understood (or employed appropriately) by senior officers, particularly at the onset of the training program. For instance, in an after action review from two years ago, Marines offered: "The Marine Corps views it as voodoo" and "It would help if all the leadership was better familiar with the Combat Hunter skills" (MCCLL, 2008: 5). While it is impractical to send all senior leaders through the full Combat Hunter course, focused overviews of the curricula distributed to the leadership would prove useful, as the MCCLL report also suggests.

In summary, the current USMC Combat Hunter curriculum has significantly enhanced Marine Corps training and given important insights to the Joint Services. However, the following gaps still exist:

1. Limited access to the training
2. Limited course throughput
3. Insufficient support for train-the-trainer
4. Insufficient take-home materials
5. Lacking performance measures
6. Limited understanding of skills by leadership

EXPANDING THE TRAINING: BACKGROUND

16–17 September 2009, US Joint Forces Command (USJFCOM) and Team Orlando hosted the Irregular Warfare Training Symposium. It focused on exploring ways to support excellence at the small unit level, with an emphasis on cognitive training in order strengthen team self-awareness, resilience, and confidence. The symposium's working groups discussed the areas of team decision-making under stress, measurement, assessment, and evidence-based training, mission rehearsal, and joint enabling capabilities (USJFCOM, 2009).

A year prior, DoD Directive 3000.07 had been published, requiring (among other things) that the Services place greater emphasis on concepts and capabilities relevant to irregular warfare. This directive plus the insights from the symposium highlighted the Joint need for greater capabilities for training decision-making for the irregular warfare environment. This impetus was echoed by the demand signal from Joint Task Force North (JTF-N) for high-level cognitive training on behavioral and environmental cues.

Goals

The JTF-N demand signal presented the perfect opportunity to begin addressing some of the gaps the symposium identified. USJFCOM and JTF-N partnered on the creation of a Combat Hunter-like course at Fort Bliss to train decision-making through enhanced observation, tracking, and human behavior observation. Controlled execution of this course also provided the opportunity to conduct extensive research into the underlying training, taking a step towards closing the gaps identified earlier in this paper.

"BORDER HUNTER"

JTF-N arranged for the special 20-day "Border Hunter" course to be delivered at Fort Bliss from 5-25 April 2010. Border Hunter may be best characterized as a one-off, "graduate level" version of the Marine Corps' Combat Hunter course. This course was delivered to 43 trainees from the Army and Law Enforcement Agencies. The course was dubbed "Border Hunter" because many of the law enforcement participants were from the Border Patrol and because of the close proximity of Ft. Bliss to Juárez, Mexico.

Course Instructors

Combat Tracking instruction was led by an internationally recognized tracker with over 40 years of experience in Africa and around the world. He assembled a team of five hand-picked experts to assist in the training. Together, these experts boast more than 180 years of collective experience.

Instruction in Combat Profiling and Enhanced Observation was led by a highly-decorated former undercover police officer from Detroit with more than 30-years experience. He assembled a team of eight hand-picked experts to assist in the training, many of whom are still active in their fields.

Curriculum Overview

The course was divided into two sections. The first 10 days (6-15 April) were dedicated to Combat Tracking, which involves conducting "follow-ups" of a quarry while operating in small, tactical teams. Trainees learned to read their enemies' *spoor* (i.e., footprints, human signs, environmental cues, slight ground disturbances). They were taught to build social/biometric profiles of their quarry; anticipate their targets' actions by gaining the "mind of the quarry;" and apply tactics, techniques and procedures (TTPs) to hunt down their targets. Combat Tracking is a human-centric competency particularly useful in irregular warfare settings to support offensive operations, intelligence collection, clandestine movement into hostile areas, and counterinsurgency operations.

The second 10 days (16-25 April) were dedicated to Combat Profiling and Enhanced Observation. Combat Profiling is concerned with perceiving, analyzing, and articulating critical events within the human terrain. Its main goal is to identify pre-event indicators through humans' behavior "left-of-bang," i.e., before a destructive event occurs. Combat Profiling does *not* involve stereotyping, such as by race, religion, or ethnicity. Rather, it trains individuals to look for behaviors that are anomalous, beyond the baseline of a culture or location. Through Combat Profiling warfighters and law enforcement agents learn to be more situationally aware and to accurately interpret the subtle cues that forewarn a critical event. Additionally, the Combat Profiling team taught Enhanced Observation, which involves advanced methods of optics use. The instructors trained novel ways to make the best use of optical devices, including binoculars, ACOGS (Advanced Combat Optical Gunsight), and thermals (i.e., "night optics"). For instance, thermals can be used (day or night) to detect whether someone is wearing a body-bomb under their clothing.

Fort Bliss Facilities

Figure 1. Trainees Track at Mount Franklin

JTF-N provided outstanding facilities for the course. Lectures were carried out at the Ft. Bliss Battle Command Training Center (BCTC), a new classroom facility equipped with projectors and wall-to-wall whiteboards. The practical exercises were held at the Ft. Bliss ranges. Tracking exercises were conducted across several different terrains, from soft sand to rocky mountains. JTF-N also secured permission to conduct the Combat Tracking final exercise (15 April) at the Bureau of Land Management's Mount Franklin state park, located just outside of El Paso in New Mexico (Figure 1).

Figure 2. The Original "Ville" (January 2010)

Figure 3. Redesign of Range Golf (April 2010)

Figure 4. The New "Marketplace" (April 2010)

For the Combat Profiling exercises, JTF-N reserved Ft. Bliss ranges Golf and Foxtrot. Range Golf was transformed for the course—changing from a basic room-clearing facility to a "cognitive range" where trainees could apply their Combat Profiling decision-making skills (see Figures 2-4). To achieve this, Ft. Bliss provided dozens of additional CONEX boxes (i.e., large, metal freight containers), which became one- and two-story homes and businesses. They also used heavy equipment to create new roads and clear vegetation. The lead SME from the Combat Profiling and Enhanced Observation and his team dictated the placement of each of building and prop; they even planted the decorative bushes around the "well" in the center of the new "village" and personally painted graffiti in the "bad" section of town.

BORDER HUNTER RESEARCH

Acting within its role as a joint integrator of training, USJFCOM was invited to lead a team of 13 researchers, who attended the course in order to conduct scientific observation, experimental testing, and a formative evaluation. The investigators' goals were to (1) capture the course content and package it for greater deployability, (2) assess the instructional outcomes of the course, and (3) explicitly articulate the linkages between the course content and underlying scientific principles. The researchers additionally attempted to catalog the experts' skills, identify common traits of the best performing trainees, and observe how tacit knowledge transferred from the instructors to the trainees.

Research Design

A research design was created with these goals in mind. The researchers additionally attempted to catalog the experts' skills, identify common traits of the best performing students, and observe how tacit knowledge transferred from the instructors to the trainees.

METHODS

Participants

Forty-three Soldiers/Law Enforcement Agents attended the course. Of these, most were from the US Army (n = 21) and Border Patrol (n = 18). Two were from the FBI (n = 2), and both the Texas Rangers (n = 1) and Parks Services (n = 1) sent one attendee. All trainees were highly experienced, with an average of 9 years in the military/law enforcement sectors. To facilitate the many hands-on exercises, the trainees were divided into five 8-9 person teams. They remained in these teams for the full duration of the course. Teams 1 and 2 comprised Border Patrol agents. Teams 3 and 4 comprised Soldiers, and Team 5 was a mixed team, including Soldiers, FBI agents, a Park Ranger, and a Texas Ranger.

In addition to the course attendees, twenty-two Soldiers (n = 22) were recruited from Fort Bliss to play key OPFOR during the Combat Profiling exercises. These Soldiers received training in human behavior patterns, insurgent tactics, and Middle Eastern culture. Most of these Soldiers held junior ranks (mainly private or private first class), and they possessed an average of 3-years military service. (To augment the Army role-players, 30 professional actors were also hired from Tatitlek; however, no data were collected on these individuals.)

Apparatus

The experimental team (i.e., the 13 researchers, not just this paper's authors) conducted a within-subjects repeated-measures design for collecting data. The 43 Border Hunter trainees completed or were assessed on the following:

- Demographics survey
- Cognitive attributes battery
- Declarative knowledge pre/posttest
- Photo vignettes pre/posttests
- Situated judgment pre/posttests
- Perceptual aptitude pre/posttests
- Heart-rate monitoring (i.e., level of awareness)
- Behavioral observation during field exercises
- Daily reactions surveys

The 22 role-player trainees completed the following:

- Demographics survey
- Profiling declarative knowledge pre/posttest
- Profiling photo vignettes pre/posttests
- Profiling situated judgment pre/posttests
- Profiling daily reactions surveys

In addition to these metrics, the six tracking instructors and nine profiling instructors completed structured interviews with two of the researchers, Dr. William Ross and Laura Militello. The instructors were also given the same cognitive battery that the trainees completed, with the hope of uncovering those innate traits that comprise an expert Combat Hunter instructor.

Design

Stages of Training

The researchers created assessments for each stage of the training process, beginning with acquisition of low-level knowledge (i.e., declarative knowledge), moving into rote skills (i.e., procedures), and finally assessment of the acquisition of higher-order cognitive skills. Figure 5 shows a simple diagram of the training process. It highlights general stages of training from low-level (left) to high-level (right). The diagram also includes a box marked "Metacognitive Awareness," which represents the highest level of understanding, an expert degree of competency. It must be noted that the Border Hunter course did not attempt to train-the-trainer or comprehensively impart meta-cognitive skills to the trainees.

Each icon in Figure 5 was measured by at least one apparatus. The lower-level skills were assessed via traditional paper-based tests, while the higher-level abilities were assessed via essay-like exams, behavioral observation, or physiological metrics.

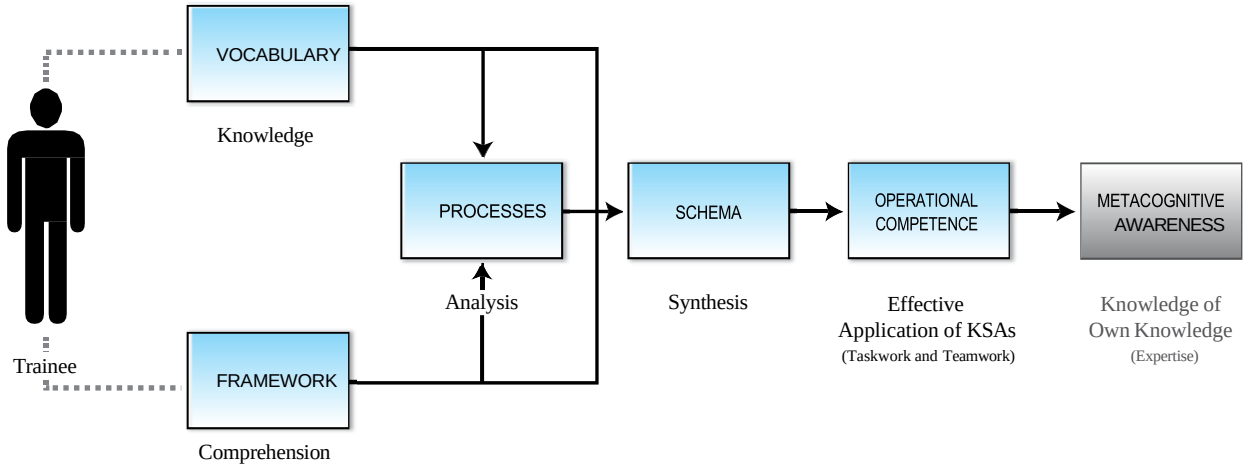

Figure 5. Diagram of a Generic Training Process (developed by Spiker, Schatz, Fautua, et al.)

Kirkpatrick's Hierarchy

In addition to evaluating each stage of the training process, the researchers' attempted to assess Kirkpatrick's four-level framework of training effectiveness. This framework includes:

1. Student reactions to the course
2. Student learning during the course
3. Transfer of training to the job
4. Organizational impact of the training

Naturally, levels 1 and 2 were measured during the 20-day course. Level 3 was measured via a longitudinal study, during which a subset of Border Patrol (n = 5) and Army (n = 7) personnel were followed through the beginning of July 2010. Finally, level 4 was assessed by testing certain trainees' peers at their home stations; the level-four assessment was augmented by the use of a control group.

HIGH-LEVEL RESULTS

Complete results from this extensive study will be published in a USJFCOM technical report, and specific accounts are detailed in fellow 2010 I/ITSEC papers (see Spiker, Johnston, Williams, & Lethin, 2010; and Kobus, Palmer, Kobus, & Ostertag, 2010). The length of this paper facilitates only a general discussion of overall findings.

Level 1

Beginning with Kirkpatrick's first level of evaluation (student reactions), the key findings echo those already identified by MCCLL and others. That is, trainees responded very positively. Trainees' daily overall reactions ranged between 6.3–6.9 (on a 7-point scale), and role-players' daily overall reactions ranged from 6.4–6.5 (on a 7-point scale).

On the final day of the course, trainees were asked to provide additional details on their perceptions. The trainees overwhelmingly reported that, if they were in a supervisory position, they would send their personnel to a similar course. Many of the trainees also indicated that they felt the Border Hunter course material would save lives, make personnel harder targets, or increase their survivability. Similarly, most of the trainees indicated that they planned to teach the Border Hunter material—either formally or informally—to their teammates at their home stations.

As for which aspects of the instruction they found most valuable, many trainees indicated that learning about human behavior through the Combat Profiling instruction was key. Other popular answers included learning to act left-of-bang, Combat Tracking (in general), and being able to articulate their tacit knowledge.

Finally, the trainees most often suggested that the following should be changed: trainees wanted days off (the course comprised 20 contiguous days), they requested that more time be dedicated to hands-on exercises, and some requested more law enforcement examples and scenarios.

Level 2

Seven measurement tools address the second level of evaluation. Naturally, a range of results were identified, and these are discussed in detail elsewhere. However, the general trends suggest that trainees did acquire substantial skills—at the declarative, procedural, and higher-order levels.

Levels 3 and 4

As of the writing of this paper, data collection for the longitudinal and organizational transfer studies is ongoing. Thus far, data from 12 Border Hunter trainees have been collected. Additionally, paper-based tests that assess declarative, procedural, and conceptual knowledge have been administered to 20 personnel who work closely with a Border Hunter attendee. Another 20 similar personnel, serving as a control group, have also completed these tests. A second (i.e., posttest) administration of these metrics is currently underway. Results will be reported in the USJFCOM technical report.

DELIVERABLES

From the Border Hunter exercise, USJFCOM has developed several deliverables. First, with input from all 13 researchers, USJFCOM is producing an integrated technical report that includes sections on the course execution, experimentation, study results, and recommendations for future work.

Second, USJFCOM is developing a high-level Program of Instruction (POI). It includes a detailed syllabus, divided into nine instructional units, as well as supplementary materials included in a resource DVD. Video clips captured during Border Hunter, and associated with various modules in the POI, are also included on the resource DVD.

Finally, an easy-carry student pocket guide of key instructional points is being developed to correspond

with the instructor POI. All of these materials will be made available to the Joint Services through USJFCOM.

Additional Contributions

This endeavor also helped advance the science and research of irregular warfare training in several ways.

1. **Establishment of a baseline:** The results from the investigation establish a baseline of qualitative and quantitative data for Combat Hunter-style training against which similar courses can be compared.
2. **Prototype metrics:** Original measurement apparatus were created and formatively evaluated during this study. In the future, these apparatus can be used by other researchers and/or trainers to assess similar courses.
3. **SME "gold standard" course of instruction:** The two primary Combat Hunter experts were able to administer the 20-day program of instruction that they considered ideal, with full logistical support (e.g., range access, billeting), in an attempt to deliver the optimal training experience.
4. **Mental models of the SMEs:** With no guarantee of indefinite access to all the subject matter experts involved in the development and teaching of the Border Hunter Course, as well as no existing tasks, conditions, or standards for performance, the development of an expert model of performance was a substantial contribution.
5. **Assessment of role-players:** Anecdotal remarks had suggested that the role-play trainees benefited from the experience. However, these comments had not been previously tested, empirically. This study evaluated role-play trainees on both Kirkpatrick's levels 1 and 2 (i.e., reactions and performance).
6. **Individual differences:** To our knowledge, before this study no attempt had been made to identify the traits that differentiate high performing Combat Hunter trainees from others. This experiment takes a first step towards cataloging those attributes of a successful Combat Hunter student.

Gaps Addressed

Earlier in this paper six gaps of the current Combat Hunter curriculum were identified. The Border Hunter effort has taken positive steps towards addressing each of these. The products USJFCOM is developing, including the POI, resource DVD, and student pocket-guide, can help mitigate issues of training access, course throughput, and limited availability of take-home materials. Development of original measurement apparatus directly contributes to creating more formal performance metrics. Finally, the products, including the videos and technical report, can be used to help articulate Combat Hunter-style training to senior leaders.

FUTURE DIRECTIONS

The Border Hunter exercise was a meaningful step towards expanding Combat Hunter-style training and research. However, more work is still required to completely close all of the identified gaps.

Next steps should include validation of the deliverables created by this project. More specifically, additional administrations of the new apparatus should be carried out in order to corroborate their generalizability, reliability, and validity. Further, data collected from these additional administrations must be pooled in order to create a more extensive performance baseline. From this pool of data, formal standards of performance can then be developed.

Next, the POI and student pocket-guide will require a host of complementary follow-on materials. These include expanded primary content, supplementary techniques and tools (e.g., for small-unit leaders or team coordination training), and train-the-trainer resources.

Similarly, additional tools are needed to further grow the beginning skill levels of trainees and help them maintain their skills over time, in other words, pre-training and on-going refresher training tools. Some of these supplementary materials should make use of appropriate modern technologies, from interactive online instruction to high-fidelity immersive simulations, in order to improve the access and repeatability of the training content (particularly the instructional scenarios).

CONCLUSION

Based upon trainee reactions and an initial assessment of the data, Border Hunter appeared to have been a

highly successful training experience. Forty-three participants and 22 role-players received distinctive Combat Hunter-style training from an elite cohort of SMEs. The Border Hunter event also facilitated uniquely intense and comprehensive analysis by a 13-person research team. The results from this investigation should meaningfully contribute to improved concepts and capabilities for irregular warfare training, and the deliverables created from this endeavor will directly address several gaps in the contemporary training cycle.

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