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THESIS

INCREASING THE EFFECTIVENESS OF ARMY PRE-DEPLOYMENT TRAINING

by

Paul M. Grant

June 2010

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13. ABSTRACT (maximum 200 words)

Currently, commanders must ensure that Soldiers are proficient in hundreds of Core and Directed Mission Essential Tasks prior to deployment. However, Pre-Deployment training is constrained by limitations on available resources. As a result, commanders must decide whether to attempt to train everything to a limited level of proficiency, or to focus on certain tasks.

Attempting to train everything is nearly impossible, as there is competition between units for finite training resources (land, ammo, etc.), and even if resources were infinite, there is not enough time. Soldiers may become "jacks of all trades, masters of none" and upon encountering some task later during deployment with which they are only somewhat familiar, a lack of complete proficiency can have critical effects.

If instead a commander attempts to focus on a limited number of tasks and train those to levels of mastery, Soldiers will be very prepared to deal with situations involving those tasks, but when presented with situations not involving those tasks, unfamiliarity may produce catastrophic results.

The result is that commanders often make decisions to prioritize training and allocate effort based upon higher guidance, intuition, or in the worst case, on what training is available. Overall, the decisions are, at best, guesses as to what may occur later during deployment. This research will attempt to identify what primarily influences decisions when training, and then propose a methodology for making more optimal decisions.

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INCREASING THE EFFECTIVENESS OF ARMY PRE-DEPLOYMENT TRAINING

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LIST OF ACRONYMS AND ABBREVIATIONS

CMET Core Mission Essential Task. A general mission-essential task for a unit's core capability based upon its branch or function.

COE Contemporary Operational Environment. The collective set of conditions that pose realistic challenges for training, leader development and capabilities development for Army forces and their joint, intergovernmental, interagency and multinational partners. In this thesis, the COE refers to the training environment.

DMET Directed Mission Essential Task. A task that a unit must be performed to accomplish a directed mission.

MET Mission Essential Task.

OE Operational Environment. A composite of the conditions, circumstances, and influences that affect the employment of military forces and bear on the decisions of the unit commander. In this thesis, the OE refers to the deployed operational area.

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I. INTRODUCTION

The first 100 days will always be the hardest for survivability. The enemy is testing your unit, looking for strengths and weaknesses, and trying to scare you a little bit.[1]

-1st Lieutenant, Service Support Platoon Leader, CALL OEF First 100 Days

What if it were possible for a deploying unit to arrive in its new area of operations with the proper skill set and same proficiency in those skills as the unit that was departing after a 12-month tour? Would the "First Hundred Days" really last a hundred days?

- quote from thesis author

A. PURPOSE

The purpose of this thesis is to study whether it is possible to develop a better methodology for selecting tasks for pre-deployment training. This research focuses on the training of general individual skills for mission essential tasks, regardless of military occupational specialty. Although the context is the Afghanistan theater of operations, this discussion is not specifically about counterinsurgency (COIN). Developing Soldiers and Leaders with the proper skills and mindset to conduct COIN-specific missions such as population engagement and host nation force partnering and mentoring is a whole other conceptual and philosophical discussion. Before Soldiers can execute COIN, they need a solid foundation of basic individual skills. Given the constrained contemporary operating environment, the author believes it is possible to use a more holistic approach to design training that will be more effective for deploying

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[1] Center for Army Lessons Learned, *The First 100 Days – Operation Enduring Freedom Tactics, Techniques, and Procedures*, ed. Combined Arms Center, 09-02 ed. (Ft. Leavenworth, KS: Center for Army Lessons Learned, 2008), 23, http://call.army.mil (accessed 3 August 2009).

Soldiers. There are myriad influences in the contemporary operating environment that affect leaders' choices of what to train and what not to train, and this thesis examines those influences, their impacts, and proposes a potential solution. Existing literature, and surveys of four infantry brigade combat teams provide an initial analysis of current task selection for predeployment training, and the author proposes a mathematical model to assist commanders and operations officers in efficiently and effectively allocating the most limiting of resources—time.

B. RESEARCH QUESTION

How can units maximize the expected utility of Pre-Deployment Training (PDT) by taking into account the factors of Situational Awareness, Personal Preferences, and Available Resources? In the scope of this research, there are three primary influences on the training unit's conduct: a commander/planner's knowledge of his area of operations, the commander's personal bias towards conducting some types of training more than others, and the limiting cost in terms of time or training resources. The intent of this research is to verify that these are the factors affecting training, and to propose a methodology to make more efficient and accurate decisions.

C. METHODOLOGY

1. Literature Review

A review of the existing literature such as after action reviews (AARs), vignettes, and monographs indicated that in some cases, units had to conduct further training after arriving to their operational areas, but did not explain why these discrepancies between pre-deployment training and deployment occurred. Much of the literature described best practices for conducting missions and leaders' lessons learned. Some of the literature described pre-deployment

training experiences, as far as which training Leaders conducted, or some of the challenges faced during training. However, there were scant references describing why Leaders conducted certain types of training, or why some tasks received more or less focus than others. Overall, the body of literature described the start point of receiving a mission and training for it, and the end of how the mission culminated. Yet, there was little, to no, discussion of the in-between: why Leaders decided to train specific skills.

2. Training Surveys

Due to the lack of information specifically addressing how leaders prioritized training, surveys of units will provide the most focused data to answer this question. To prevent collected data from being dated or too narrow in focus, the survey population was Infantry, Field Artillery, Logistical, Engineer, and Military Police units deployed since 2006. The echelons focused on were company and battalion. Polling different types of units and members at different echelons in those units minimized personal biases and organizational prejudices in the responses.

The survey subjects were:

A. Recently-deployed leaders and subordinates

B. Unit Leaders and Operations Officers from units at the end of their training prior to deployment

Subordinates from Category A completed a survey to determine the effectiveness of the unit training and also determine the delta of what should and should not have been conducted. Leaders from recently deployed units completed the same survey as those from Category B.

Surveys from Category B will determine what methodology Leaders used to design training plans, and what the greatest influences on their choices were.

3. Optimization Program

An optimization program will model and demonstrate the effects of the experimental hypotheses, and mathematically show similar trends indicated by the surveys. Each task will be a decision variable in the objective function. The goal of the objective function is to maximize the utility of a training plan. Because there is no unit of profit to express in this model, utility as a function of choices will be the measure to evaluate the results of the model. Each task will receive a value from one to five in accordance with the commander's priority, and the tasks will also receive a value for the frequency with which a Soldier uses it. These values will be the coefficients for each decision variable. The constraining resource for the model is time, and the model will maximize the utility of the training plan by allocating time to each task.

The optimization program will be useful as decision support tool for later use by Leaders when designing training. Leaders will be able to select tasks to train, and input the same priorities, frequencies, and time based upon real-world conditions for their units' deployment, and the model will return a statistically correct allocation of time for each training task.

This research is important because if it proves correct, and the model is accurate, it could encourage a change in thinking that will encourage units to do better analysis and seek more relevant inputs when designing training. Chance or luck (for either friendly or enemy forces) will be a constant in combat and beyond the control of either side. We will never have perfect intelligence on where and when an IED strike may occur, or complete knowledge of the enemy's capabilities and plans, or what the attitudes and opinions of civilians will be that will lead to subsequent events. Attempting to control these events is impossible. However, we do have the ability to incorporate probability of events occurring into our estimates and planning. Using known trends, patterns, and other available data, it is possible to make a learned prediction on the likelihood of events occurring.

Based upon these predictions incorporating probability, Leaders can design training now that will have a higher probability of being sufficient for later events. Again, chance is beyond control, but Leaders and planners can leverage known probability in their favor to attempt to narrow the gap between known and unknown, and this will result in better preparedness. Instead of prioritizing being purely subjective, it can be objective and scientific. This will not remove the commander's ability to influence his training. He/she still has the ability to "weight" certain tasks based upon experiences and personal preferences. Incorporating subjective intent with objective probabilities will produce a more objective result, and will enable the Leader to make decisions that will be more accurate, but still tailored to his/her intent. The odds will be in the Soldiers' favor.

Imagine it were possible to truncate a unit's First 100 Days after arriving to the theater of operations. What if it the "new" unit arriving to its area of operations had the same proficiency in mission essential skills as the unit it was replacing? When, as it always does expecting to inflict casualties, the enemy tested that new unit, instead U.S. forces would be in a position to react as if they had been there all along and soundly defeat the enemy. Beyond kinetic considerations, newly arrived units would be prepared to assume missions and responsibilities sooner, so that the efforts of previous units were not lost or temporarily delayed because Soldiers were still learning individual skills. From the perspective of the civilian populace, there would be synergy of effort. The author of this thesis believes that it is possible for a deploying Leader to seek inputs from his/her deployed counterpart that would enable tailoring of homestation training to produce the required skills that would enable survivability, lethality, and effectiveness. There would be no perceived gap in proficiency for the enemy to exploit.

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II. THE DILEMMA OF TRAINING TASK SELECTION

> *There is not enough time to do everything. Each commander will have to determine wisely what is essential, and assign responsibilities for accomplishment. He should spend the remaining time on near-essentials.*[2]
>
> —General Bruce C. Clark
> Guidelines for the Leader and the Commander

A. BACKGROUND

The purpose of pre-deployment training is to prepare Soldiers to conduct the missions they will execute while deployed. Even though environments and enemies morph over time, pre-deployment training should, at the very least, arm Soldiers with the requisite skills they need to be initially effective and survivable in the operational environment, and thus able to adapt and refine their abilities as the situation develops. If pre-deployment training is inadequate, a unit would arrive to its operational area without the requisite skills and initially be attempting to catch up to enemy forces to match their proficiency. Soldiers would hit the ground at a disadvantage to the enemy, instead of being able to arrive equal, identify, adapt, and surpass. Due to the ever-changing environment, it is completely unrealistic to expect any training plan conducted now to be completely sufficient later for the duration of a deployment.

However, it is possible to better attempt to close the gap between the known and unknowns, thus increasing effectiveness and survivability. Among the different branches in the Army, there are, on average, more than two hundred individual and collective training tasks to prepare Soldiers for deployment. The dilemma thus becomes: On what tasks should a leader train his/her unit? In

---

[2] GEN Bruce C. Clark, *Guidelines for the Leader and the Commander* (Mechanicsburg, PA: Stackpole Books, 1968), 50.

addition, pursuant to this, what allocation of time or priority should he/she assign to each task? The contemporary operating environment is constrained by resources, knowledge, and biases, and this limits the decisions of the leader when answering these questions. A graphical representation of the effects of influences on training is below.

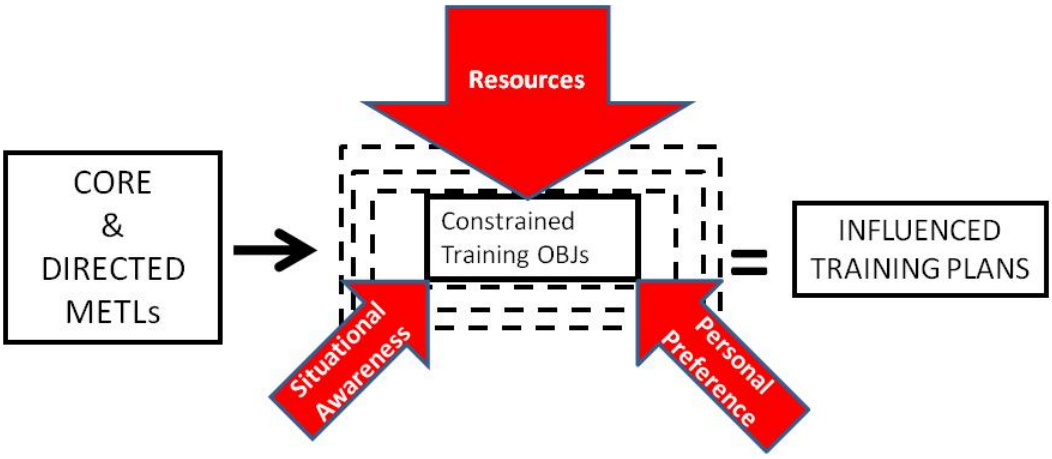

Figure 1. THE EFFECTS OF INFLUENCES ON TRAINING PLANS

Units begin with myriad mission essential tasks that they should train. The training plan is affected, primarily, by resources, but also by the influences of situational awareness and personal bias. Ideally, if units were making more optimal decisions, the resulting influenced training plans would be tailored effectively to the environment and consistent with available means. However, this is often not the case, and when any one influence dominates the rationale, improper training may result.

B. THEORETICAL FRAMEWORK

The intent of this research is to confirm the presence of influencers on training, and then to develop a mathematical model to optimize the choices of training to produce the greatest utility later during deployment. The underlying belief driving this question is that leaders sometimes make less than optimal

decisions because of bias, lack of knowledge, and resource limitations. Before proceeding to develop a working model, the author first needed to confirm or deny that shortcomings exist in training as a result of the independent variables. The author's hypothesized model is Figure 2.

		AVAIL TNG RESOURCES			
		UNLIMITED		LIMITED	
		SITUATIONAL AWARENESS			
		INFORMED	UNINFORMED	INFORMED	UNINFORMED
PERSONAL PREFERENCE	BIASED	EFF TNG	LO-MOD EFF TNG	MOD EFF TNG	NON-EFF TNG
	UNBIASED	EFF TNG	MOD EFF TNG	HI-MOD EFF TNG	NON-EFF TNG

EFF TNG:	EFFECTIVE TRAINING
MOD EFF TNG:	MODERATELY EFFECTIVE TRAINING
NON-EFF TNG:	NON-EFFECTIVE TRAINING

Figure 2. THEORETICAL MODEL

According to this model, when units have unlimited training resources, and they are informed about their environment, they will conduct the most effective training. As situational awareness decreases, the decisions a unit makes become more arbitrary. In the worst case, a unit has limited training resources available. The most dangerous combination occurs when a unit has limited resources and is also uninformed because a unit only does what it can with available resources and does not know better, not what it should.

The three independent variables affecting the dependent variable (utility of training) are: personal preferences, constraints in the training environment (time

and available resources), and situational awareness (with regard to the area of operations for which a unit is destined). The causal mechanisms for each independent variable are shown in Figure 3.

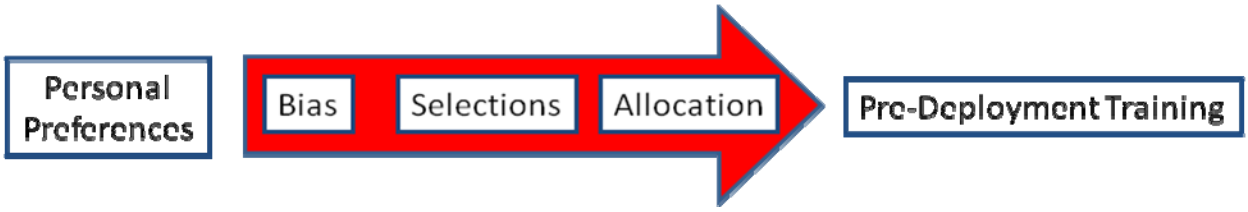

Figure 3. PERSONAL PREFERENCE CAUSAL MECHANISM

1. **Personal preferences** can have a large impact on the training a unit conducts. The Commander has the final say on what his/her unit trains on. If a certain commander is very proficient at and knowledgeable about certain tasks, then he/she is likely to emphasize those in the training plan. If the commander has perfect knowledge, and is not constrained by resources, then this influence is favorable. However, the opposite is also true: he/she has the potential to steer a unit's training in the wrong direction and produce less optimal outcomes later. The causal argument is as follows: Personal preference produces bias towards or away from some tasks. This leads to either selection or non-selection for inclusion in the training plan. See Figure 3. Preferred tasks are selected and allocated more time. Lesser or non-preferred tasks are allocated less time. Negative bias leads to non-selection and no allocation of time and effort. Overall, preferences can shape pre-deployment training, which will affect performance later during the mission.

Indications of personal preference dominating training would be a preponderance of effort devoted to narrowly focused areas over combinations of other areas (a unit spending so much time on one task to the exclusion of others with no other factor causing that exclusion). Another indicator would be a training plan that varies little from the Commander's Philosophy—usually a published statement by the Commander outlining what he views as his "Essential

Skills." For example, many commanders state that their "Big 4" are: Physical Training, Marksmanship, First Aid, and Small Unit Tactics. Outlining a commander's focus areas is important, as it gives subordinates his intent. However, if planners take this too literally and only focus on these skill areas, they risk ignoring other less prominent skills. The potential outcome is that a unit is very good at the wrong skill set. Sometimes units focus on certain tasks based on their previous experience or last rotation. As a result, they train for the previous fight and fail to adapt to the new environment. Another indicator is the culture of a unit. Often, from talking to subordinate members of a unit, it is very easy to discern the attitude of the commander and what his/her priorities are. When members brag about spending extensive time on certain tasks, and about having mastered some tasks, while speaking derisively about other tasks, this is an indicator that personal preferences may have affected training.

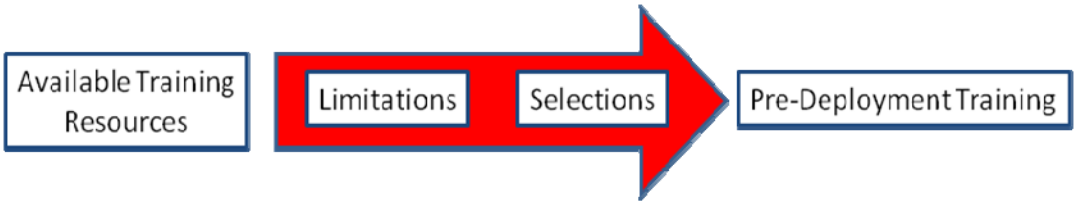

Figure 4. AVAILABLE RESOURCES CAUSAL MECHANISM

2. Arguably, the most dominant factor affecting training plans and execution of those plans are the resources available to a unit. See Figure 4. Simply put, if there is not enough time available to train certain tasks, they will not be trained. Similarly, if a unit cannot secure use of a range that allows specific training, then that task will not be trained. Time and land are two finite resources when multiple units are competing for the same training. Sometimes it is easier to train the less time-intensive task because schedules preclude devoting excessive time to planning and execution of other training. Similarly, if a range cannot be reserved or shared with another unit, whatever task that was planned for that range may be pushed further right on the schedule with the hope that

there will be time to come back to it later. The causal argument here is that the availability of training resources such as time, land (ranges), money, ammunition, training aids, enablers (outside experts) imposes limitations on the scope of plans that a unit makes. Depending on the severity of these limitations, a unit may select tasks that only require whatever level of resources is available. Overall, these resource-driven selections will shape the training a unit conducts.

At the same time, even after a unit makes decent plans maximizing ample anticipated resources, often it is later forced to modify the plan when one or more of the planned resources is unavailable. For example, a unit may not receive the allocation of ammunition that it was expecting, or some external event may trump a planned training event and reduce or eliminate the time originally allocated to some training. Alternatively, a higher-priority unit may take a range from the original unit, and the planned training is now modified or canceled.

Indicators of resources driving training are plans made out of necessity. If an operations officer states that he/she made decisions because he/she knew that a required element would not be available, this is the key indicator. Also, if examination of the training actually conducted varies greatly from the planned training, and the explanation given was that some resource fell through, this would be equally indicative. Another indicator is less time allocated to complex tasks, while more time is allocated to simple tasks. This could show that a unit attempted to expose itself to something but was not able to invest the requisite time. Instead, more effort may be devoted to simpler, less costly training.

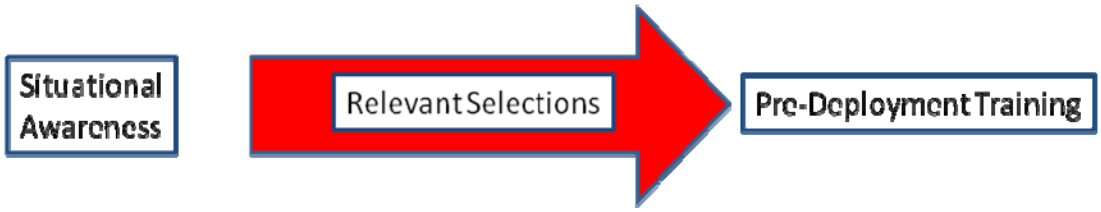

Figure 5. SITUATIONAL AWARENESS CAUSAL MECHANISM

3. Situational awareness about an intended area of operations can lead to either a fit or misfit of training. A unit can properly design its training to meet threats when it knows what to expect. The causal argument is as follows: correct and accurate knowledge provides an appreciation of the likelihood of certain events occurring. See Figure 5. As a result, the operations officer will select tasks that he/she expects to occur and focus on those, while devoting less time to tasks that are less likely to occur. On the other hand, if a unit does not know what to expect, or expects something very different, it will devote time to tasks that it may rarely do, to the exclusion of tasks that have regular occurrence.

Leaders and subordinates often comment, "I wish I had…" or "Fortunately, we expected this and we spent a lot of time…" These are the best indicators of improper and proper prior situational awareness on the part of commanders and operations officers. Another indicator is simply the answer to the question: How much did you research recent trends in your area of operations and design training around those trends?

The most difficult indicators to determine are those of high and low utility on the dependent variable—quantifying successful predeployment training. High utility could be evidenced by successful mission execution; low utility indicated by less successful execution or mission failure. This can easily become a source of bias because senior personnel in a unit will rarely describe their unit unfavorably. Similarly, measuring only the amount of casualties a unit sustains is inaccurate; units that do not put themselves in risky situations will suffer fewer casualties. However, sometimes units receive citations or public recognition for their performance. Therefore, the best indicator of utility would be responses from the subordinates who received the training and then executed missions. If they describe relative comfort and confidence in doing their jobs, then they were most likely properly prepared. As well, subordinates are less likely to display organizational bias when speaking about themselves.

The initial intent of the mathematical model is to confirm the hypotheses by demonstrating the theoretical effects proposed in the hypotheses by using artificial data that describes situations in which preferences, knowledge, and resource constraints are present. The model will indicate trends towards training tasks that coincide with the presence of the independent variables, and will indicate how each plan with a large presence of each of the variables will have biased outcomes relevant to the independent variables.

It is possible to modify the math model and make it intuitive and user-friendly, and more importantly—user specific. By doing so, it may provide units a tool into which they could input preferences, probabilities, and resource constraints that would provide an output indicating the relative ratios of effort that should be applied to each task given that unit's specific environmental conditions. Using an optimization program with utility theory and probability, preference, and cost weighting, the model would reduce the guesswork when planning training.

Every leader strives to plan and conduct the best training to make his/her subordinates the most survivable and effective. The intent of this research is NOT to critique units and second-guess their decisions. Rather, it is to examine what influences decisions and highlight for commanders and planners what the results of those influences are. Much of the current debate on pre-deployment training is at the macro level—focusing on the context of the counterinsurgency (COIN) operational environment and developing the proper mindset to deal with complex situations. One commander wrote, "Training must also be focused on decision-making and taking initiative in a stressful environment. We must develop strong small units with leaders (and Soldiers!) who can think fast, decide, and execute."3 Very little discussion exists focusing on the micro-level – how do leaders ensure that Soldiers receive training on the correct mix of basic skills, given constraints. Today's Soldiers and their leaders train hard for every

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[3] CPT Todd J. Clark, *Train for the Fight*, 2003), 2.

mission; this thesis does not question the effectiveness of that training or those doing it. The aim of this research is to determine if the task selection for training is optimal.

More accurate task selection during homestation training is the key to making units able to assume new missions sooner. If Leaders are able to balance all the influences in the contemporary operating environment and make training realistic and relevant, Soldiers will be initially more proficient in mission essential skills upon deploying. They will begin their deployment with skills on par with the previous unit and not have to undergo a period of learning. As a result, Soldiers will be better prepared to separate the enemy from the populace and execute population-focused missions sooner to maintain momentum and keep the initiative.

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III. THE SCIENCE OF TRAINING

> *Good leaders understand that they cannot train on everything; therefore, they focus on training the most important tasks. Leaders do not accept substandard performance in order to complete all tasks on the training schedule. Training a few tasks to standard is preferable to training more tasks below standard*.[4]
>
> *—FM 7-0, Training for Full Spectrum Operations*

A. DOCTRINAL LITERATURE

Little conceptual literature exists on the topic of pre-deployment training for the current fight. Authors have identified that a new mindset is necessary for the operating environment, but the discussion is broad and focused on the context of the environment, not the specifics of what to train. Even more importantly, while the literature does address that we need to train differently, it does not offer a way of doing it effectively, given the constraints in the contemporary operating environment. Given that the Army has only recently acknowledged and addressed the new requirements, perhaps it is still a bridge too far to expect it to provide "the way." Everyone agrees that Soldiers and Leaders need to train differently, but none of the authorities offer a solid way to do it comprehensively while facing realistic limitations.

This is not to say that senior leadership should or needs to hold leaders' hands and provide the approved solution for overcoming obstacles. Part of being the adaptive leader that the current conflict requires is innovating new ways of training and completing the mission against high odds. However, the Army is still outlining a problem (the ends), only vaguely describing the method (the ways), but not discussing the method (the means) to reach the endstate.

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[4] U.S. Army Combined Arms Center, *FM 7-0 (Training for Full Spectrum Operations)* (Washington, D.C.: Headquarters, Department of the Army, 2008), 2–8.

1. Army Training Strategy (ATS)

On 12 November 2009, the Department of the Army published the *Army Training Strategy (ATS)*. The intent of this document was to establish the means and method by which to "adapt Army training programs to an era of persistent conflict, to prepare units and leaders to conduct Full Spectrum Operations (FSO), and to rebuild strategic depth …."[5] The document describes the importance that the Chief of Staff of the Army attaches to proficiency in conducting operations across the spectrum, from against irregular threats among indigenous populations, to against a near-peer conventional adversary in major combat operations, and the resulting necessity to train efficiently for Full Spectrum Operations within the Army Force Generation (ARFORGEN) construct. The overall intent is to make maximum use of existing and emerging technologies to streamline and enhance training given a constrained contemporary operating environment.

The document encourages a change in thinking among leaders regarding how to prepare units to conduct full-spectrum operations.[6] It is important that "… we think fundamentally differently about unit METL, individual training and education, and leader development."[7] A key assumption in this document is that "… units will have sufficient time to train to Full Spectrum Operations across the spectrum of conflict and not just focus on achieving proficiency for the directed mission."[8] This in itself is a dangerous assumption. Given that the Army is operating with insufficient dwell time at home, the *Army Training Strategy* specifies that units must train differently to gain the most value of every training

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[5] Army G-3/7, *Army Training Strategy (ATS)* (Washington, D.C.: Department of the Army, 12 November 2009), 2.

[6] Ibid., 4.

[7] Ibid., 4.

[8] Ibid., 3.

opportunity, and the Army Chief of Staff wants Leaders to "Do a few tasks very well rather than checking the block on a 'laundry list.'"[9]

At the start of research for this thesis, the Army was still operating under the Core Mission Essential Task List/Directed Mission Essential Task List (CMETL/DMETL) construct. A Core Task is any task specific to a unit's branch or function. For example, a core task of an artilleryman is to provide indirect fires on the battlefield, whereas a military police unit would provide law enforcement. On the other hand, a Directed Task is one that a unit must be able to perform for a directed mission. These tasks are branch immaterial; for example, all units operating in Afghanistan or Iraq have the directed task of reacting to improvised explosive devices (IEDs).

With the adoption of FSO METLs effective 1 January 2010—combining Core and Directed METLs into one unit METL—most units should have only one METL, and therefore be able to focus on fewer key tasks. The intent is clear, and conceptually, it makes sense. However, this is still broad overarching guidance. Even though the document references units having limited time and resources numerous times, it is still only redefining a known problem: the need to prepare for complex situations while having only limited resources. Of these fewer tasks —and there are still more to train than time permits—leaders still need to prioritize those that are mission critical.

For example, the *Strategy* suggests that units should focus on new equipment training and crew and team certification/training during the *reset* period. This is *de jure*. *De facto*, every unit interviewed for this thesis indicated that they were missing a large percentage of their leaders for these crews and teams during reset, and that they did not begin receiving new equipment until late in the train/ready period. When interviewed about preparing his BCT for deployment and asked if he could have done it in less than 18 months, COL

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[9]Army G-3/7, *Army Training Strategy (ATS)* (Washington, D.C.: Department of the Army, 12 November 2009), 6.

Nicholson's reply underlined how much ARFORGEN can affect training: "That would have been tough. A lot of the ARFORGEN is spent on personnel and equipping issues. I think you need a minimum of 18 months."[10] This should not be a surprise; ARFORGEN describes the first months back as devoted to individual training and Soldier/family recuperation. Estimates of key leader turnover run as high as 40% in some units due to PCS and ETS, and the replacement leaders do not always arrive as the incumbent leaders leave.

The ATS devotes approximately half of a page to discussion of resources. It acknowledges that resources are finite and that resources flow between the generating forces and the operating forces as units progress through ARFORGEN. However, with these two caveats alone, the ATS still specifies that the Army must adequately train units under conditions similar to those in the operating environment.[11] Leaders know this, and will do everything to meet that intent. Yet, the limiting factors of time and resources remain.

With the contemporary operating environment being constrained by time and other resources, the general strategy to plan focused training for a deployment remains to concentrate on the "deployed mission environment" when framing the problem. It is prudent to encourage a change in thinking in leaders. Today, they need to prepare their units to conduct myriad missions in various environments since the United States will not have the luxury of choosing the battlefield for the next fight. The question remains: How does a commander operationalize this?

2. FM 7-0, Training for Full Spectrum Operations

Current Army doctrine, such as *FM 7-0, Training for Full Spectrum Operations*, tangentially addresses Army training for the COIN environment.

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[10] COL John Nicholson, *OEF Interview 3BCT 10th MTN CDR*, ed. Center for Army Lessons Learned, Vol. II (FT Leavenworth, KS: U.S. Army Combined Arms Center, 8 November 2007), 3.

[11] Army G-3/7, *Army Training Strategy (ATS)*, 17–18.

Published on 12 December 2008, *FM 7-0* addresses training units to conduct operations across the spectrum of conflict from stability operations to major combat operations. However, it does not specify what to train; rather, it discusses conceptually how units should approach problems, but from a very macro scale. As an example, *FM 7-0* discusses "The Aim Point." This is the Army's goal, that "… Army training and leader development must shift leftward from the right side of the spectrum of conflict—from training under conditions of general war to conditions midway between general war and insurgency."[12] The intent of this is to shift the Army's emphasis from all of one type of training or another. Instead, by attempting to train a blend of both, this enables Army forces to sustain the proficiency in irregular warfare and limited intervention developed over the last seven years of conflict while sustaining their capability for major combat operations. How does one operationalize "shifting leftward" from the right side of the spectrum to the midpoint?

The challenge for leaders today is conducting training that develops proficiency in all elements of full spectrum operations—from stability operations in permissive environments to major combat operations in hostile environments.[13] To what tasks does a leader devote the preponderance of effort? Every leader's ultimate goals are to complete the mission and bring all of his/her Soldiers home, and therefore every bit of training time is precious towards achieving those goals. The Counterinsurgency field manual addresses the need to train for varied missions, but does not come any closer towards orienting a leader to accomplish this.

A useful piece of guidance, though general and still challenging to operationalize, is that commanders need to tailor training: "As units prepare for deployment, commanders adapt training priorities to address tasks required by

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[12] U.S. Army Combined Arms Center, *FM 7-0 (Training for Full Spectrum Operations)*, 1–6.

[13] Ibid., 1–7.

actual or anticipated operations."[14] This is to be expected, however, that units should train on that which they will execute. The question remains: Who knows what units will execute? Is it even possible to know? Is there a method, or is a gut-instinct call made by the leader?

Training for Full Spectrum Operations discusses Army Force Generation (ARFORGEN) and the role it plays in preparing units to conduct missions. "Army Training Management," discusses Army Force Generation (ARFORGEN). ARFORGEN is the "…process that progressively builds unit readiness over time during predictable periods of availability to provide trained, ready, and cohesive units prepared for operational deployments."[15] This process takes units through three cycles in order to develop readiness: reset, train/ready, and available.

Upon returning from deployment, units enter the *reset* phase. During this phase, as units replace equipment and personnel rotate in and out of the unit, the unit focuses on training individual tasks. Typically, due to large personnel shortages and necessary physical and emotional recuperation time for Soldiers and their families, dedicated training beyond basic individual tasks is minimal.

The *train/ready* phase prepares units for higher-level collective training in preparation for deployment. In theory, at this point, a unit has received its fill of necessary leaders and Soldiers, and replacement equipment, and can now focus on achieving capability to perform a directed mission. At the end of this phase, a unit is supposed to be manned, equipped, and trained for employment. What is not mentioned in the doctrine is new equipment fielding (NEF) and new equipment training (NET). This is the process by which industry and the institutional Army has accelerated getting new capabilities and equipment into the hands of Soldiers for deployment. Often, this equipment provides a new capability and due to not previously having been fielded to a unit, requires considerable training for Soldiers from dedicated contractor personnel.

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[14] U.S. Army Combined Arms Center, *FM 7-0 (Training for Full Spectrum Operations)*, 1–5.

[15] Ibid., 4–1.

In addition to omission of new equipment fielding from the doctrine, lack of key personnel backfill and manning is not discussed. This will be discussed at the end of this thesis.

In the *available* phase, units are either deploying, or are ready for immediate deployment. When a modular unit such as a brigade combat team receives orders for deployment, it may be assigned or attached to the operational command of a different headquarters other than its habitual administrative control headquarters. The gaining operational commander can then plan and develop plans for training units on his/her mission essential tasks. Regardless of whether the administrative or operational commander has control of a unit at the time, it is the unit commander's ultimate responsibility to ensure that the unit is trained and ready for the mission.

With limited resources, particularly time, units cannot train to standard on every task for all operations across the spectrum of conflict. Leaders must focus training on the most important tasks to prepare their units to conduct operations. They achieve this focus through use of a mission-essential task list (METL): a compilation of mission-essential tasks that an organization must perform successfully to accomplish its doctrinal or directed mission.[16] Using mission focus—deriving training for those essential tasks from a unit's mission, commanders prepare their units and allocate resources such as time, money, fuel, and land (ranges) to train tasks critical for mission accomplishment.

Commanders develop their METLs from a combination of dialogue with their next higher commander about his/her directed METL, their own core METL, and their own analysis of the mission they will be conducting. This part is the most important challenge for leaders: focusing effort and resources on those tasks assessed as needing the most training. To do this, commanders must determine:

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[16] U.S. Army Combined Arms Center, *FM 7-0 (Training for Full Spectrum Operations)*, 4–5.

- Tasks requiring training

- Priority of training effort

- How to replicate operational conditions

- Risks of not training certain tasks[17]

Key to a commander being able to make these determinations is understanding the expected conditions and properly framing the problem or situation in which his/her unit will operate. Commanders use multiple inputs to guide their decisions: guidance from higher headquarters, conditions in the operational environment, dialogue with their commander, and their own staff's analysis of the mission.

While *FM 7-0* does provide useful guidance for achieving mission focus and developing METLs, there are shortcomings. *FM 7-0* indicates inputs to the commander's directed METL development technique such as orders, plans, the anticipated operational environment, publications and doctrine, and external guidance. Interestingly, whereas specific doctrine such as regulations and manuals are mentioned by name, timely and relevant publications such as after action reviews (AARs) and monographs from the Army's Center for Army Lessons Learned (CALL) are not suggested as valid sources of information. Similarly, plans, directives, and guidance from higher commanders are mentioned, but cross-dialogue with the unit in the anticipated operational area is not. While peer input should not trump commander's intent, there is no reason that communication with the deployed unit should be excluded as a valid influence on framing the environment and steering training.

Similarly, while the Army Training Management model describes a framework to achieve proficiency in mission-essential tasks using a top-down and bottom-up approach to planning and executing training, the focus is collaboration internal to the unit. Organizational bias or culture should not inhibit

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[17]U.S. Army Combined Arms Center, *FM 7-0 (Training for Full Spectrum Operations)*, 4–6.

a commander from seeking and implementing input from a deployed unit conducting that unit's future mission, provided this input does not specifically conflict with the next higher commander's intent.

The other major obstacles to training units—either for major combat operations or conflicts further to the left on the spectrum of conflict—are the real-world limitations of ARFORGEN. Interviews with numerous leaders, from 1SG to brigade commander, of deploying and recently re-deployed units, indicated that ARFORGEN—while good in intent, is not synchronized with unit schedules. Every leader commented that there was always tradeoff and shortcomings when training squads, crews, and platoons when key personnel—even leaders—were not available during critical training periods. In addition, the unit would receive a majority of new equipment after its mission rehearsal exercise (MRX). Multiple units received and assigned key leaders such as senior NCOs, platoon leaders, and company commanders after their MRX and just prior to deployment.

Two brigades interviewed were originally on orders for Iraq but received a late change of mission for Afghanistan. As a result, their priority for manning and equipping was downgraded. One of these units was told verbally that they were deploying to Afghanistan, but without written deployment orders, was officially restricted from requesting and receiving resources and funding to prepare for the Afghanistan operational environment. While most everyone in the unit—and on the installation for that matter—knew the unit had been "off-ramped" from Iraq and "on-ramped" for Afghanistan, the unit was forbidden from making any public statements about the change. The same limitations affected the unit's ability to request training support from its higher headquarters one and two levels up. Fortunately, the brigade commanders and operations officers for these brigades were able to work among and between the constraints imposed upon them and still prepare their units for what they knew was coming. The way in which one operations officer described his maneuvering to obtain needed resources for a directed mission that was directed in all but written word could best be described as a kabuki dance.

"We basically did it on our own." One brigade commander, being a tenant unit at one post with his higher headquarters at another post, personally resourced his unit's training. He dealt directly with FORSCOM for guidance on his deployment, with Army G8 (integrates Army funding, fielding, and equipping actions) for resourcing, and with an aviation task force from a third post to support his training.[18] This commander successfully overcame real-world constraints of ARFORGEN in the contemporary operating environment, and he indicated that, overall, he was satisfied with his unit's training preparedness. However, what about the commander or staff that is not as successful in generating options and exploiting opportunities? ARFORGEN has definite limitations.

The discrepancy is obvious: units train for a mission without the leaders that will be leading later, and units later use new equipment for the first time in the operational environment instead of being able to train on it in the contemporary operating environment.

No system is perfect, and while *FM 7-0, Training for Full Spectrum Operations* addresses the mindset to prepare units for deployment, and ARFORGEN creates a system to man, equip, and train units for conducting missions, there are still large gaps between prescribed intent and execution. It is still a leader's responsibility to mitigate these discrepancies and prepare his/her Soldiers to execute missions. While this thesis does not argue for a need to provide the Army's leaders with a one-size-fits-all solution to overcoming friction, the intent is to show that it is possible to develop a method to meet these various intents and directives in a constrained environment with limited information.

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[18] COL John M. Spiszer, Training Comments on Afghanistan, 9 October 2009.

3. FM 3-24, Counterinsurgency

The Army's latest field manual on Counterinsurgency (COIN), *FM 3-24, Counterinsurgency*, only tangentially addresses proper U.S. predeployment training. The field manual mentions "training," as related to what U.S. forces need to be able to conduct COIN missions, sixteen times. Only a small minority of these specifically referenced in what individual skills Soldiers needed to be proficient. The vast majority of references to training alluded to the type of training that host nation security forces required, and therefore implied what U.S. forces need to know.

Specific tasks that *FM 3-24* lists as requiring proficiency include: counter-IED, cultural awareness, basic language, marksmanship, first aid, tactical site exploitation, detainee operations, biometric devices, patrolling, indirect fires, and working with host nation forces.[19] This is an argument that the counterinsurgency manual should devote time towards listing out every task a deploying Soldier should know. However, given that it *is* the manual on counterinsurgency, one would expect some assistance to the unit leader on how to prepare his/her unit to operate in this type of environment. Instead, most of the training references pertain to what skills U.S forces need to impart upon host nation military, paramilitary, and police forces. The manual only briefly mentions what skills U.S. forces need to enhance their own survivability or effectiveness, save for language and cultural training.

FM 3-24 does have some specificity, though. In the context of specific missions, such as conducting cordons and searches, *FM 3-24* indicates mission essential tasks.[20] In the chapter on "Defensive Considerations in

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[19] Headquarters, Department of the Army, *FM 3-24.2 (Counterinsurgency)* (Washington, D.C.: U.S. Army Training and Doctrine Command, 2009).

[20] Headquarters, Department of the Army, *FM 3-24.2 (Counterinsurgency)*, 5–11, 12.

Counterinsurgency," FM 3-24 lists actions and tasks that units must be prepared to do in order to defend bases, and counter improvised explosive devices (IEDs), snipers, ambushes, and drive-by shootings.[21]

The other focus area in FM 3-24 that provides some guidance to Soldiers deploying into a COIN environment is the chapter on supporting host nation (HN) security forces. Cultural awareness, language skills, and being able to partner with HN forces, as well as individual proficiency in basic Soldier skills such as marksmanship, first aid, intelligence, and use of indirect fires are necessary to conduct the mission.[22]

The Counterinsurgency manual emphasizes the COIN environment and how to train host nation units to conduct COIN. This manual probably comes the closest of any Army reference in describing how to prepare Soldiers, but again, it primarily specifies <u>what to prepare Soldiers to train others to do</u>, not <u>what they themselves need to be prepared to do</u>.

B. EMPIRICAL LITERATURE

The primary source of literature on the topic of effective pre-deployment training is the body of after action reviews (AARs), Lessons Learned, monographs, and articles written by Soldiers and leaders who have deployed. The United States Army Center for Lessons Learned (CALL) publishes a majority of these documents. The Army developed the CALL as a method of identifying "best practices" as leaders across the Army identified that the enemy we face is as adaptive as us, and the Army realized it needed to capture and disseminate lessons learned across the force to prepare the next set of leaders preparing to deploy. As such, there are hundreds of documents, and the number increases daily. In addition, the Combat Studies Institute is another forum sponsored by the Army that is analyzing trends and experiences and developing new

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[21] Headquarters, Department of the Army, FM 3-24.2 (Counterinsurgency), 6–1, 30.

[22] Ibid., 8–6, 17.

approaches. Though dealing primarily with the subject of counterinsurgency (COIN), forums such as the Small Wars Journal contain hundreds of articles and monographs written by leaders describing their impressions based upon experiences. While these documents rarely directly assess the effectiveness of training, they do offer insights into how prepared units were to conduct missions.

Overall, my literature review of the published first-hand accounts mentioned above sometimes indicates situations in which there is a misfit between the training done in preparation and the actual missions conducted. However, the number of documents that specifically address training and how training was designed are extremely minimal. The vast majority of documents discusses training only generally, and only tangentially explains how priorities were assigned for a given area of operations. In short, the literature identifies that the "What" of proper training exists, but not "Why" or "How."

For clarity and simplicity, analysis of the empirical literature is broken down into three major categories of training conducted or required to be able to Shoot, Move, or Communicate. A general section on methodology or influences is also included.

1. Shoot

Undoubtedly, individual marksmanship, and facility with all available weapon systems and fires platforms is of primary importance for Soldiers in Afghanistan. Soldiers and Leaders at all levels stress the importance of proficiency with assigned individual and crew-served weapons. Many writers stressed the importance of unit members being cross-trained in all weapon systems in the event the assigned gunner is sick, on leave, or incapacitated. Most important is the growing trend that *all* Soldiers, to include truck drivers, artillerymen, logisticians, and intelligence—not just combat arms, are employing weapons that were formally the domain of infantrymen, cavalrymen, and military police. COL Charles Preysler, Commander, 173rd ABN BDE, in Afghanistan, wrote that,

> The other thing we did which paid dividends was to make all Soldiers into riflemen first. Everyone in this units fights, everyone in this unit is a rifleman. You just never know what may happen. As it turned out, we have many of our Soldiers operating outside their MOS and conducting operations that make them riflemen first. Half the artillery battalion is out there maneuvering as infantry. The BTSB is holding the critical ground for me, maneuvering, like infantry with the engineer company and the MPs.[23]

According to the Spartan brigade commander (3/10th Mountain),

> Regardless of Military Occupational Specialty (MOS), all Soldiers received extensive marksmanship training. The training proved its value in theater when the Brigade Special Troops Battalion (BSTB), Reconnaissance, Surveillance, Targeting and Acquisition (RSTA) Squadron, and Field Artillery (FA) operated as additional maneuver battalions and were in direct fire engagements.[24]

CPT Shelia Matthews, a Quartermaster company commander, wrote,

> Our TTP during engagements with the enemy was to maintain contact until the enemy was dead or left. Truck drivers must be capable drivers, mechanics, and gunners. Each truck commander must be proficient with all communication systems. The convoy commander will be able to effectively call for fire and communicate with CAS. Mount heavy weapons on maneuver and cargo trucks (we put a turret and gun on our wrecker) and be prepared to provide security for all soft targets (some convoys secured up to 100 host nation trucks). We utilized a 60mm from one of the maneuver companies during extended convoys for enhanced firepower. Cross-training is crucial as there is much area to cover with few Soldiers. Not only should the support Soldiers piggyback off the maneuver training (e.g. CAS and LWCMS) but also offer field maintenance training to the line companies (e.g., hasty recovery and changing a half shaft).[25]

On crew-served weapons training, a deployed commander commented,

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[23] Center for Army Lessons Learned, *Commander Interviews*, Vol. II (FT Leavenworth, KS: U.S. Army Combined Arms Center, May 2009), 111.

[24] 3rd Brigade Combat Team, 10th Mountain Division, *Operation Enduring Freedom Initial Impressions Report* (FT Leavenworth, KS: Center for Army Lessons Learned, 26 September 2007), 18–19.

[25] TF Currahee, *Afghan Commander AAR Book* (West Point, N.Y.: U.S. Army Center for Company-level Leaders, 2009), 21.

> I would have spent more time creating a solid nucleus of well-trained (not just familiarized) Soldiers on the M2, MK-19, and M240. We were three-deep qualified on crew-served weapons and that wasn't enough. You may get more weapons, and remember that people will have to rotate out for leave and injuries, etc. When you get into country, spend as much time as possible firing on the range to get *everyone* cross-trained and able to fire effectively and deal with things like mis-feeds when under pressure.[26]

Just as every Soldier in the Afghanistan theater must be prepared for close-quarters combat, they must also be prepared to use and effectively engage targets with crew-served weapons. According to one command sergeant major, "Soldiers should be cross-trained on all weapon systems in their unit. The possibility for every Soldier to become a MK19 gunner in the mountains of Afghanistan is real."[27] All Soldiers should be prepared to take over operation of a crew-served weapon if the primary gunner becomes unable to perform his duties. The training must also include loading, charging, firing, and clearing a malfunction on the weapons. Soldiers must be trained to properly clear all weapons.[28] Ensuring this not only makes Soldiers more effective in combat, but also safer while employing weapons. Ultimately, this decreases accidents and conserves combat power.

Soldiers and Leaders who have deployed to both Afghanistan and Iraq know that marksmanship is different in both theaters. One leader in 3rd BCT, 10th Mountain Division recommended that units limit training on Warrior Battle Drill 6 and 6a. His BCT spent a lot of time and ammunition on this drill in anticipation of clearing houses in villages on initial entry. Once deployed, however, Afghan National Army (ANA) troops conducted most building entry; it was conducted as a "knock and check" rather than a combat operation. Clearing a house by the method in battle drill 6 was not productive in COIN except when

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26 3rd Brigade Combat Team, 10th Mountain Division, *Afghan Commander AAR Book (OEF-7)* (West Point, N.Y.: U.S. Army's Center for Company-level Leaders, March 2007), 24.

27 Center for Army Lessons Learned, *Small-Unit Operations in Afghanistan*, Vol. 09-37 (FT Leavenworth, KS: US Army Combined Arms Center, June 2009), 47.

28 Ibid., 50.

there was specific intelligence on insurgents that were in the house[29] Generally, short-range, reflexive fire skills are priority in the mostly urban settings in Iraq. In Afghanistan, however, where the enemy engages U.S. forces from extreme ranges, and U.S. forces do not conduct many "hard knock" Battle Drill 6 missions, and instead let the Afghan National Security Forces take the lead, long-range marksmanship is at a premium. [30] While the M68 Close Combat Optic (CCO) is effective in close-range environments like those in Iraq, Afghanistan requires long-range marksmanship, especially with magnified optics such as the Trijicon ACOG.[31] Many Soldiers in Afghanistan are issued optics and infrared targeting devices for their rifles. Training and practice with them should also become a part of the unit's deployment preparation and/or its ongoing training plan in theater. Some of these optics and targeting devices will aid in range determination and target acquisition. Leaders must become familiar with the positive attributes and liabilities of each system as it is fielded and must ensure Soldiers are properly trained on employment and maintenance.[32]

A company commander from 4th Brigade Combat Team, 101st Airborne Division wrote leaders need to:

> … send as many troops to long range marksmanship courses as possible. If any of your Soldiers get the chance to kill the enemy at distance, they need to have the tools and the training to take him down. They may only get one shot. Their leaders need to make it count.[33]

Just as the requirements for marksmanship skills have morphed and increased, so has the need to conduct innovative and realistic training. Prone

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29 3rd Brigade Combat Team, 10th Mountain Division, *Operation Enduring Freedom Initial Impressions Report*, 19–20.

30 Center for Army Lessons Learned, *The First 100 Days – Operation Enduring Freedom Tactics, Techniques, and Procedures*, 4.

31 3rd Brigade Combat Team, 10th Mountain Division, *Operation Enduring Freedom Initial Impressions Report*, 19–20.

32 Center for Army Lessons Learned, *Small-Unit Operations in Afghanistan*, 48.

33 TF Currahee, *Afghan Commander AAR Book*, 48.

and foxhole-supported firing is antiquated and of marginal utility in Afghanistan, or any combat theater for that matter. Soldiers must be trained to place accurate shots from all types of non-standard firing positions, at varying elevations and ranges, from inside, on top of, and outside of vehicles, under physical stress. One AAR author indicated the need to train in an area that allows shooting uphill such as Fort Irwin, CA. Most engagements in Afghanistan, RC-East were long range, shooting uphill with crew served weapons mounted on vehicles. [34] What remains to be seen is if the risk adverse range control personnel who are usually former military but whose primary concern these days is securing their jobs will be amenable to allowing Commanders and Leaders to design and execute rigorous and realistic marksmanship lanes.

One deployed commander wrote in a monograph that,

> …Very rarely will a well-rested Soldier conduct an engagement from a comfortably prepared fighting position. As such, we must become proficient firing weapons from vehicles, while moving, using various types of cover and concealment. Furthermore, introducing fatigue, discomfort, or stress in training activities will replicate the battlefield. Once again, safety is a pertinent concern, but cannot prevent tough, realistic training.[35]

One suggestion was the use of blanks during all training exercises to simulate carrying a loaded weapon.

Prior to writing this thesis and after returning from deployment, the author engaged in a heated argument with a range control operations officer at Fort Bragg over executing a simple combat-style range. The range involved Paratroopers moving laterally across a field fire range in teams engaging targets from doorway frames, rooftops, and other alternate firing positions, with the team leader directing his personnel and controlling fires. The range control officer, a retired artillery brigade command sergeant major, refused to allow the author to

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[34] 3rd Brigade Combat Team, 10th Mountain Division, *Operation Enduring Freedom Initial Impressions Report*, 19–20.

[35] Clark, *Train for the Fight*, 3.

conduct this range because (1) – There was no published reflexive fire standard for the Army, and (2) – His responsibility, as he saw it, was to prevent training accidents at home station so that "he could sleep well at night." When asked how the author was supposed to be able to sleep well at night knowing that he had not conducted the best training possible for his Paratroopers, the operations officer did not have an answer. The problem remains: risk adverse installation personnel making decisions affecting training that should be senior- and junior-leader dialogue.

The requirement for realistic and relevant marksmanship training for all Soldiers has highlighted a deficiency in the institutional Army regarding resourcing. Standards in Training Commission (STRAC) allocations of ammunition may be inadequate to train all Soldiers within a brigade to the same standard. STRAC is designed and published just below the doctrinal level and is specific to unit type and weapon system, but needs the flexibility to be increased, especially for crew served weapons and traditionally non-combat units.[36]

Afghanistan is an indirect fire fight, and Soldiers must be proficient with all aspects of mortars and the tools used to bring accurate and timely indirect fires on the enemy. Individual Soldier training on call for fire (CAS, CCA, indirect) and using optics such as the LRAS, ITAS, and Mark VII with DAGR will greatly increase Soldiers' accurate employment of indirect fires. Although many firebases and FOBs now employ the system, currently, units are deploying without training for lightweight counter-mortar radar (LCMR), which is critical for anti-mortar operations. Units must deploy with personnel trained on the systems, who can then train Tactical Operations Center (TOC) personnel in LCMR.[37] This

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[36] 3rd Brigade Combat Team, 10th Mountain Division, *Operation Enduring Freedom Initial Impressions Report*, 19–20.

[37] United States Forces – Afghanistan, *Training Improvement Recommendations for US Forces Deploying to Afghanistan* (Kabul, Afghanistan: Headquarters, United States Forces Afghanistan, 6 December 2009), 7.

radar, when setup, maintained, and correctly integrated in TOC operations, allows timely and accurate counter fires against enemy rocket and mortar points of origin (POOs).

Mortars have traditionally been the most responsive fire support weapon available to any commander, and even more so in Afghanistan with often extended clearance of fires required for tube artillery, or the often frustrating requirement to have a Joint Terminal Attack Controller (JTAC) present to conduct Type 1 close air support missions. Maneuver battalions employ 120mm, 81mm, and 60mm mortars. Patrols, both mounted and dismounted, often carry the 60mm mortars for immediate fire suppression missions. However, the limiting factor is the availability of trained MOS 11C mortarmen. Deployed units have identified the requirement to cross train all members of maneuver units on the 60mm mortar system. Train Soldiers in mortar platoons to operate as single gun crews attached to maneuver companies and platoons. Cross train all crews on all mortar types and train NCOs as FSOs so they can both direct the gun crew and assist the commander in planning fire support. [38]

The 10th Mountain Division later identified in their AAR the requirement to build additional mortar capability. While a light Infantry Battalion has only one MTOE mortar platoon, during deployment training, units quickly realized the benefit of having immediate fire support at the company level. Additional sections needed to be formed, and units trained mortars to operate in independent sections with habitual relationships to maneuver units. They identified that the biggest hurdle to overcome to gain this flexibility is to get several of the NCOs Fire Direction Center (FDC) qualified and to acquire as much experience as possible. This will be a challenge and manning will need to be creative but the payoff is definitely worth it.[39] All mortar crew members should

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[38] 3rd Brigade Combat Team, 10th Mountain Division, *Operation Enduring Freedom Initial Impressions Report*, 19–20.

[39] 10th Mountain Division, *CJTF-76 Lessons Learned*, Vol. 05FEB06-02FEB07 (FT Drum, N.Y.: 10th Mountain Division, 2007), 198–199.

be trained to fill any position and qualified on all mortar types. The extensive training paid benefits as commanders' detached mortars to platoon level to provide direct support for outposts. Mortars or artillery accounted for an estimated 70% of enemy KIA.[40]

Additionally, units with medium and heavy mortars (81mm and 120mm) in mortar firing positions indicate the need to train personnel outside the mortar crews to man the systems so that units will have continuous mortar capability. Fires need to be precise. "Employment of mortars in combat operations has shown firing close to target is not good enough …. Poor precision can lead to civilian casualties or fratricide."[41] In a counterinsurgency, the Army cannot risk inaccurate fires, but at the same time, cannot afford to give up the ability to provide indirect fires when the doctrinal manning is not available.

Just as units must be able to continuously man all mortar systems, they must be able to always have an observer available to call for and adjust fires. In their initial impressions report, 3rd Brigade, 10th Mountain Division identified the issue of universal observer indirect fire training to all units assigned in the area of operations. The authors indicated that indirect fires are very responsive and have accounted for a large number of enemy KIA in RC-East during OEF VII. Soldiers must be able to conduct a Call For Fire (CFF) at all times. Conducting a CFF is a Level 2 Skill for all Soldiers regardless of MOS. This requirement is due to the fact that in many situations the assigned forward observer (FO) team is unable to observe the actual enemy contact with the friendly unit due to terrain. In these instances a non-13F MOS Soldier is responsible for initiating the CFF.[42] COL John Spiszer, an infantry brigade commander in Afghanistan, wrote in his training comments on Afghanistan published on the Army's CALL Web site that

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40 3rd Brigade Combat Team, 10th Mountain Division, *Operation Enduring Freedom Initial Impressions Report*, 19.

41 United States Forces – Afghanistan, *Training Improvement Recommendations for US Forces Deploying to Afghanistan*, 8–9.

42 10th Mountain Division, *CJTF-76 Lessons Learned*, 181.

> The other challenging thing you needed really do at home station is integrating all your fires. When you are in real serious enemy contact here the guys at the company and platoon level are employing Close Air Support, attack helicopters, 155 howitzers, 120 MM mortars, 60 MM mortars, along with their direct fires and maneuver at the same time and all are danger close.[43]

Aaron Swain, a commander, wrote,

> Everyone must learn to fire every weapon system. Teams must always be in position to rapidly support each-other with direct fires. Put forward observers and medics with all patrols, even team level operations. Bring the 60mm mortars or 1 x tube of 120mm with you. Mortars and snipers kill in mountainous terrain. Know where your indirect fire bubble is and move your priority target as you move. All FOs, RTOs, and Leaders will talk to attack helicopters. Teach them how.[44]

As indicated above, another invaluable fires asset responsible for decisively finishing many engagements and saving countless Soldiers' lives, is attack aviation, particularly rotary-wing. Without a doubt, fixed-wing close air support has contributed greatly on many occasions. But due to the requirements to have an Air Force JTAC, or both a trained Joint Fires Observer (JFO) and a JTAC to conduct Type 2 missions, a well-marked enemy for an available loitering CAS platform, and the necessity to employ munitions from jets only in extreme situations so as to limit collateral damage and protect innocent civilians, Marine and Army attack helicopters are often the weapon of choice. Close combat attack (CCA) aircraft—helicopters, are more responsive, provide greater loiter times, and allow employment of munitions at much closer ranges to friendly forces than fixed wing CAS.

Unfortunately, opportunities to conduct joint air/ground training with these assets are extremely limited, save for that lucky individual leader in the platoon that gets to employ helicopters at the Joint Readiness Training Center. As a

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43 Spiszer, *Training Comments on Afghanistan*.

44 3rd Brigade Combat Team, 10th Mountain Division, *Afghan Commander AAR Book (OEF-7)*, 24.

result, many ground units are initially uncomfortable with, and unable to control and accurately direct attack pilots onto the target. The 10th Mountain Division identified in their *Lessons Learned,* and every redeployed unit would indicate, the need for more Air-to-ground integration (AGI) because operations in Afghanistan require extensive aviation integration. Units must train with these assets at home station to establish Air SOPs, TTPs, and experience for all Soldiers of all levels. This understanding would lead to more realistic planning and integration during the execution of combat operations.[45] The key to success is training between aerial and ground maneuver units. Conducted regularly, AGI training gives ground units a better understanding of the capabilities and limitations of the AWT/SWT battalion.[46]

Included under the heading of *Shoot*, thorough training escalation of force (EOF) procedures is a necessity. In an email, COL Spiszer addressed the need for EOF.

> EOF procedures are very exact; putting the distances, the cones, the spike strips, and using lasers and all those things for three reasons: (1) to protect innocent civilians; (2) to help identify those who are not innocent; and (3) to allow the Soldiers to protect themselves. I don't have any problems with those types of constraints. Sometimes it's hard to convince the Soldiers of that.[47]

Many Soldiers think that EOF rules are designed to limit their ability to protect themselves. Only through proper training to include vignettes and STXs will Soldiers be able to learn proper application so that when the time comes for them to execute EOF, they will be in a position to do so expertly, efficiently, and without any doubts—thereby protecting both themselves and innocent civilians. Whether engaged in a firefight, or executing escalation of force procedures,

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45 10th Mountain Division, *CJTF-76 Lessons Learned*, 183.

46 Center for Army Lessons Learned, *Small-Unit Operations in Afghanistan*, 72.

47 Spiszer, *Training Comments on Afghanistan*.

Soldiers must be ready and able to employ any available weapon system. An interesting melding of Shooting and Communicating is this comment by a 1SG: "Afghanistan requires a unit to understand when to squeeze the trigger and when to shake a hand. Situation based scenarios can help develop this understanding. Iraq & Afghanistan experiences are very different."[48] Expert marksmanship kills the enemy, saves Soldiers' lives, and protects civilians.

2. Move

For the purposes of this thesis, observations grouped under the category of *Move* include anything related to physical movement of Soldiers across the battlefield. The most recurring themes in the literature about Afghanistan with regard to movement of forces are IEDs, the physical terrain, the necessity of air movement, and CASEVAC and MEDEVAC. With Afghanistan's extremely rough terrain, avenues of approach for friendly forces are extremely limited, and the enemy knows this. As a result, what trafficable routes exist can always be assumed enemy planned engagement areas. Every leader who wrote on their experience in Afghanistan emphasized that Soldiers had to be mentally and physically prepared, and armed with the proper skills to conduct operations in Afghanistan's rough and broken terrain.

With improvised explosive devices (IEDs) being the primary killer on the battlefield today, rigorous and detailed training on counter-IED (CIED) tactics, techniques, and procedures is an obvious necessity. CIED easily ranks among the top 3 of most important skills to train, along with marksmanship and cultural agility. Proficiency is not sufficient. Soldiers must be masters of all things CIED-related. Among the not-so-obvious observations and suggestions from deployed leaders, one suggested, "Put Soldiers in the role of the insurgent and ask them

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[48] SGM Richard Ayala, *Interview SGM Ayala*, Center for Army Lessons Learned (FT Leavenworth, KS: Center for Army Lessons Learned, 11 June 2009), 1.

how they would do it?"[49] By gathering the latest enemy techniques and tactics for IEDs from veteran Soldiers and small unit leaders, and forcing Soldiers to visualize the battlefield through the eyes of the enemy, leaders would be able to enhance Soldiers' critical thinking and advanced thinking in dealing with the IED threat.

Many leaders and Soldiers commented on not receiving adequate hands-on training with Counter Radio-controlled Improvised Explosive Device (IED) Electronic Warfare (CREW) devices. Some units get their hands on the equipment for the first time during Reception, Staging, Onward Movement, and Integration (RSOI) in Kuwait or Bagram, and then really get familiar with the equipment during their left-seat and right-seat rides during relief in place operations in their assigned area of operations with the leaving unit. All members of vehicle crews, to include the vehicle commander and gunner must be experts at using and maintaining CREW devices. Moreover, with ever soldier potentially riding in a vehicle at some point in Afghanistan, all Soldiers need to know how to turn the piece of equipment on, troubleshoot it, and ensure that it is functioning properly during a patrol. CREW training needs to be a regularly trained Soldier individual skill so that competency will be enduring throughout the Army. [50]

Beyond mastery of CREW devices in vehicles, some units indicate that in general there is a shortfall in understanding regarding the capabilities and effects of electronic warfare (EW) to combat the IED threat. Multiple systems exist, both ground and airborne, and with a lack of knowledge about capabilities and limitations extending from the individual Soldier up to the senior leadership, units

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[49] Center for Army Lessons Learned, *The First 100 Days – Operation Enduring Freedom Tactics, Techniques, and Procedures*, 25.

[50] 3rd Brigade Combat Team, 10th Mountain Division, *Operation Enduring Freedom Initial Impressions Report*, 68.

> …routinely asked for EW to support missions without regard to the threat or without relation to a desired effect. Frequently the request is for the aircraft and not the effect – or just "give me EW' without regards to the threat, capability and/or TTPs.[51]

Leaders and Soldiers need to know what CIED tools are available for employment, if Soldiers deploy without this knowledge, the enemy is gaining an advantage in his targeting.

Maneuver units repeatedly comment that Soldiers need to be prepared to conduct dismounted operations under the harshest of conditions. Rough and broken terrain, high altitudes, and extremely heavy Soldier loads necessitate physical and mental toughness. Numerous leaders in units from flat terrain at home station indicated that they wished they had had the opportunity to train at high altitudes in mountainous areas.[52] The homestation contemporary operating environment often is not representative of the conditions in Afghanistan. The results of not having done this included injuries and improper physical conditioning to sustain operations, pursue the enemy, employ certain mission essential equipment, and carry required individual loads during missions.

One unit suggested that units who know that they will be operating under conditions similar to those found in mountainous operating environments should develop an extensive mountaineering conditioning program IOT prepare for the rigors involved with such terrain.[53] One commander commented,

> If I were to focus more on one thing, it would be walking up and down mountains with IBA and assault pack or rucksack, for days at a time. This is what we do every day. No amount of running, calisthenics, or walking on flat ground can prepare your body for Nuristan or Kunar province; you have to walk up very steep

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51 10th Mountain Division, *CJTF-76 Lessons Learned*, 79.

52 Ibid., 157.

53 Ibid., 196.

> mountains, you have to do it regularly, you have to be wearing all of your kit (specifically IBA), and you need to do it in all types of weather.[54]

Another company commander provided a similar insight:

> There is no substitute for soldiers who are in shape and are prepared to carry heavy loads. If we were preparing for this all over, we would ruck march with the loads that we carry over here. Soldiers who were not fit were detrimental to missions in the mountains. The possibility of those soldiers getting injured was much higher and the negative impact that they had on patrols was incredibly significant.[55]

In addition to the simple discrepancy of a lack of mountains in the contemporary operating environment, some leaders expressed a desire to have conducted their preparation in a desert environment such as the National Training Center at Fort Irwin, CA, as opposed to the swamp and woodland environment of the Joint Readiness Training Center at Fort Polk, LA.[56] Scheduling a mission rehearsal exercise at a different combined training center may not be feasible, and some units' home station may be nowhere near mountains in the United States. One leader wrote, "If we could have done more of one thing, it would be climbing some mountains. Fort Drum does not have any terrain with elevation. I would plan for an off-post training event focusing on operating at high elevations and mountaineering" [57] For a majority of units this is the reality, so they must make every attempt to replicate high altitude rough terrain, or send as many Soldiers as possible to training venues that offer this, both Army and Marine Corps. There is no substitute for simple walking: up and

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[54] 3rd Brigade Combat Team, 10th Mountain Division, *Afghan Commander AAR Book (OEF-7)*, 20.

[55] Ibid., 26.

[56] 10th Mountain Division, *CJTF-76 Lessons Learned*, 156.

[57] 3rd Brigade Combat Team, 10th Mountain Division, *Afghan Commander AAR Book (OEF-7)*, 20.

down steep hills, carrying heavy loads. Running and weight lifting will not suffice to condition the body to patrol up steep slopes with 100lb loads.[58]

Once Soldiers possess the necessary conditioning to operate in these environs, they will still need further skills. Soldiers must be experts at land navigation, both with and without GPS systems.[59] Too many Soldiers today rely on their Garmins and patrol looking down and following the pointer on the screen. The basics of land navigation—dead reckoning and terrain association, taught during training such as Expert Infantryman Badge lanes need to be reinforced and sustained so that Soldiers will be able to properly navigate and maintain situational awareness and appreciate the terrain and its effects on movement when the batteries inevitably fail.

Operations on the terrain in Afghanistan—rough or nonexistent roads, inaccessible objectives, and the ever-present IED threat—place a premium on air delivery operations: airmobile, air drop, and air assault. A majority of Soldiers, both those with a maneuver mission and those who work full-time on forward operating bases, will at some point be involved with aviation operations. Whether it is movement of forces or receiving resupply, Soldiers will find themselves working with aircraft. Deployed units indicate that having Soldiers Pathfinder- and Air Assault-trained contributed immeasurably to conducting myriad missions.

3rd Brigade, 10th Mountain Division emphasized the need for Pathfinders: "The establishment of drop zones for critical re-supply was routinely performed in Afghanistan. Insufficient numbers of soldiers were trained in the identification, marking, and operation of drop zones. A minimum of two soldiers per company,

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58 3rd Brigade Combat Team, 10th Mountain Division, *Operation Enduring Freedom Initial Impressions Report*, 19–20.

59 Clark, *Train for the Fight*, 2.

all soldiers in the Supply sections of Companies/Troops, and all soldiers in the S-4 section of the battalions/squadrons, should receive Pathfinder training previous to deployment to Afghanistan."[60]

Multiple units frequently used sling loads to move equipment and material to provide critical resupply. "The use of RW LZs was critical to performing resupply during COIN operations in rugged and remote terrain. Insufficient numbers of soldiers were trained in sling loading, and the identification, marking and operation or RW LZs."[61] COL Spiszer, a brigade commander, wrote,

> We were able to pick virtually all of the 101st Air Assault and Pathfinder slots as the rest of their brigades all deployed between February and May of 2008. We still weren't that good at it. We did a lot in addition to a lot of training. It is just very air centric. It is very important to train with the aviation task force coming here in order to become a true air assault brigade.[62]

Similar to air movement and mentioned previously, nearly every Soldier in Afghanistan can expect to conduct some sort of mounted vehicular movement. The current fleet of M1114s and M1151s, and the newer MATVs—while providing decent to above-average protection from small arms fire and IEDs, require tremendous amounts of operator-level maintenance to sustain operations in Afghanistan's slow- and no-go traffic areas. Every Soldier who performs missions with vehicles needs to be able to conduct PMCS, change tires, and tighten, or in the event of breakage, replace half-shafts. [63] Failure to ensure all Solders can perform these tasks will result in stranded crews when a vehicle breaks and the mechanics are not present.

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60 10th Mountain Division, *CJTF-76 Lessons Learned*, 157–158.

61 Ibid., 158.

62 Spiszer, *Training Comments on Afghanistan*.

63 3rd Brigade Combat Team, 10th Mountain Division, *Afghan Commander AAR Book (OEF-7)*, 28.

Afghanistan's mountain passes with small shoulders and at times near vertical drop-offs, and unstable roads greatly increase the probability of rollover accidents. The two greatest sources of noncombat injuries are driving-related and negligent discharges. [64] Previously, some units were able to conduct drivers training in uparmored vehicles for the first time when they arrived in-theater. Fortunately, almost every installation today maintains a vehicle fleet for units to use for drivers' training. Soldiers need to be able to drive uparmored vehicles in rough terrain, and navigate while mounted using FBCB2, maps, and GPS.

Due to inconsistent vehicle manning, caused by personnel on leave, injured, or the need to increase the Soldiers travelling in vehicles for later dismounted operations, units should strive to train as many Soldiers as possible to safely drive uparmored vehicles while at homestation, particularly the new MATV which some units have yet to see or touch. [65] Cross-training all crew members to either drive or operate the key weapon system is essential to ensuring continuity of operations in the event a driver or gunner is incapacitated during enemy contact. Not only should all crewmembers be able to operate the vehicle and weapon system, but they should also all be able to locate their position with, and transmit messages with the Force XXI Battle Command Brigade and Below (FBCB2) terminal in each truck. Although most units possess these platforms at home station, most Soldiers put their hands on them for the first time when driving in Afghanistan. These terminals offer the ability to leverage too much information for the Soldier to be neglected in training.

Another necessary topic for discussion for forces in Afghanistan is MEDEVAC/CASEVAC. The ability to properly stabilize wounded Soldiers and quickly evacuate them to higher medical care is extremely important, particularly in remote isolated theaters like Afghanistan. With units conducting decentralized

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[64] Center for Army Lessons Learned, *The First 100 Days – Operation Enduring Freedom Tactics, Techniques, and Procedures*, 39.

[65] 3rd Brigade Combat Team, 10th Mountain Division, *Operation Enduring Freedom Initial Impressions Report*, 19–20.

operations and medical assets being dispersed to the maximum extent to support Soldiers across extended areas of operation, lifesaving and life sustaining skills are critical. Every unit lists combat lifesaver, or whatever homegrown version particular to that unit of trauma-specific buddy aid as part of its essential skills or "Big 5" or "Big 6." There is no doubt that CLS-trained Soldiers in small units are saving lives. Every leader needs to ensure his/her unit provides CLS training for Soldiers, and the routine refresher training as well. Small unit leaders are often the first to become a casualty; therefore, in addition to all Soldiers being experts in saving lives, every Soldier must be ready to take charge of a situation in order to continue the fight.[66]

Of this specific requirement for Afghanistan's dispersed nature, one commander wrote,

> Combat lifesaver and medical skills were by far the most important skill to affect our operations. The nature of our area of operation resulted in an increased length of time for aerial MEDEVAC response as well as limited ground MEDEVAC capability. The importance of first responders and combat lifesavers was paramount in extending the life of wounded Soldiers until they could be moved to a higher level of care.[67]

To augment the assigned medics, units indicated trying to send as many Soldiers as possible to further advanced medical training such as EMT or First Responder courses.[68]

In addition to medical resources being stretched across the theater, Afghanistan's rough terrain and IED threat further necessitates the need for facility in aeromedical evacuation. In their AAR, 3rd Brigade, 10th Mountain said that aeromedical evacuation was the only available means for evacuating

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[66] Center for Army Lessons Learned, *The First 100 Days – Operation Enduring Freedom Tactics, Techniques, and Procedures*, 29.

[67] 3rd Brigade Combat Team, 10th Mountain Division, *Afghan Commander AAR Book (OEF-7)*, 26.

[68] Center for Army Lessons Learned, *The First 100 Days – Operation Enduring Freedom Tactics, Techniques, and Procedures*, 37.

patients. The mountainous terrain presented the greatest challenge to units while conducting medical evacuations, and the hoist evacuation method made up over 80% of the BCT's evacuations. They recommended training non-standard evacuation training methods prior to deployment.[69]

3. Communicate

Soldiers deploying to Afghanistan need to be able to communicate with the Afghan populace, and with other U.S. forces. Discussion of communication will focus on individual Soldier communication skills and the training necessary to employ the myriad communication equipment in use today.

Because language is perishable, and proficiency requires extensive effort, United States Forces-Afghanistan recommended that units destined for Afghanistan should begin language training early in their predeployment process. Commanders should routinely exercise all unit members in basic conversational Dari or Pashto language.[70] The challenge to excuse Soldiers from other training long enough to make sufficient commitment to language training will always exist. About both cultural and language pre-deployment training, in their published lessons learned, the 10th Mountain Division wrote,

> Language is to culture as culture is to language—they're synonymous. It is no longer sufficient for limited numbers of Soldiers in specialized skill sets and units to possess these capabilities. To enable the Army to operate in today's complex environments, Soldiers at all levels must possess some cultural awareness and foreign language capability. Regrettably, Soldiers do not perceive the same focus on language.

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[69] 3rd Brigade Combat Team, 10th Mountain Division, *Operation Enduring Freedom Initial Impressions Report*, 106–107.

[70] United States Forces – Afghanistan, *Training Improvement Recommendations for US Forces Deploying to Afghanistan*, 3.

One E5 infantryman said that if language were so important,

> …Rosetta Stone programs would be incorporated in such a way that Soldiers were [would be] rewarded by completing at their own pace, either by money, like language skill pay, or at a minimum promotion points, we would be a more effective sustaining force.[71]

Foreign language capability extends beyond linguists, intelligence analysts, and interrogators to every Soldier and leader; it is an integral part of fostering a cultural awareness capability."[72] An E5 mortarman from another unit put it more succinctly,

> Soldiers need to understand, I mean really understand, that the only way we the U.S. can leave is to make 'Friends.' Many Afghans are corrupt, and as a people they may not deserve it, but we must 'win' over their support at every single opportunity. Act as a parent to a child, and be good to them, so we can just leave. Be good, until it's time to not be good, then show them proper discipline.[73]

The 10th Mountain Division recommended increase cultural training using situational training exercises (STX). The goal of the training is to develop the interpersonal skills required to develop trust in indigenous people so that they will share human intelligence (HUMINT) with coalition forces. [74]

In addition to interpersonal communication, Soldiers must possess the technical skills to operate numerous tactical communication systems. From personal radios to TOC equipment, Afghanistan's dispersed battlefield requires Soldiers to send and receive large volumes of information quickly, accurately, and efficiently. Soldiers communicate on the battlefield using both FM and satellite communications, and they need to train on every piece of

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[71] Anonymous quote to author collected during surveys.

[72] 10th Mountain Division, *CJTF-76 Lessons Learned*, 35.

[73] Anonymous quote to author collected during surveys.

[74] 3rd Brigade Combat Team, 10th Mountain Division, *Operation Enduring Freedom Initial Impressions Report*, 24.

communications equipment that they will use in theater.[75] To operate the various radio systems, Soldiers need to perform basic operations on communications equipment such as loading a frequency, verifying time, and loading crypto. [76] Just as all Soldiers need to be ready to man key weapon systems, they need to be prepared to operate communication systems. When describing how he would prepare a unit for deploying in terms of *Shoot, Move,* and *Communicate,* an ordnance company commander commented that, "*Communicate* is Company 100% trained on FM platforms (ASIP, Thales, Harris), VIC3 system, TACSAT, FBCB2, SAT phone, and knowing the limitations for each and interoperability with CREW." [77]

Only slightly less important than being able to communicate with other Soldiers is being able to listen to enemy communications. In the 10th Mountain Division, units made extensive use of FM scanners to eavesdrop on the enemy. Initially, units did not fully appreciate the importance of ICOM scanners as a SIGINT collection tool because prior to deployment they did not have an opportunity to conduct training on these collection systems. The enemy uses the ICOM radio as a primary means of communication, and scanners provided early warning, composition, disposition, and other forms of intelligence on insurgents in the area.[78]

Voice communication is only one means for Soldiers to communicate. Tactical information is passed using numerous digital means, and Soldiers need to train on these systems prior to deployment so that they can become proficient in their operation during TOC operations and fully exploit their capabilities. Programs such as Internet Relay Chat for Windows (mIRC), High Performance

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[75] 3rd Brigade Combat Team, 10th Mountain Division, *Afghan Commander AAR Book (OEF-7)*, 26.

[76] United States Forces – Afghanistan, *Training Improvement Recommendations for US Forces Deploying to Afghanistan*, 7.

[77] TF Currahee, *Afghan Commander AAR Book*, 58.

[78] 10th Mountain Division, *CJTF-76 Lessons Learned*, 171.

Waveform (HPW), or Tactical Chat (TAC Chat) should be included in MRE/MRXs in the same manner they will be utilized in the field, as well as Command Post of the Future (CPOF).[79] In his *Training Comments on Afghanistan*, COL Spiszer commented on the importance of training MIRC chat:

> That is a big lack that you cannot train on them in the United States because it is not an authorized program on our networks. No unit can train before going to combat on MIRC chat. Yet, current operations happen from the platoon level up to CJTF level gets done on MIRC. All fire missions, all air space clearance, all current intelligence, everything goes on MIRC chat. You can't even train on it. You go in the TOC and every screen has 10 or more MIRC chat windows open on it.[80]

The Army's Center for Lessons Learned indicates the importance of company-level command posts (CPs) and their command and control functions. Due to the terrain, extended distances, and decentralized nature of operations, company-level CPs are performing many functions previously done at the battalion-level.[81] Intelligence transmission and receiving, coordinating fires, directing operations, and tracking of personnel require organized company CP functions, and all of these functions utilize the various communications systems previously mentioned. Therefore, not only is it necessary to be able to physically operate the systems; CP personnel must also be able to employ them in concert with CP operations.

Another function that company CPs are assuming that was previously done at the battalion level is intelligence. With a limited number of intelligence analysts at the battalion level available to support dispersed company operations, a recent solution is the company intelligence cell, or company operations and intelligence support team. Units assign intelligence analysts who previously

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[79] United States Forces – Afghanistan, *Training Improvement Recommendations for US Forces Deploying to Afghanistan*, 8.

[80] Spiszer, *Training Comments on Afghanistan*.

[81] Center for Army Lessons Learned, *Small-Unit Operations in Afghanistan*, 17.

resided on the battalion staff down to the company headquarters to work directly for the company commander. Providing enhanced intelligence training on the utilization of intelligence assets and analysis to maneuver forces at the battalion level and below would help mitigate to some extent the current lack of necessary intelligence operations skills and personnel at the company level. [82]

C. GENERAL

Some general comments on training made by Leaders and Soldiers deserve addressing in this section. The comments speak to important training that does not fall in the categories of *Shoot, Move*, or *Communicate*, the scope of what can be trained, and the debate over opening lines of communication with the deployed unit.

Addressed earlier, but worth reiterating, is equipping and training units realistically, so they can train like they will fight. Leaders of combat support units emphasized the need to equip and train their units just like maneuver formations since their Soldiers worked in concert with maneuver forces. TF120's *Comprehensive Lessons Learned White Paper* indicated the need for support formations to train and deploy with equipment usually considered for maneuver formations such as crew served weapons, night vision devices, communication gear, optics, infrared aiming devices, and indirect fire capability.[83] Another unit wrote in its lessons that integrated training between combat Soldiers and sustainment Soldiers established positive relationship and created opportunities.[84] The 10th Mountain Division observed that currently, the forward support companies (FSCs) find themselves doing non–standard operations alongside Scouts and Infantrymen, and therefore "…should be equipped with the

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[82] 10th Mountain Division, *CJTF-76 Lessons Learned*, 29.

[83] TF 120, *Comprehensive Lessons Learned White Paper* Army Capabilities Integration Center, 9 June 2009), 6.

[84] 3rd Brigade Combat Team, 10th Mountain Division, *Operation Enduring Freedom Initial Impressions Report*, 64.

weapon systems, sights, communications equipment and night vision equipment to be successful on today's battlefield."[85] After taking command of a company that had not trained on a lot of equipment that it was expected to employ during missions, a Sapper commander wrote that, "By finding out what is actually happening forward, and getting everyone on the same common operating picture, a unit can better plan and resource training early, thereby better preparing for combat operations during their deployment."[86] The value of communication with other units is undeniable.

Not only is training with the right equipment essential, but integrating the right players on the team before deployment ensures proper integration in theater.[87] Units should make every effort to train with specialty teams from Civil Affairs, Tactical HUMINT Teams, Provincial Reconstruction Teams, and Special Forces Operational Detachments so that misunderstandings of roles and capabilities do not create resentment and exclusion of these substantial force multipliers later. One commander wrote, "The key is to conduct demanding battle-focused training together. Development of this confident team will ensure that they will function properly "where the metal meets the meat."[88] At the very least, scheduling face-to-face briefings and meetings among Leaders will enhance synergy and cooperation even though dedicated field training time may not be possible due to conflicting schedules.

An observation made by the 10th Mountain Division is that unmanned aerial vehicle (UAV) operators require extensive training time to effectively use these assets in theater. [89] Untrained operators will not operate these systems to their full capability, and commanders will then begin to discount the contribution

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[85] 10th Mountain Division, *CJTF-76 Lessons Learned*, 213.

[86] TF Currahee, *Afghan Commander AAR Book*, 47.

[87] 3rd Brigade Combat Team, 10th Mountain Division, *Operation Enduring Freedom Initial Impressions Report*, 19–20.

[88] Clark, *Train for the Fight*, 2.

[89] 10th Mountain Division, *CJTF-76 Lessons Learned*, 38.

that UAVs can make to operations. A remedy for this is substantial predeployment training on the systems while at home station, and staffs must coordinate the use of airspace to facilitate this training.

Many units do not train on money-related tasks prior to deploying, but later find them mission critical and therefore have to lose Soldiers for some period to receive required training. Fortunately, there are now more hubs in Afghanistan where Soldiers can receive financial training, draw monies, and maintain accounts. However, the requirement to coordinate and secure transportation—which is always subject to weather and higher priority mission requirements—will always have an effect on how long a Soldier is off the line and away somewhere awaiting training.[90]

Whether it be ordering officers, pay agents, solatia payments for consequence management, small rewards programs, or Commander's Emergency Response Program (CERP) funds, lack of use, or mismanagement of these programs can both cripple a mission as well as create severe legal problems for units.[91] A large obstacle to conducting this training during predeployment trainup is determining the current theater-specific requirements and receiving valid and relevant certification. Often, units must wait until they arrive in theater to schedule this training, but by then, are too busy to spare adequate numbers of Soldiers to train primary and backup personnel.

Between and among units interviewed for this thesis, there was disagreement over the utility of contacting the counterpart unit being relieved in place. Within the literature there was the same varying of focus on downrange feedback. Some leaders felt that the members of their unit should only focus on executing guidance originating from the chain of command, while other leaders

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[90] 3rd Brigade Combat Team, 10th Mountain Division, *Operation Enduring Freedom Initial Impressions Report*, 30.

[91] 10th Mountain Division, *CJTF-76 Lessons Learned*, 204–205.

encouraged, and they themselves made numerous efforts to, contact their deployed counterparts to gain information with which to modify their training.

When, during a past deployment, the author of this thesis requested from a staff major in his unit a point of contact from the incoming unit that would be replacing him so that he could start copying him daily reports and statuses, the major replied that all information would go through him and that he "… would take care of it." Later during relief in place operations, when the author spoke with his newly arrived counterpart, he found that he was answering many questions about information that he had previously collated and forwarded to his staff. When asked if he had received any of this information, the new commander replied that he had not. Months later in an interview with 60 Minutes, one junior leader from the newly arrived unit commented, "I thought it was gonna be a little bit quieter here. But we landed in a hornet's nest when we got here." When asked by the interviewer if he thought he would be landing in a hornet's nest, the same leader replied, "No. Not at all. I guess I really didn't know what to expect when I got here. I'd never been here before…"[92] Watching this after redeploying home, this greatly frustrated this thesis' author. Somewhere, the staffs failed. Information describing the enemy's patterns and locations of the ambushes and engagement areas in which this unit suffered casualties shown on the *60 Minutes* news clip had previously been transmitted. Unfortunately, someone decided for whatever reason to hoard the information. Sharing that information may have prevented a casualty.

The potential conflict over whose commander's intent a leader may be executing is a valid concern; however, one would think that excluding input from a deployed unit risks ignoring timely and relevant updates to the commander's initial framing and conceptualizing of the problem. While on one hand it is

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[92] *Combat in Afghanistan – "Fighting in a Hornet's Nest,"* directed by Peter Klein and Jeff Newton CBS News (*60 Minutes*), 2008), http://www.cbsnews.com/video/watch/?id=5291120n&tag=related;photovideo (accessed 9 February 2010)

possible that the higher commander and his/her staff have adequate dialogue with their deployed counterparts with which to inform his/her own command training guidance, it is also feasible that there may be some holes in that knowledge. What the higher commander or staff might feel not to be important enough, or have enough time to focus on and relay, the subordinate may in fact find critical later. Information-sharing structures should be flat, not hierarchical. While staffs are useful for delineating tasks, they are not good for information flow. Too much is hoarded—either accidentally or by design. If it is expected that Leaders should be taking the time to read all the available published material on their mission or area of operation, why not the same emphasis on opening lines of communication with deployed counterparts to establish a near real-time flow of information?

This also begs the question, however, of whether or not Leaders are "doing their homework" and consulting the vast body of knowledge that already exists. The Army's CALL, among numerous other forums such as Smallwarsjournal.com or the Combat Studies Institute, are good places to start research before a deployment. When interviewed about what CALL products he read in preparation for deployment, one battalion S3 said, "There are more products available than we can read. I do not think there is anything missing after using CALL products for four deployments so far."[93]

Individual access login data that this author obtained from the Army CALL Web site's webmasters indicated trends by rank (see Table 1). The data obtained covered the period from February 2007 until May 2010. To discern trends among personnel in the Army accessing the CALL Web site, the author first went through the spreadsheets—which contained on average 60,000 individual logins per year—and deleted multiple logins by the same individual in any one day. To establish a baseline, credit was only given for an individual of a

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[93] MAJ Tommy L. Cardone, *Interview MAJ Cardone*, ed. Center for Army Lessons Learned (FT Leavenworth, KS: Center for Army Lessons Learned, 12 June 2009), 4.

certain grade to have accessed the Web site once in a month. Therefore, a major, while he may have accessed CALL 30 times in January, and only once in February through December, is recorded as having accessed CALL 12 times.

The data indicates that officers in the ranks of major and captain are third and fourth, respectively, in accessing the Web site. The highest amounts of logins were by the aggregate of junior enlisted from private through staff sergeant. Most interestingly, sergeants first class exceeded any other rank in the Army for accessing the CALL Web site. Of note, there is no way to determine what specific material individuals accessed, but for the purpose of this discussion, the author is making the assumption that a Soldier or Leader accessing the Center for Army Lessons Learned is seeking something deployment-related.[94]

An interesting trend is that of CALL access by lieutenants. Given that a majority of lieutenants coming out of a college commissioning source possesses better than average computer skills, and that second and first lieutenant comprise a major portion of the officer population, one might expect to see more lieutenants accessing CALL.

[94] Clayton Robertson, CALL Web site Access Data, 2010 (accessed 15 May 2010).

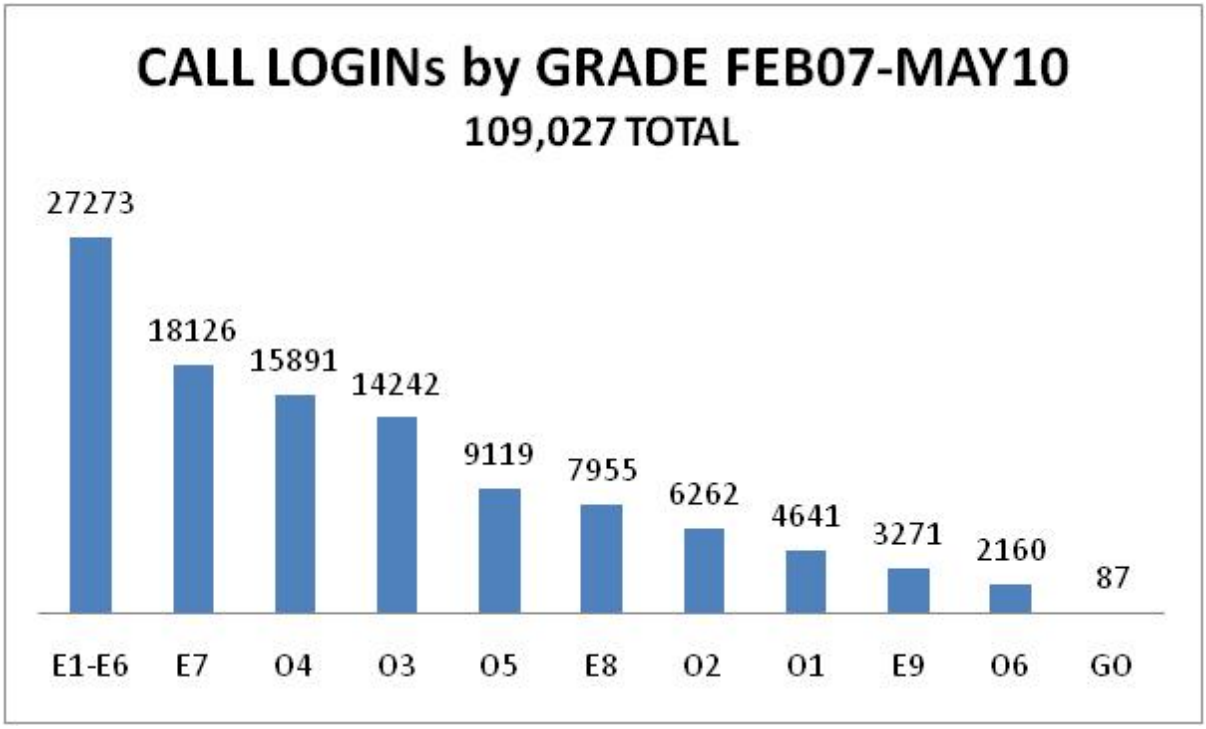

Figure 6. ARMY CALL Access Data Feb07-May10

At the time of this writing, data from the Army, listing how many Leaders (officers and enlisted) by grade were serving in the Army during this timeframe, is unavailable. Were it possible to isolate the results to Leaders that were deploying or had deployed, comparison of the table above with the total population would reveal interesting results regarding what percentage of Leaders from the Army at-large are "doing their homework."

On the topic of using input from deployed units, in an email to the author, COL Spiszer, commander of 3-1 IBCT, commented on the importance of the Pre-Deployment Site Surveys (PDSS) with the unit he was replacing and the effects they had on his training guidance: "We put a great deal of effort into contacting our counterpart units in Afghanistan. We were fortunate enough in being able to conduct 3 PDSS. … These allowed us to gain the contact we needed at most levels to coordinate what we needed to train, equipment to deploy with, etc.

Generally speaking, however, we did a great job gathering information from Dec 2007 on that definitely shaped our training plan, our NTC rotation, etc." [95]

CALL's *The First 100 Days* further emphasizes the need to at the very least maintain situational awareness and not develop tunnel vision by rigidly adhering to an approved training plan. Whether units modify plans based upon reading lessons learned from other units, or establish direct contact to gain situational awareness, the intent is to ensure that predeployment training is up to date. As the situation and enemy techniques change, small units must adapt tactics and procedures to ensure realistic training. [96]

Therein lies the question: Why are some unit Leaders resistant to incorporate advice from a unit it is replacing or that it's in contact with, whereas it is completely acceptable to highlight a published learned lesson? In his notes on preparing his BCT, COL Spiszer demonstrated the willingness to deviate from his original training guidance so that his training remained relevant: "The 'Training Guidance' was important, but not overly so. We ensured we did the tasks required, but tempered and prioritized that based on what we learned during PDSS and what tasks we had to accomplish to build a unit from scratch. Thus, many of those tasks that were not readily or obviously required for our deployment we just familiarized (NBC). Others we spent large amounts of time on (CLS)."[97] Another unit described how they integrated and updated both previous experience and doctrine for deployment to Afghanistan: "We used lessons from the battalion's last Operation Iraqi Freedom deployment, our Army's

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[95] John M. COL Spiszer, 3-1ID Afghanistan Prep Training Lessons, 5 January 2010, 2010 (accessed 5 January 2010).

[96] Center for Army Lessons Learned, *The First 100 Days – Operation Enduring Freedom Tactics, Techniques, and Procedures*, 25.

[97] Spiszer, *3-1ID Afghanistan Prep Training Lessons*.

current doctrine, and keys tasks from the unit being relieved in place."[98] A 1SG described how he gleaned information to be able to employ his battery in a new fashion,

> We searched lessons learned from the 82nd and 101st Airborne Divisions, and the 10th Mountain Division and Ranger Regiments. We planned to implement the lessons learned from these great units into our battery, most importantly deploying with the ability to conduct split-battery operations.[99]

All of these leaders were able to create realistic training for their Soldiers because they were able to set aside individual biases and organizational culture. In some cases, however, pride prevents this from occurring. Although previous deployment experience of Soldiers is invaluable, the one attitude that Leaders need to be aware of is one the sometimes develops of those who remain in the same unit for multiple deployments. Describing interaction with the unit replacing him, one brigade commander commented,

> We had a great relationship with our replacements, but there was some of that "we know what we are doing, we have done this a couple of times in Iraq" attitude. I think the attitude is unit-based and mostly centered around the 40% or so of a unit that stays with it and comes for the next deployment.

Leaders need to ensure that their Soldiers, and they themselves, do not become wedded to only one solution or approach to problems. Regardless, it is a two-way street: new units need to be willing to listen, and outgoing units need to make every effort during relief in place operations to not become complacent and stay focused on passing on everything they learned to their replacements.

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[98] LTC Ronald E. Zimmerman, CPT Caitlin M. Dempsey and 1LT Haley E. Whitfield, "Lessons Learned from the Front – Operation Enduring Freedom," *Engineer*, January–April (2009), 55, http://call.army.mil (accessed 3 August 2009).

[99] US Army Sergeants Major Academy, *Long Hard Road: NCO Experiences in Afghanistan and Iraq* (FT Bliss, TX: US Army Sergeants Major Academy, October 2007), 62.

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IV. THE ART OF TRAINING

What you do for your Soldiers in predeployment training is the most important factor in increasing their ability to survive in combat.[100]

-CALL OEF First 100 Days

Analysis of doctrine revealed scant reference to proper pre-deployment training, and the collection of empirical reports, AARs, monographs, and letters only occasionally addressed the specific influences that caused Leaders to select specific tasks to train. A survey conducted of four light infantry brigade combat teams (BCTs) revealed the degree to which certain factors influenced selection of training tasks. The intent of the survey was to question the Leaders (planners) about what influenced their decisions to design training plans and to gauge the effectiveness of those decisions by polling the Soldiers (executers) about how prepared they felt to execute their missions while deployed.

Due to the time available to research and write this thesis—approximately a year, a large shortcoming of this study was that it was impossible to get a definitively representative example of Army training by tracking multiple units across the entire ARFORGEN process—from RESET through pre-deployment training through deployment. No single unit deployment timeline fell within this window. As a result, the survey subjects included three BCTs that had completed pre-deployment training and were within one month of deploying, and one BCT that had just recently redeployed. There is no data available for a unit from pre-deployment training through deployment.

However, despite the high tempo of operations—both for the units preparing to deploy and recovering, and the resulting competing demands for Soldiers' and Leaders' time—all four BCTs wholly supported the author's

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[100] Center for Army Lessons Learned, *The First 100 Days – Operation Enduring Freedom Tactics, Techniques, and Procedures*, 25.

research efforts by making large amounts of Soldiers available for surveying. As discussed previously in this thesis, maneuver missions are no longer the sole domain of combat arms units. Therefore, the target population for research included any type of unit that would conduct a maneuver mission. As a result, the survey subjects were infantrymen, artillerymen, engineers, cavalrymen, military police, logisticians, truck drivers, signal, and military intelligence. Eighty-four Leaders from platoon sergeant to battalion operations officers, and seventy-eight subordinates from private first class to first lieutenant completed the survey. In addition, three of the brigade operations officers and one brigade commander personally discussed their units' training with the author. This research would not have been possible had it not been for the outstanding support afforded by the commanders of these units.

Subjects answered one of two surveys. The first survey was for Leaders, and it examined what influences caused them to prioritize some training tasks over others. The focus was pre-deployment training plans. The survey queried the subjects across 64 individual Soldier tasks. The complete list of Soldier tasks numbers anywhere from 80 to over 100, depending on to what level of granularity one chooses to decompose the tasks. For example, the task conduct "Combat Lifesaver Training" consists of approximately 11 tasks, again depending on how much one aggregates or decomposes the individual tasks. Based upon feedback from trial tests of the survey, to prevent monotony and possible loss of fidelity of the subjects' responses due to survey fatigue, the author aggregated certain tasks under one heading. For example, the author grouped all of the First Aid tasks under the overarching task of "Conduct Combat Lifesaver Training." The survey questioned what influences caused the Leader to include, not include, add, or delete an individual task from the training plan. Additionally, the survey asked the Leader to rate the overall effectiveness of the training plan, given all of the influences that may or may not have caused him/her to modify their plan.

The second survey was for subordinates. Using the same list of tasks as the Leaders' survey, it simply asked the subordinate to indicate how comfortable or prepared the Soldier felt executing each task while deployed. The focus here was the effectiveness of the Leader's plan. The intent was to rate how effective his/her training was for each task. The original intent was to use this survey as a control group for the corresponding Leader's survey in that unit. A strong possibility for bias existed when asking Leaders to rate their training plan. Most likely, a leader would tend to rate his/her plan as being very effective. If, instead, from the perspective of the subordinates the effects (resulting proficiency) of each Leader's plan were possible to collect, this would provide a more unbiased assessment of that plan's effectiveness. However, due to the limitations of available redeployed units, data collection from only one population of deployed subordinates was possible.

A. STATISTICAL ANALYSIS

The author developed the pre-deployment survey questions based upon his prior experience with competing demands in the contemporary operating environment to prove or disprove his hypotheses about the main factors influencing training. The survey instrument asked five questions about each possible training task in the training plan. It was a hybrid of multiple-choice questions to select for the presence of certain influences on the choices to include, exclude, or adjust priorities of tasks, and also used a five point Likert-type scale ranging from Not Adequate to Very Adequate, asking each subject to rate their training conducted for each task.[101]

The subjects answered these questions for each of the 64 tasks. See Figure 7 and Appendix 1.

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[101] Survey developed with the assistance of Prof. Doowan Lee and Prof. Ronald Fricker, Naval Postgraduate School. Prof. Lee provided guidance on the initial formulation of surveys during his SO4450 "Analytical Methods" class, and during office hours with the author. Prof. Fricker used his experience conducting surveys to design the survey with the author, and later refined it to make it usable.

	Not Included				Included					Execution					Modified Effort					If Task Added					If Task Deleted				
	Resources	Comm o w/unit in AO	Trends in AO	Time	CDR's Intent	Past Experience	Knowlege of AO	Ease of Resourcing	Published Lessons Learned	Not Adequate				Very Adequate	Resources	Comm o w/unit in AO	Knowledge of Trends in AO	Time	CDR's Guidance	Resources	Comm o w/unit in AO	Knowledge of Trends in AO	Time	CDR's Guidance	Resources	Comm o w/unit in AO	Knowledge of Trends in AO	Time	CDR's Guidance
	1	2	3	4	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
TASK																													

Figure 7. PRE-DEPLOYMENT LEADER SURVEY

Attempting to gain some parallel correlation, the author administered the same pre-deployment survey questions, asking why Leaders chose certain tasks for redeployed Leaders. Analysis of responses from the subordinates of these Leaders provided a control.

The second survey was for post-deployment subordinates. It was also a hybrid questionnaire that gauged the efficiency as well as the effectiveness of the training they received. Two questions sought to determine if Leaders wisely included or excluded tasks, and one question was a Likert-type scale asking the subordinates to rate the effectiveness of their training.

The subordinates answered these questions for the same range of training tasks as that answered by the Leaders.[102] See Figure 8 and Appendix 2.

[102] Prof Ronald Fricker, survey instrument design assistance, August–September 2009.

	Did Not Train & Did Not Execute		Effectiveness of Training						Trained but DID NOT Execute
			Not Trained/Not Effective				Very Effective		
	0		1	2	3	4	5		6
TASK									

Figure 8. POST-DEPLOYMENT SUBORDINATE SURVEY

The intent of the pre-deployment survey was to determine if environmental factors influenced Leaders' decisions to include tasks in their training plans. The author sought to include as many possible potential influences affecting today's Leaders. Though secondary to the control rating of the subordinate Soldiers, by having the Leaders also rate the effectiveness of their own training, the author wanted to know from the perspective of the Leaders if environmental factors did or did not affect training.

The dependent variable for the pre-deployment survey was effective training. To confirm the hypotheses introduced in the first chapter, the pre-deployment survey grouped influences into five categories that causes tasks to be: Not Included, Included, having Modified Effort, Added, and Deleted. These five categories were the independent variables. See Figure 7.

For the post-deployment survey, the dependent variable was also effectiveness of training. However, as this was a control for the pre-deployment survey, there were no causal mechanisms to test.

1. Pre-Deployment Survey Results

Even though the survey questioned subjects on the presence of bias caused by five different factors, due to the erratic and incomplete answers from many of the subjects for Added and Deleted influences—most likely due to survey fatigue at that point—the most credible data came from answers pertaining to tasks being Not Included, Included, and having Modified Effort. Skew analysis of these independent variables indicates the presence of different degrees of bias, and the greater the skew, the more each respondent is biased by particular training influences. Skew analysis of these grouped independent variables revealed that when tasks were Not Included had the most substantial impact on effective training (see Table 1).[103]

The coefficient for Not Included was -13.7, while Included and Modified Effort had coefficients of -3.3 and -2.8, respectively.

Independent Variable	Coefficient	Standard Error	T	P>|t|
Not Included	-13.776	3.84	-3.59	0.001
Included	-3.355	3.545	-0.95	0.348
Modified Effort	-2.89	4.105	-0.7	0.485

Table 1. STATA SKEW ANALYSIS[104]

The high coefficient for Not Included indicates the presence of bias, while including tasks and Modifying Effort for them displays moderate bias.[105]

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[103] Edward R. Tufte, *Data Analysis for Politics and Policy* (Englewood Cliffs, N.J.: Prentice-Hall, 1974), 110.

[104] Prof. Doowan Lee from the Defense Analysis Department at the Naval Postgraduate School assisted the author by developing the analysis and interpretation of the survey data.

[105] Prof. Doowan Lee at the Naval Postgraduate School assisted the author in interpreting these results by presenting the effects of bias discovered descriptive statistical analysis of the results.

A graphical representation of the bias present in why units are not including tasks, and the specific reasons is seen in Figure 9.

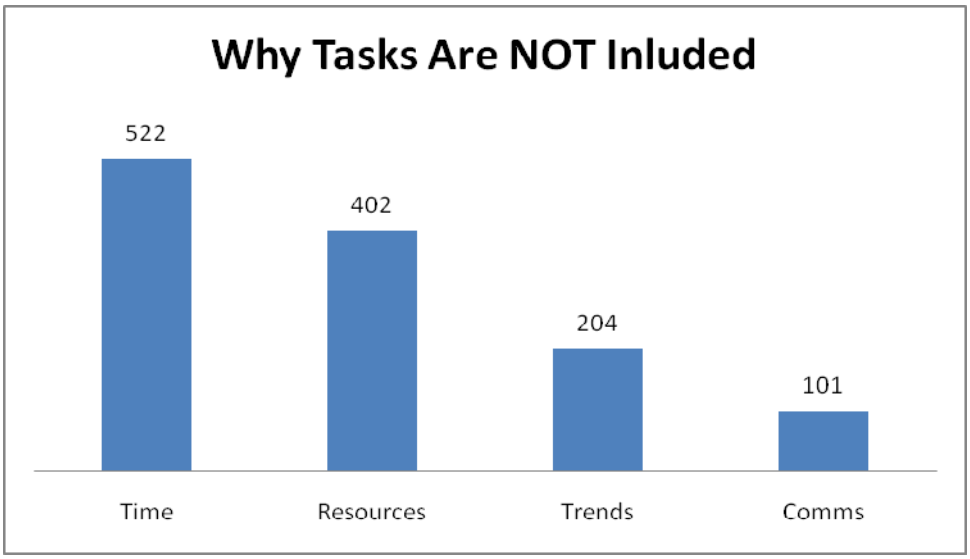

Figure 9. WHY TASKS ARE NOT PART OF TRAINING PLANS

The influences polled for in this category are the high cost of resources to execute training, communications with the deployed unit, researched trends in the units area of operations, and limitations of time. Statistically, as well as graphically, one can see what biases exist when tasks are excluded from training plans.

Bias is present in including tasks and modifying effort, though to a lesser degree than that when tasks are not included.

Graphically, the reasons for tasks being included and having modified effort are in Figures 10 and 11.

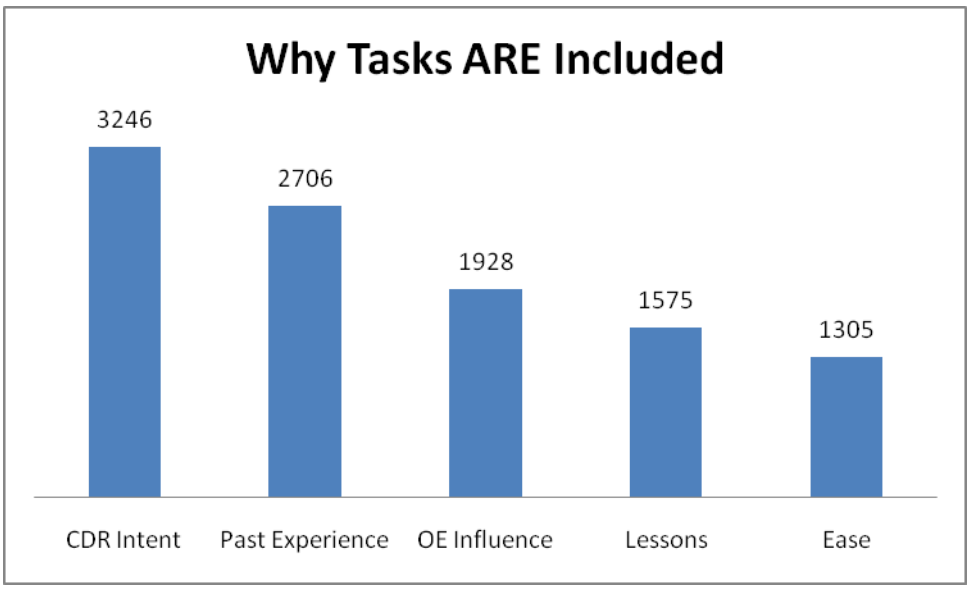

Figure 10. WHY TASKS ARE PART OF TRAINING PLANS

Commanders' intent and past experience of the subjects are the dominant reasons why Leaders select tasks for training their subordinates. This is consistent with all of the published literature—that Leaders tend to relate upcoming deployments to previous deployments. As one would expect, of course the commander's guidance and intent are the primary factors that influence training. This is not inherently risky, if one assumes that commanders have perfect knowledge, and are therefore able to accurately forecast what training a unit needs. It is when a commander's intent far outweighs any other influence, and thus restricts other factors from influencing training, that biased training occurs. To lesser degrees, the other reasons for including certain tasks in training plans are influence of trends in the operational environment, ease of resourcing for this training, and published lessons learned.

Not surprisingly, Resources and Time—both limiting factors in any training environment—account for the two greatest reasons why units adjust their prioritization of training tasks (Figure 11).

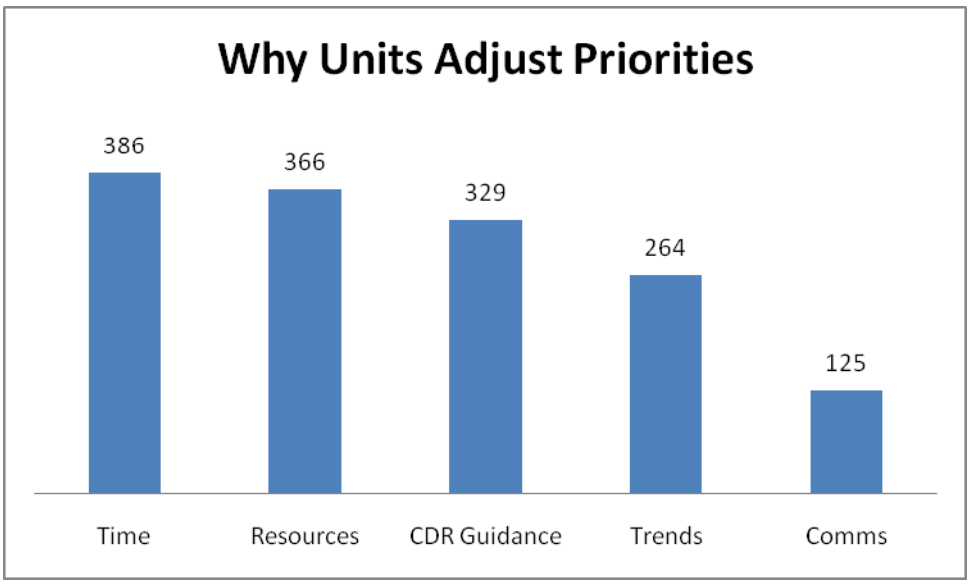

Figure 11. WHY UNITS ADJUST PRIORITIZATION

Other influences polled for in this study were: communications with the deployed unit, trends in the operational environment, and guidance from the subjects' commanders.

Both of these figures—reasons for including tasks, and adjusting their priorities, indicate that there is some bias in these decisions, and their coefficients from skew analysis confirm this bias.

The smaller the p-values, the more statistically significant the independent variables. The low p-values listed in Table 1 indicate that there is a strong relationship between effective execution of training and low bias, particularly for tasks not included (p=.001). On the other hand, the large coefficients indicate greater substantive significance of the independent variables. The impact of the bias measured from the topics not included had the most substantive impact and the highest degree of statistical significance. In other words, this type of bias was most consistently detrimental to effective pre-deployment training. The other two

independent variables—Tasks Included and Modified Effort—both display similar statistical and substantive significance, though less than that of Tasks Not Included.[106]

The data listed in Table 2 indicates that the independent variables—not included, included, and modified effort—exhibit only small degrees of statistical correlation. This indicates that the estimates from the model do not suffer from colinearity or variance inflation.[107] If these values were higher, only a combination of two or more of these independent variables produce biases in training.

	Not Included	Included	Modified Effort
Not Included	1		
Included	0.156	1	
Modified Effort	0.13	0.247	1

Table 2. STATA STATISTICAL CORRELATION ANALYSIS[108]

2. Post-Deployment Survey Results

Because the post-deployment survey for subordinates did not include any causal mechanisms, and instead was a subjective rating of their training, this survey provides the qualitative aspect of the training conducted to prepare for deployment.

For the 63 tasks polled, given that the subjects trained a task and later executed it, they had the option of rating their training's effectiveness of each from one to five, indicating that they did not train for it and did not execute it, or

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[106] Prof. Doowan Lee explained to the author how to use the descriptive statistics analysis to interpret the survey data.

[107] Harvey Dr Motulsky, "Multicollinearity in Multiple Regression," http://www.graphpad.com/articles/Multicollinearity.htm (accessed 31 May 2010).

[108] Prof. Doowan Lee provided these STATA statistical correlation analysis results.

indicating that they trained for it but did not execute it. If a Soldier did not train for a task and did not execute it, for the purpose of this thesis the author is assuming that the Leader made an efficient decision with training time. If instead a Soldier indicates training a task but not executing, the author is making a very broad assumption that this was an inefficient use of time. Of note, this is not to characterize the Leader's decisions; in a perfect world, every Soldier would train First Aid tasks but not use them. The intent of this analysis is to make some generalizations about use of time that one may possibly correlate back to influences on Leaders' decisions.

Before one can examine the normalized effectiveness of the 78 subordinates' responses, one must examine how many Soldiers indicated that training was efficient or inefficient.

Didn't Train/Didn't Execute	
Mean	8.737705
Median	6
Mode	2
Standard Deviation	7.693941
Sample Variance	59.19672
Range	33
Minimum	1
Maximum	34
Count	61

Table 3. EFFICIENT EXCLUSION OF TRAINING TASKS

Table 3 indicates that on average, of the 63 tasks, Soldiers did not train and did not execute 8.7. However, both the standard deviation and variance of these 78 responses were very large.

Table 4 indicates that on average, Soldiers trained 11.8 tasks of the 63 possible, but did not later execute this task while deployed. Making the broad assumption that this was the result of poor planning by Leaders would be incorrect. However, the intent of this question was to determine if in general Soldiers were training for the proper tasks. Similar to the previous metric, there is a large standard deviation and variance in the Soldiers' responses. This is likely the result of the varied operational areas in which the Soldiers worked.

Trained but Did Not Execute	
Mean	11.89655
Median	8
Mode	1
Standard Deviation	11.42126
Sample Variance	130.4453
Range	54
Minimum	1
Maximum	55
Count	58

Table 4. POSSIBLE INEFFICIENT TRAINING WITH CAVEAT

These two tables offer some insight into making initial assumptions about the possible efficiency and inefficiency of Leaders when designing training. Every Leader strives to conduct streamlined, focused, and relevant training. However, Soldiers may or may not experience numerous events in the operational environment. Regardless, these metrics are important for accounting for the large discrepancy in numbers later when analyzing the results of Soldiers rating their training.

Taking into account the large variation in numbers of tasks Soldiers indicated not training for and not executing, and training for but not executing,

Table 5 indicates that on average, Soldiers rated their training of 47.7 tasks of the 71 possible. This means that nearly a third of the possible tasks did not require training in the opinion of the Soldiers.

TRAINING RATED	
Mean	47.78205
Median	51
Mode	57
Standard Deviation	14.06538
Sample Variance	197.835
Range	65
Minimum	1
Maximum	66
Count	78

Table 5. TASKS THAT SOLDIERS TRAINED AND EXECUTED

To determine the Soldiers' overall description of the effectiveness of training, normalization of the responses was necessary. On a five-point scale, with one being "Not Effective," and five being "Very Effective," one through five were assigned values of negative two, negative one, zero, one, and two, respectively. This established a common reference point for the responses—higher positive values indicate more effective training, and lower negative values indicate ineffective training. Using the *average* of 47.7 tasks rated for effectiveness by Soldiers, the normalized highest value one would expect is 95.4. One must not disregard the standard deviation for tasks the Soldiers trained and executed, for this standard deviation carries forward through all of the results.

The descriptive statistics of the Normalized ratings of training effectiveness are surprising. Using the averages previously mentioned, Soldiers rated their training on average at 26.1 out of 95.4 for effectiveness. However, the

largest number of responses did generally group at more- to very-effective. Yet, the standard deviation is very large, and so is the range. Skewness and kurtosis are very small, so one could conclude that the results are generally evenly distributed across the range of effectiveness.

NORMALIZED TRAINING RATINGS	
Mean	26.16666667
Median	29
Mode	30
Standard Deviation	36.09274369
Sample Variance	1302.686147
Kurtosis	-0.006987166
Skewness	-0.032580623
Range	166
Minimum	-56
Maximum	110

Table 6. TRAINING EFFECTIVENESS (-56 LEAST, 166 MOST)

Figure 12 provides a graphical representation of the total responses from all Soldiers across all tasks.

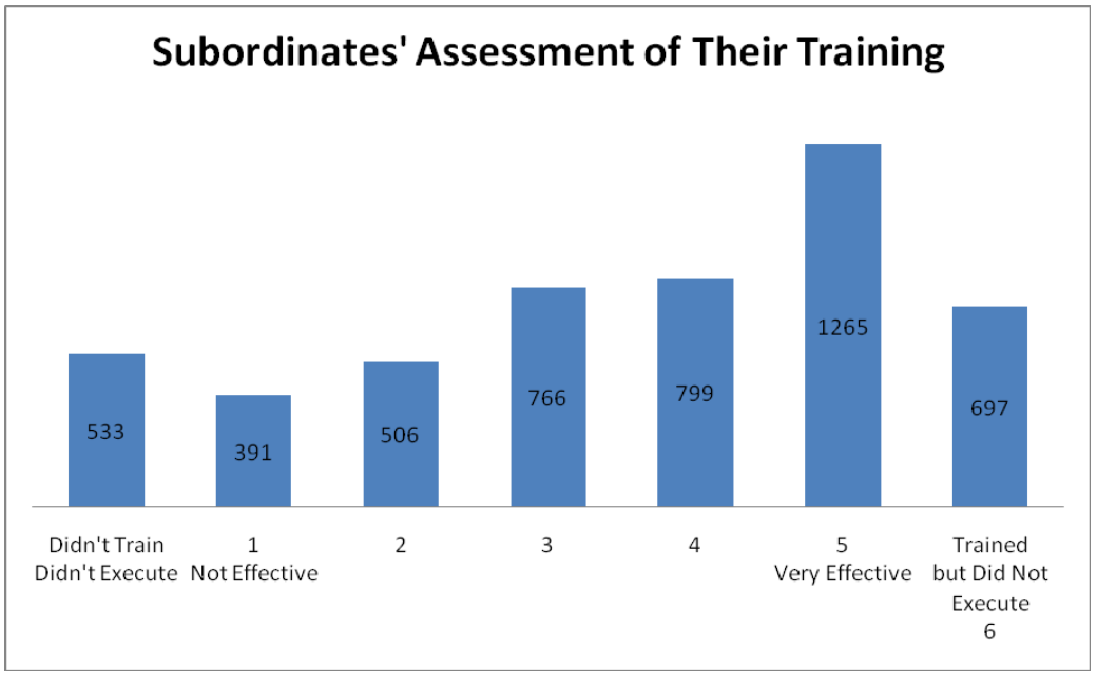

Figure 12. SUBORDINATES' ASSESSMENT OF THEIR TRAINING

B. CONCLUSIONS

The statistical analysis of the 162 survey responses indicates that environmental factors do influence decisions made when making training plans. This is not a surprise; the degree to which the factors bias decisions, and the resulting impacts on perceived effectiveness of training is considerable. If a Leader has perfect knowledge of the battlefield and was able to keep the myriad aspects affecting the relative merit of each training task organized then bias would not be an issue. Unfortunately, any one Leader is unable to know everything and simultaneously balance all the influences to prevent bias. The result is that many Leaders may become fixed along one line of thinking, or overly rely on a select few influences to guide decisions. The survey responses are telling, and clearly show that not including tasks had the greatest effect on training, followed by the tasks chosen for inclusion and those later receiving modified effort.

Properly excluding tasks could lead to more effective training since it allows for streamlining of effort and better allocation of scarce training time to more important tasks. The assumptions, however, are that the remaining available training time is allocated to the correct tasks, and that the tasks are excluded for the right reasons. The concern from the data in Figure 9 however is that some Leaders exclude tasks primarily because of time required and available resources. In effect, these are forced decisions. The majority of survey responses do not indicate that Leaders excluded tasks because of some feedback from deployed units or because operational trends dictated a prudent choice. One should infer that the implicit risk is that a Leader may inadvertently exclude a mission essential task simply because of adequate resources.

If it were possible to assist Leaders in gathering and implementing multiple influences and environmental factors, their decisions would be more uniform and possibly more effective. Leaders would be free to focus more on the qualitative analysis of what is most important and constantly refine the framework of their units' training. The survey results do not indicate that Leaders are making ineffective decisions and that training is inadequate. However, even though a majority of the subordinates rated their training as more- or very-effective, the number of subordinates' responses cover the range of effectiveness—from not effective all the way to very effective—and do not exhibit large amounts of skew. Therefore, one can conclude that while there is not a perceived ineffectiveness of training, there is also not a definite majority of perceived effectiveness. The goal is to conduct training that is primarily very effective instead of generally distributed across a qualitative scale.

When the Leaders answered why they included tasks, or did not include them, or modified the effort for certain tasks, in general, trends in the area of operations and communications with the deployed unit did not factor in as the predominant reasons for these decisions. One should wonder if heavily relying on the Commander's intent, or the Leader's past experience, is sufficient for tailoring homestation training to the operating environment. If the Commander's

visualization of the battlefield is mostly accurate, then that alone would be sufficient to shape training. However, should he/she be incorrect, then the one influence could harmfully alter training. If Leaders are striving to close the proficiency gap between their units and the units they will replace—and they should be, they should input multiple sources of information to make training relevant. Just as doctrine needs tempering with practicality, subjective opinions need tempering with reality and current existing conditions.

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V. A POTENTIAL SOLUTION: DECISION SUPPORT TOOL

> *To the extent that the factors of uncertainty and human judgment are significant, the accuracy of predictions is adversely influenced.*[109]
>
> - - Ephraim Kam

A. INTRODUCTION

To assist the commander or operations officer in allocating training time, the decision support tool introduced in this chapter uses a math model to provide an objective answer to a subjective question: how much to train a task? The intent is not to be proscriptive; rather, it is to serve as a guide or suggestion for the planner. The essence of the tool is to use historical frequencies as probabilities, combined with the commander's preferences, and time factors for each task, to assist the planner in efficiently planning training for his/her unit. Although the author at the Naval Postgraduate School designed the decision support tool, it is subjective to the user, who will assign characteristics and factors specific to his/her unit. The results are objective—free from personal bias beyond initial inputs—and mathematically correct according to probability and optimization.

The use of a mathematical model to assist decisionmaking in a dynamic setting like the contemporary operating environment—subject to numerous influences and human variables—may at first seem unrealistic. How is it possible to apply a hard science such as mathematics to such a vague situation like combat, or preparation for combat?

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[109] Ephraim Kam, "Judgmental Biases and Intelligence Analysis," in *Surprise Attack: The Victim's Perspective* (Cambridge, Mass.: Harvard University Press, 1988), 115, https://nps.blackboard.edu (accessed 11 May 2010).

The reason for using a mathematical model to assist in decisionmaking is applying probability. In addition, use of the model provides a systematic method to account for and implement numerous influences that most people would be unable to keep organized across dozens of tasks. The primary reason, however, is to use probability to assist in making choices. For those dubious about using a math model to make training decisions, a vignette illustrating the utility of math, and in particular probability, is in order.

The leaders of the Iranian hostage rescue in April 1980 aborted the mission after excessive aircraft loss, due to mechanical failure and accident jeopardizing the minimum rescue helicopter force size. After analysis of the fleet RH-53D helicopter operational readiness data from the previous year and a half, the planners concluded that having eight helicopters would provide adequate redundancy to airlift the assault force. The minimum number of aircraft required to complete the mission was six. The planners made the decision to fly two spares after examining the maintenance records and guessing that two additional aircraft would be ample; they did not use any math. Unfortunately, three out of the eight helicopters (37%) failed before reaching the refueling rendezvous point, dooming the mission even before the fatal collision of a helicopter and C130 aircraft.[110]

If, however, the planners had used a binomial probability distribution, with a 20% failure rate (gleaned from the year and a half of maintenance records), they would have known that they had only a 79% chance of six aircraft arriving at the refueling site if they launched eight. Working backwards, if the planners insisted on a 95% probability that six aircraft with a 20% failure rate would arrive mission capable at the refueling site, the binomial distribution would have indicated that they should have launched 10 aircraft.[111]

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[110] Captain Wayne Hughes Jr, *The Iranian Hostage Rescue Mission* (Naval Postgraduate School, Monterey, CA: Department of Operations Research [1981]) (accessed 4 September 2009).

[111] Ibid.

The point of this vignette is to illustrate the utility of using math, and in particular probability, to assist in decisionmaking. Probability is not a guarantee, however. Knowing the probability of an event and implementing it into a decision merely puts the odds in the decisionmaker's favor. A simple metaphor for the benefits of putting the odds in the decisionmaker's favor is running a foot race. Assume that Runner "A" can run the 100-yard dash 10% faster than Runner "B." In effect, Runner "A" is only running 90 yards. Knowing this, if it were possible to make any change to keep the race fair, Runner "B" should start 10 yards ahead of Runner "A." Starting "A" behind "B" does not guarantee that "B" will beat "A;" "B"'s ability is still an unknown. However, by using that known 10%, "B" can at least level the playing field and leverage the odds in his favor.[112]

Leaders can use probability in a similar fashion to assist in deciding what tasks to train before deployment. Using the frequency with which an event has occurred over a period of time, one can roughly approximate how likely it is to occur in the future, given that there are no drastic environmental changes. For example, while flipping a coin and getting heads the first time does not indicate that the person will flip a heads the second or third time, over time and after sufficient trials, the person will be able to detect that he/she will flip heads 50% of the time. Each trial of flipping a coin is mutually exclusive, and just because an event happens once does not mean that it will happen again. This model uses the frequency with which events requiring use of certain training tasks occurred to approximate how likely a similar event will occur in the future. This is not an exact prediction; yet, it is still useful in predicting trends.

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[112] The idea to include the Iran Hostage Rescue mission, and discussion of using probability in ones favor came from discussion with Prof. Gregory Mislick at the Naval Postgraduate School. During his SO3410 "Modeling for Special Operations II" class, Prof. Mislick introduced the concept of binomial distribution, and during subsequent instruction on probabilities, introduced the allegory of two runners to illustrate the benefits of using probability.

Additionally, use of a math model or program can allow implementation of numerous influences simultaneously and in a systematic manner instead of randomly or by chance. The math model is a way to consistently organize the influences in decision making so that accidental omission or emphasis does not occur.

B. MODEL THEORETICAL DESIGN

Optimization assists with resource allocation decisions, and in the case of pre-deployment training the resource is time. The math model for the Decision Support Tool sorts all of the decision variables and allocates time to each to optimize the utility of training. Each of the training tasks selected by the user becomes decision variables in the objective function. The constraint in the model is time available. The profit coefficients for each of the decision variables are the subjective values the Leader assigned based upon the commander's preference for the task and the historical frequency with which the task occurred in the unit's operational area. The user maximizes the utility of the objective function by allocating time to each of the training tasks in accordance with those having the greatest preference, historical frequency, and lowest cost in terms of time.

"Learning curves" for each task assist with efficiently allocating time. These curves model two discrete points: the minimum time one must train a task to begin learning it, and the time at which any further time devoted to a task provides diminishing returns in gained proficiency. For example, Soldiers can begin learning how to perform a task such as Perform CPR almost immediately, so therefore the minimum, or start learning time is zero. On the other hand, a task such as Operate Counter Remote-controlled improvised explosive device Electronic Warfare (CREW) may require substantially more time before Soldiers begin understanding the principles and operation, so therefore the minimum or start learning time could be two hours.

Conversely, a Soldier may master Performing CPR after one and a half hours, and Operating CREW after five hours, so any further time devoted to these tasks would provide diminishing returns and would be better spent training other tasks. Using these learning curves assists in developing constraints for the math model. The tasks with the steepest slope formed by these two points get time allocated to them sooner to reach proficiency, because these are the tasks to which any time allocated provides the greatest returns in terms of learned ability. So that the model returns results tailored to the Leader's preferences, the user can modify the curves based upon knowledge of their unit and provide the math model a set of constraints that prevent allocating too little or too much time to each task.[113]

The program is simple; it sorts the tasks and the background code allocates time in accordance with the priorities listed above. During the first run through the tasks chosen by the Leader, the model allocates each task enough time to reach the point at which Soldiers start to learn the task. During the second run the program then sorts the chosen tasks by the product of Priority and Frequency, and allocates enough time to each to reach proficiency, as defined by the learning curve for that task. The user has the option to change the weighting exponent for priority so that priority has more or less effect than frequency during allocation of time to reach proficiency. This is useful in cases where there may not be sufficient time to train all tasks to their point of proficiency. If any available time remains, the program then sorts the tasks again by Priority, with Frequency being a second index, and allocates all remaining time in the increment chosen by the user.

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[113] The author first envisioned the idea of using linear programming to optimize the utility of pre-deployment training during the SO4410 "Models of Conflict" course at the Naval Postgraduate School. Constant collaboration with the Operations Research Department and the TRADOC Analysis Center (TRAC) Monterey at the Naval Postgraduate School mitigated the author's not having the necessary higher math skills and allowed development of the working model and the subsequent Decision Support Tool. Specifically, CPT Ricky Brown and Mr. Jack Jackson from TRAC Monterey, and Prof. Matthew Carlyle from the OR Department, used the author's vision to formulate and design the math program to operationalize the model, All coding and program writing was done by these three gentlemen.

C. OPERATIONALIZING THE MODEL

The first step in using the model is the user selecting which tasks to train. These decisions could come after dialogue with the unit commander, research of trends in the operational area, and communication with the deployed unit in the Leader's unit's battlespace. Not all tasks in the contemporary operating environment are relevant to the operating environment. For example, very few units train Chemical, Biological, Radiological, Nuclear, high-yield Explosives (CBRNE) before deploying. These choices determine the decision variables for the model.

The second step is the user assigning a priority of one to five for each task based upon the commander's intent. This gives each task a ranking relative to the others and is purely subjective to indicate where the task falls in the commander's vision.

The third step is the user assigning a factor reflecting the historical frequency of the task being used in the operational area. This data comes from study of SIGACT reports, trends, and communication with the deployed unit. Using accurate figures reflecting how often Soldiers performed a task over a designated period of time is the best approximation of the probability that the task may be performed during a future event. This factor is by far the most imprecise because there is no guarantee that just because an event occurred previously that it will occur again. However, using this data allows the user to identify trends and further rank tasks according to the probability with which they will likely occur again.

The product of the priority that indicates commander's intent and the historical frequency reflecting probability becomes the coefficient for each task that determines the profit it will produce for the optimization. The user is able to ensure that the results of the model—while objective from the standpoint of math and probability—are accurate and specific for his/her unit by assigning subjective rankings and frequencies. A screen shot of the Decision Support Tool follows.

PREDEPLOYMENT TRAINING TASK SELECTION TOOL

Today	6/8/2010
Deploy	**6/14/2010**
Calendar Days until deploy	6
Training days until deploy	5
Training hours per day	**6**
Total training hours until deploy	30

		WEIGHT		Time req	Time req	**Excess Increments**
STEP 1: SELECT WHICH TASKS THE UNIT EXPECTS TO PERFORM IN THE AOR		**1.5**		**3.783333333**	**10.5**	**5**
Select	Task List	**Priority**	**Frequency**	Begin Learning	Proficient	Allocation
✔	AIR-GROUND INTEGRATION (AGI) --> EMPLOY ATTACK AVIATION	2	0.5	2.333333333	6	11
✔	ASSESS AND RESPOND TO THREATS (ESCALATION OF FORCE)	5	0.5	1.016666667	2.5714286	12.07142857
✔	COMPLETE BASIC LANGUAGE / CULTURE TRAINING	3	0.5	0.433333333	1.9285714	6.928571429
	COMPLETE BIOMETRICS TRAINING	5	0.5	0.85	1.9285714	
	COMPLETE COMBAT LIFESAVING SKILLS BY COMPLETING BASIC FIRST AID TASKS	5	0.5	2.5	3.8571429	
	PERFORM FIRST AID FOR A BLEEDING AND/OR SEVERED EXTREMITY	2	0.5	2.833333333	11.285714	
	PERFORM FIRST AID FOR AN OPEN ABDOMINAL WOUND	1	0.5	1.1	2.6666667	
	PERFORM FIRST AID FOR AN OPEN CHEST WOUND	3	0.5	1.566666667	8.8571429	
	PERFORM FIRST AID FOR AN OPEN HEAD WOUND	3	0.5	0.533333333	1.7142857	
	PERFORM FIRST AID FOR BURNS	3	0.5	0.85	1.7142857	
	PERFORM FIRST AID FOR HEAT INJURIES	3	0.5	0.458333333	1.25	
	PERFORM FIRST AID TO CLEAR AN OBJECT STUCK IN THE THROAT OF A CONSCIOUS CASUALTY	3	0.5	0.75	1.5714286	
	PERFORM FIRST AID TO PREVENT OR CONTROL SHOCK	3	0.5	0.958333333	1.5714286	
	PERFORM FIRST AID TO RESTORE BREATHING AND/OR PULSE	3	0.5	0.833333333	1.5714286	
	COMPLETE HOT AND COLD WEATHER INJURY TRAINING	3	0.5	0.708333333	1.4285714	

Figure 13. DECISION SUPPORT TOOL

To calculate how many training hours are available—the resource of time—the user inputs the expected end date of the training period (the model automatically assigns the current date as the start date). The Leader can refine the time available by indicating how many hours out of each day the unit will train, and by indicating any non-training days such as weekends, holidays, leave periods, etc.[114]

The user has numerous options to personalize the behavior of the model. Modifying the provided learning curves affects how much and in what order a task receives time. The profiles for these curves came from a random sampling of Leaders to provide constraints within which the model can begin optimization. The user may decide that his/her unit is at a different state of training on some tasks. For example, a seasoned unit may require less time to reach the point of diminishing returns for some tasks, and by changing this value on those tasks to reflect his/her unit's proficiency, the user will force the model to allocate that time elsewhere.[115] To cause the model to more closely follow the Commander's intent rather than the frequency events occur, the user can weight the priority. Lastly, the user can specify the increments in which the model allocates excess time to each task beyond proficiency to ensure more balanced extra training.

The dilemma that the model assists with is the decision to allocate time to high priority/low frequency versus low priority/high frequency tasks. Reacting to an IED strike may not occur that often (low frequency), but when it does, Soldiers must have complete proficiency in all individual skills related to this high priority event. On the other hand, an event such as navigating dismounted could have a lower priority in the Commander's estimate, but it may occur daily. Soldiers must

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[114] Prof. Matthew Boensel from the Systems Engineering Department at the Naval Postgraduate School design and developed the Excel user interface. Prof. Boensel received the author's concept and initial draft and wrote the code to produce a working program to act as the user interface for the Decision Support Tool.

[115] See Apendix C, "Learing Curve Data."

be just as proficient in recurring tasks as they must be in infrequent, yet high priority tasks. How does the Leader balance training between high priority/low frequency and low priority/high frequency tasks?

D. MODEL IMPLEMENTATION/EXPERIMENTAL RESULTS

Trials of the Decision Support Tool confirm that subjective influences will affect training plans. To simplify the experiments, the author selected a reduced number of tasks. In one experiment, the author assigned certain tasks higher priorities than others, but kept the frequency of each task equal. The Decision Support Tool first allocated time to all tasks so that each received the minimum required time. On subsequent loops, the tool assigned remaining time to the higher priority tasks first before exhausting available time.

These results indicate that the tool is able to allocate time consistent with the Commander's preferences. The results also confirm that Commanders' biases will affect training.

PREDEPLOYMENT TRAINING TASK SELECTION TOOL

Today	6/8/2010
Deploy	**7/23/2010**
Calendar Days until deploy	45
Training days until deploy	24
Training hours per day	**6**
Total training hours until deploy	144

				Time req	Time req	
		WEIGHT		Time req	Time req	**Excess Increments**
STEP 1: SELECT WHICH TASKS THE UNIT EXPECTS TO PERFORM IN THE AOR		**1**		**16.18333333**	**46.916667**	**5**
Select	Task List	**Priority**	**Frequency**	Begin Learning	Proficient	Allocation
✓	AIR-GROUND INTEGRATION (AGI) --> EMPLOY ATTACK AVIATION	5	0.5	2.333333333	6	16
✓	ASSESS AND RESPOND TO THREATS (ESCALATION OF FORCE)	5	0.5	1.016666667	2.5714286	12.57142857
✓	COMPLETE BASIC LANGUAGE / CULTURE TRAINING	5	0.5	0.433333333	1.9285714	11.92857143
✓	COMPLETE BIOMETRICS TRAINING	5	0.5	0.85	1.9285714	11.92857143
✓	COMPLETE COMBAT LIFESAVING SKILLS BY COMPLETING BASIC FIRST AID TASKS	4	0.5	2.5	3.8571429	13.85714286
✓	PERFORM FIRST AID FOR A BLEEDING AND/OR SEVERED EXTREMITY	4	0.5	2.833333333	11.285714	21.28571429
✓	PERFORM FIRST AID FOR AN OPEN ABDOMINAL WOUND	4	0.5	1.1	2.6666667	9.75
✓	PERFORM FIRST AID FOR AN OPEN CHEST WOUND	3	0.5	1.566666667	8.8571429	13.85714286
✓	PERFORM FIRST AID FOR AN OPEN HEAD WOUND	3	0.5	0.533333333	1.7142857	6.714285714
✓	PERFORM FIRST AID FOR BURNS	3	0.5	0.85	1.7142857	6.714285714
✓	PERFORM FIRST AID FOR HEAT INJURIES	2	0.5	0.458333333	1.25	6.25
✓	PERFORM FIRST AID TO CLEAR AN OBJECT STUCK IN THE THROAT OF A CONSCIOUS CASUALTY	2	0.5	0.75	1.5714286	6.571428571
✓	PERFORM FIRST AID TO PREVENT OR CONTROL SHOCK	1	0.5	0.958333333	1.5714286	6.571428571

Figure 14. RESULTS OF COMMANDER'S BIAS

In a second experiment, all tasks received the same priority, but some had higher frequencies than others. As predicted, the Tool assigned greater amounts of the time remaining to the tasks with higher frequencies first. These results validate the ability of the tool to adjust training consistent with real-world trends.

PREDEPLOYMENT TRAINING TASK SELECTION TOOL

Today	6/8/2010
Deploy	**7/23/2010**
Calendar Days until deploy	45
Training days until deploy	24
Training hours per day	**6**
Total training hours until deploy	144

		WEIGHT		Time req	Time req	**Excess Increments**
STEP 1: SELECT WHICH TASKS THE UNIT EXPECTS TO PERFORM IN THE AOR		**1**		**16.18333333**	**46.916667**	**5**
Select	Task List	**Priority**	**Frequency**	Begin Learning	Proficient	Allocation
✔	AIR-GROUND INTEGRATION (AGI) --> EMPLOY ATTACK AVIATION	5	0.1	2.333333333	6	11
✔	ASSESS AND RESPOND TO THREATS (ESCALATION OF FORCE)	5	0.2	1.016666667	2.5714286	7.571428571
✔	COMPLETE BASIC LANGUAGE / CULTURE TRAINING	5	0.3	0.433333333	1.9285714	6.928571429
✔	COMPLETE BIOMETRICS TRAINING	5	0.4	0.85	1.9285714	6.928571429
✔	COMPLETE COMBAT LIFESAVING SKILLS BY COMPLETING BASIC FIRST AID TASKS	5	0.5	2.5	3.8571429	8.857142857
✔	PERFORM FIRST AID FOR A BLEEDING AND/OR SEVERED EXTREMITY	5	0.6	2.833333333	11.285714	16.28571429
✔	PERFORM FIRST AID FOR AN OPEN ABDOMINAL WOUND	5	0.7	1.1	2.6666667	9.75
✔	PERFORM FIRST AID FOR AN OPEN CHEST WOUND	5	0.8	1.566666667	8.8571429	18.85714286
✔	PERFORM FIRST AID FOR AN OPEN HEAD WOUND	5	0.9	0.533333333	1.7142857	11.71428571
✔	PERFORM FIRST AID FOR BURNS	5	1.5	0.85	1.7142857	11.71428571
✔	PERFORM FIRST AID FOR HEAT INJURIES	5	2.5	0.458333333	1.25	11.25
✔	PERFORM FIRST AID TO CLEAR AN OBJECT STUCK IN THE THROAT OF A CONSCIOUS CASUALTY	5	3.5	0.75	1.5714286	11.57142857
✔	PERFORM FIRST AID TO PREVENT OR CONTROL SHOCK	5	4	0.958333333	1.5714286	11.57142857

Figure 15. RESULTS OF FREQUENCY

A third experiment with mixed priorities and frequencies produced varied time allocations consistent with the experimental inputs that most likely would not have been readily apparent to the Leader.

PREDEPLOYMENT TRAINING TASK SELECTION TOOL

Today	6/8/2010
Deploy	**7/23/2010**
Calendar Days until deploy	45
Training days until deploy	24
Training hours per day	**6**
Total training hours until deploy	144

				Time req	Time req	
		WEIGHT				**Excess Increments**
STEP 1: SELECT WHICH TASKS THE UNIT EXPECTS TO PERFORM IN THE AOR		**1**		**16.18333333**	**46.916667**	**5**
Select	Task List	**Priority**	**Frequency**	Begin Learning	Proficient	Allocation
✔	AIR-GROUND INTEGRATION (AGI) --> EMPLOY ATTACK AVIATION	5	0.1	2.333333333	6	16
✔	ASSESS AND RESPOND TO THREATS (ESCALATION OF FORCE)	4	0.2	1.016666667	2.5714286	12.57142857
✔	COMPLETE BASIC LANGUAGE / CULTURE TRAINING	3	0.3	0.433333333	1.9285714	6.928571429
✔	COMPLETE BIOMETRICS TRAINING	2	0.4	0.85	1.9285714	6.928571429
✔	COMPLETE COMBAT LIFESAVING SKILLS BY COMPLETING BASIC FIRST AID TASKS	1	0.5	2.5	3.8571429	8.857142857
✔	PERFORM FIRST AID FOR A BLEEDING AND/OR SEVERED EXTREMITY	2	0.6	2.833333333	11.285714	16.28571429
✔	PERFORM FIRST AID FOR AN OPEN ABDOMINAL WOUND	3	0.7	1.1	2.6666667	9.75
✔	PERFORM FIRST AID FOR AN OPEN CHEST WOUND	4	0.8	1.566666667	8.8571429	18.85714286
✔	PERFORM FIRST AID FOR AN OPEN HEAD WOUND	5	0.9	0.533333333	1.7142857	11.71428571
✔	PERFORM FIRST AID FOR BURNS	4	1.5	0.85	1.7142857	11.71428571
✔	PERFORM FIRST AID FOR HEAT INJURIES	3	2.5	0.458333333	1.25	11.25
✔	PERFORM FIRST AID TO CLEAR AN OBJECT STUCK IN THE THROAT OF A CONSCIOUS CASUALTY	2	3.5	0.75	1.5714286	6.571428571
✔	PERFORM FIRST AID TO PREVENT OR CONTROL SHOCK	1	4	0.958333333	1.5714286	6.571428571

Figure 16. RESULTS OF MIXED BIAS AND FREQUENCY

For a fourth experiment with less than the required time available, the tool returned allocations of the limited time consistent with the experimental priorities and conditions in the theoretical operating environment. Allocations colored green received enough time to reach proficiency. Red allocations received just enough time to start learning a task. Yellow allocations received more than the minimum, but less than the time required for proficiency. This demonstrates that the tool could assist Leaders in making difficult training decisions when the time available is not equal to the time required.

PREDEPLOYMENT TRAINING TASK SELECTION TOOL

Today	6/8/2010
Deploy	**6/15/2010**
Calendar Days until deploy	7
Training days until deploy	6
Training hours per day	**6**
Total training hours until deploy	36

				Time req	Time req	
		WEIGHT				**Excess Increments**
STEP 1: SELECT WHICH TASKS THE UNIT EXPECTS TO PERFORM IN THE AOR		**1**		**16.18333333**	**46.916667**	**5**
Select	Task List	**Priority**	**Frequency**	Begin Learning	Proficient	Allocation
✓	AIR-GROUND INTEGRATION (AGI) --> EMPLOY ATTACK AVIATION	5	0.1	2.333333333	6	2.333333333
✓	ASSESS AND RESPOND TO THREATS (ESCALATION OF FORCE)	5	0.2	1.016666667	2.5714286	1.016666667
✓	COMPLETE BASIC LANGUAGE / CULTURE TRAINING	5	0.3	0.433333333	1.9285714	0.433333333
✓	COMPLETE BIOMETRICS TRAINING	5	0.4	0.85	1.9285714	0.85
✓	COMPLETE COMBAT LIFESAVING SKILLS BY COMPLETING BASIC FIRST AID TASKS	4	0.5	2.5	3.8571429	2.5
✓	PERFORM FIRST AID FOR A BLEEDING AND/OR SEVERED EXTREMITY	4	0.6	2.833333333	11.285714	9.521428571
✓	PERFORM FIRST AID FOR AN OPEN ABDOMINAL WOUND	4	0.7	1.1	2.6666667	2.666666667
✓	PERFORM FIRST AID FOR AN OPEN CHEST WOUND	3	0.8	1.566666667	8.8571429	8.857142857
✓	PERFORM FIRST AID FOR AN OPEN HEAD WOUND	3	0.9	0.533333333	1.7142857	1.714285714
✓	PERFORM FIRST AID FOR BURNS	3	1	0.85	1.7142857	1.714285714
✓	PERFORM FIRST AID FOR HEAT INJURIES	2	1.5	0.458333333	1.25	1.25
✓	PERFORM FIRST AID TO CLEAR AN OBJECT STUCK IN THE THROAT OF A CONSCIOUS CASUALTY	2	2	0.75	1.5714286	1.571428571
✓	PERFORM FIRST AID TO PREVENT OR CONTROL SHOCK	1	3	0.958333333	1.5714286	1.571428571

Figure 17. RESULTS FROM NOT HAVING ENOUGH TIME

E. CONCLUSIONS

All of these experiments validate the hypotheses in this thesis, and the Decision Support Tool's ability to predict results consistent with the hypotheses. In addition, the tool is able to return objective outputs in keeping with the subjective inputs of the Leader using the tool. The odds of a future leader adhering to the exact time allocations provided by the tool are practically zero. Nevertheless, the utility of the tool is that it cuts through all the random influences that would cause a Leader to question how and where to allocate time. Instead of randomly scheduling training, the Leader will have a guide with which to plan training that strictly adheres to trends and priorities.

According to the sample values obtained for the learning curves of time required to reach minimum and maximum proficiency, a Soldier needs 75.685 hours and 271.8 hours, respectively. A rudimentary calculation of Soldiers training 12 hours per day (six hours of sleep and three hours for meals) reveals that it is possible to train every DMETL task to proficiency in only 22.65 days. This rough calculation assumes that Soldiers train constantly for all 12 hours per day. With most units having anywhere from six months to a year to prepare for deployment, there appears to be no problem finding the necessary time to train. However, when one factors in weekends, holidays, events external to the unit, AARs, movement to and from training areas, etc., real useable training time is actually much less.

During the research of this thesis, two of the surveyed brigade combat teams had received change of mission orders late in their training cycles forcing them to conduct mission analysis and retrain for a different theater. One brigade combat team received its change of mission during its mission rehearsal exercise, which typically occurs approximately 60 days from deployment. The Decision Support Tool could assist a unit in a similar situation in retooling training when its operational area or environment changes.

The Decision Support Tool is helpful for tailoring training to make it relevant. If a Leader were to make the effort to seek inputs from a deployed unit by studying SIGACT logs and storyboards and find out what skills were most mission essential, and integrate the Commander's intent, it may be possible to design training at homestation that will most replicate the operational environment. This would assist the Leader in closing the gap between the deploying unit's preparedness and the deployed unit's experience.

VI. FINDINGS

The goal in training is achieving mastery, not just proficiency.[116]

-FM 7-0, Training for Full Spectrum Operations

The intent of this thesis was to determine if it were possible to develop a systematic method for conducting better pre-deployment training. The first step was to consult the literature and see if there are any accepted solutions for planning realistic and relevant training for deploying units. Due to a lack of published information, use of surveys first verified influences in the contemporary operating environment and then determine their effects. The second purpose of the surveys was to determine if some influences resulted in better training than others. The last step of the research was to develop a math model to simulate the effects of influences in order to confirm the hypotheses relating to influences in the contemporary operating environment. The math model proved effective at simulating the effects of influences on training; it is therefore applicable as a tool for inputting various real world influences to develop objective training plans.

This thesis reveals four major findings and recommendations.

- **ARFORGEN CAN HAVE AN ADVERSE IMPACT ON PRE-DEPLOYMENT TRAINING**

Numerous Leaders interviewed for this thesis expressed frustration with ARFORGEN's impacts on training. Although the intent of ARFORGEN is to reset units with the necessary personnel, equipment, and training to prepare them for their next deployment, its processes often impede effective training.

[116] U.S. Army Combined Arms Center, *FM 7-0 (Training for Full Spectrum Operations)*, 2–8.

With respect to personnel, numerous Leaders and staff officers commented on the effects staff changeover had on unit training. One brigade commander specifically commented that HRC needs to fix its model for personnel fill.[117] At the unit-level, one 1SG commented, "It is impossible to train when you do not have all of your pax. You start individual training without the individuals present, so you end up spending the year re-training the same tasks, time provided, once people come in."[118] The effects of personnel turbulence at all levels is obvious: it affects training at echelons above and below. The most telling of comments relating to personnel turbulence is that from an E5 engineer:

> I came to the unit before deployment. I didn't get a lot of the training the rest of the company got. … I honestly feel that if it wasn't for the training I received with the Guard in 2005 I wouldn't have been ready for combat with this unit in 2008. … I got no training from my unit but I did execute a lot of tasks down range.[119]

The most outspoken during surveys were logistics units speaking about their equipping and resourcing for training. Closely behind this were units in general talking about having enough time to train on equipment with which they would deploy. One E7 truck driver said that,

> Support Soldiers in BCTs (primarily in FSCs) are becoming more like maneuver forces yet training and equipment allocations are not sufficient in comparison to that of traditional infantry maneuver platoons.[120]

The author received comments similar to these during every meeting with logistics units in the four BCTs surveyed for this thesis. Maneuver units commented that they wished they had received new equipment at least prior to their unit mission rehearsal exercises so they could integrate it in operations. An

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[117] Anonymous quote from personal interview during surveys.

[118] Anonymous quote to author collected during surveys.

[119] Ibid.

[120] Anonymous quote to author collected during surveys.

E6 engineer commented, “Without the equipment we cannot effectively use it once we hit boots on the ground overseas. Instead we spend two weeks to one month training Soldiers once there and miss out on critical time to do COIN operations.”[121]

To remedy the effects ARFORGEN has on personnel—which affects training for units, one brigade operations officer went so far as to schedule the same mobile training teams twice: once at the mid-point of his brigade’s trainup, and once at the end after their mission rehearsal exercise. He said that he knew a lot of the Soldiers needing this training would not be available or assigned during the initial period of training, so he decided to reinforce this training again months later when he was confident that his brigade has received its personnel fill. [122]

For ARFORGEN to have its intended effects on Army preparedness, units must have a majority of their personnel fills and new equipment prior to starting their training.

- **AFGHANISTAN REQUIRES UNIQUELY TAILORED TRAINING**

The literature suggested that units must train differently for counterinsurgency because a diverse approach is necessary. COIN requires a blend of both traditional warfighting skills for kinetic operations, and also non-traditional skills such as partnering, population engagement, cultural sensitivity, and language proficiency for non-kinetic operations. Regrettably, the literature provides ample discussion and guidance on what training is necessary for non-kinetic operations to the exclusion of individual Soldier skills. It is dangerous to overlook these, because even though COIN is not major combat operations, once the insurgents engage U.S. forces, the differences disappear. With the high operational tempo for units deploying to Afghanistan, coupled with the

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[121] Anonymous quote to author collected during surveys.

[122] Personal communication to author during interview.

necessity to train for myriad missions across the spectrum of conflict, training basic individual skills—while seeming straightforward in comparison—receives less focus. Regarding training basic skills, one 1SG commented, "New soldiers require the basics prior to executing more complex tasks. … core proficiencies trained to a high level build flexibility to accomplish the many varied tasks that may be assigned in theater."[123] Unfortunately, the consequences of not having proper training in the right individual skills can be far more catastrophic than the consequences of botching a key leader engagement.

While the literature did not identify a method for better task selection, the collection of AARs and monographs did offer a wealth of suggestions for what skills are mission essential. Numerous leaders at the company level related what skills they found were most useful for their Soldiers, and what they would train differently if they were to advise other commanders who were deploying. The most recurring recommendations from Leaders included: physical conditioning, Soldiers cross-training on all weapons and crew tasks, long range marksmanship, proficiency with all communications systems, and combat support units training like maneuver units. Nonetheless, the suggestions were the results of empirical experience. Is there a method to get it closer to "Right" before deploying?

To ensure focused and relevant training, deploying Leaders should take every opportunity to research written material on the CALL Web site and other forums, and establish early communication with the units they are replacing. Information gained as a result of this will allow for updating the Commander's estimate.

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[123] Anonymous quote to author collected during surveys.

- **RESOURCES, INSTEAD OF OPERATIONAL TRENDS AND DIALOGUE WITH DEPLOYED UNITS, DRIVE TRAINING**

Because the literature only obliquely addressed individual skills but did not discuss factors that can and should affect training, research included surveys of units to ascertain what caused Leaders to choose and exclude tasks from training. The surveys revealed that certain factors did influence Leaders' decisions when planning training and the subjects confirmed that in some cases one or two influences affected their decisions far more than the rest. The results confirmed the experimental hypotheses.

The results of the surveys initially did not reveal anything unexpected. Time and available resources were the predominant reasons why certain tasks were not trained. Units simply did not have the ability to train some things. Leaders chose to include tasks primarily because of biases: the Commander's intent and the Leaders' previous deployment experiences. Units subsequently adjusted their priorities and allocation of effort during training for the same reasons they excluded tasks: Time and Resources. Post deployment, a majority of Soldiers indicated that their training was very effective. However, there was not significant skew in the responses. In other words, Soldiers' responses rating their training from Ineffective to Very Effective covered the entire range, although a majority did answer Very Effective.

That Time and Resources were the primary reasons Leaders excluded tasks and also subsequently modified their effort indicates that ARFORGEN is not completely synchronized with units in the Train phase. The survey results indicate that some decisions by Leaders are forced choices. Resources have always driven training, contrary to how the process is supposed to work. However, if resources curtail training to the point that necessary training is affected, then Soldiers may have issues later while deployed. Commander's intent and the Leader's experience produced the greatest biases in why units chose to train certain tasks. The Commander ultimately decides what the unit trains, so this is not a detractor from expected results. However, if a subordinate

leader were to train only what the Commander wanted, and the Commander had not defined the problem statement for the operational area correctly, then all training would be skewed to represent his/her biases. Similarly, if training plans were simply the manifestation of a Leader's past experience, and the plans were not continually refined as the operational environment evolved, then training would cease to be relevant and realistic.

Among the brigade and battalion operations officers interviewed for this thesis, there was not a consensus on how much deploying Leaders should "go their own way" versus incorporate lessons learned from deployed units. Methods of operation excessively focused on the former could reinforce the paradigm of relearning old lessons the hard way instead of picking up where the previous unit left off. On the other hand, too much reliance on the latter methods, when not refreshed with constant analysis and refinement, leads to stale ideas that are not dynamic to match dynamic situations.

The same recommendations for the previous finding apply here. By conducting thorough research and establishing communications with deployed units, Leaders and staffs will be able to identify what training is essential, and therefore warrants spending of limited resources. Being armed with the right documentation can help to justify requests to a higher headquarters.

- **SOLDIERS GENERALLY PERCEIVE THEIR TRAINING AS EFFECTIVE, ALTHOUGH, ACCORDING TO MATHEMATICAL RESULTS, IT IS THE LEADER'S DECISION REGARDING WHAT TO EXCLUDE TO PRODUCE THE MOST EFFECTIVE TRAINING**

Interestingly, skew analysis and comparison of Leaders' choices with subordinates' rating of their training indicated that decisions to not include certain tasks had the greatest impact on effective training. Multiple conclusions can be drawn from this. One of which is that by excluding some tasks, Leaders were able to devote that time to other more important tasks. Another possible conclusion is that Leaders were able to guess which tasks would not be mission essential, and Soldiers therefore perceived their training as more effective and

focused. An important caveat to this finding is that only one post-deployment subordinate population was available for surveying, and this population was not from the same unit as the Leaders whose choices were compared against. By summing all of the Leaders' responses in this research, the assumption was made that their answers were representative of most Leaders.

Due to a limited sample size of units available for research, multiple parallel studies of Leaders' decisions made during pre-deployment training and post-deployment questioning of Soldiers to gauge the effectiveness of their Leaders' task selection processes was not possible. A suggestion for a future researcher with at least two years' time would be to track multiple units all the way through the ARFORGEN process: from the planning of pre-deployment training, through training, and after redeployment. Studies of numerous units would further refine and identify the thought processes of Leaders and assist in confirming if there are any universal patterns. Correlating these patterns with their subordinates' rating of their training would help to determine what processes are more effective than others.

Leaders need to make decisions to prioritize tasks after careful analysis of the operating environment. The Decision Support Tool developed in this thesis has the ability to assist Leaders in identifying the correct training tasks and allocating proper time. It uses optimization to allocate time to training selected tasks in a manner to produce the greatest utility concurrent with the Leader's priorities and the frequency of task use. After selection, each task received a priority of one to five, and a frequency from the number of occurrences divided by the time of observation. This frequency is a valid descriptor of trends and is the closest possible approximation to historical probability available to predict future trends. The model was initially effective in confirming the causal arguments introduced in Chapter II. By inputting experimental values for commander's preferences and frequencies, the model's output produced training plans that represented the subjective inputs. Having validated the hypotheses and producing outputs consistent with the user's inputs, the model has shown itself to

be a valid Decision Support Tool for future use by Leaders seeking mathematically correct objective results for their subjective inputs.

Future refinements of the Decision Support Tool could include linking it to some database that constantly updates the tasks list with the regularly occurring FRAGO listing required mission essential tasks. A tool that updates itself automatically with the tasks and Web links to online resources associated with the tasks would assist in providing the Leader with options for training. Another refinement to the tool that would assist in decisionmaking is being able to more dynamically model the tradeoff between high priority/low frequency and low priority/high frequency tasks. Just as a Commander's intent cannot always trump the environmental conditions, the conditions cannot rule out the Commander's desired endstate. Being able to incorporate these factors into the model would aid in allowing the Leader to fine tune training.

Research for this thesis did not reveal that there are systemic shortcomings in Army Leaders' methods or techniques for pre-deployment training. The goal of this thesis was not to find fault with units' training. The intent was to verify that certain factors influenced training and determine the effects of those influences on training. Once the results of those effects were found, a methodology for planning better training was introduced.

The author, however, was unable to find any published Army manuals or literature referencing best practices for planning pre-deployment training from former commanders. While there was a large quantity of published AARs and monographs on the CALL Web site discussing what units subsequently learned, there were only scant references in other documents describing possible methodologies for deploying Leaders. The Army could capture best practices and publish a set of principles, not guidelines. Guidelines could become too parochial, and stifle innovation.

The aim of this thesis is not to question why the Army has not provided a checklist of what to do for deploying Leaders. A Leader's job is to constantly

assess the situation and adjust priorities accordingly. Providing a rote checklist would stifle initiative and discourage Leaders from being innovative and creative. The tool is nothing more than an application to stimulate analysis and aid in decision-making. If Leaders were to use this Decision Support Tool, or any published checklist for that matter as the sole method for planning pre-deployment training, they would become reliant upon the deployed units for all the answers. The outgoing unit is and should be an excellent source of information. However, the operating environment is dynamic, and what worked in one situation may not always work in the next. Each Leader is responsible for doing his/her own analysis, and that is the intent of this tool.

Army Leaders have the awesome responsibility to prepare their Soldiers to deploy, fight, win, and come home. Focusing on graduate-level counterinsurgency, should not be to the exclusion of training basic Soldiers skills; for it is those individual skills that enable Soldiers to perform the more complex missions. Reducing the proficiency gap between preparation and deployment—the First Hundred Days, is the first step in making Soldiers more initially mission proficient. It is possible to provide Soldiers arriving to an operational area with close to the same proficiency in skills as those Soldiers who are completing their tour. The First Hundred Days would be far shorter, and during this time, Soldiers would be able to focus on learning the specifics of their environment, instead of learning skills with which they should have initially deployed. The enemy will have much less of a window to exploit, U.S. allies and partners will have more confidence in the mission, and Soldiers will be more effective and survivable.

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APPENDIX A PRE-DEPLOYMENT SURVEY

INFANTRY CAV/ARMOR FIELD ARTILLERY SAPPER LOGISTICS MP **1SG PSG PL CO S3 SGM** **PLEASE CIRCLE BRANCH AND DUTY POSITION**

Please examin the following list of Mission Essential Tasks. For each task,
1. First, if this was not included in your training plan, please indicate the reason or reason(s).
2. If it was included, please indicate the reason or reason(s) you included

	Not Included				Included					Execution					Modified Effort					If Task Added					If Task Deleted				
	Resources	Commo w/unit in AO	Trends in AO	Time	CDR's Intent	Past Experience	Knowlege of AO	Ease of Resourcing	Published Lessons Learned	Not Adequate				Very Adequate	Resources	Commo w/unit in AO	Knowledge of Trends in AO	Time	CDR's Guidance	Resources	Commo w/unit in AO	Knowledge of Trends in AO	Time	CDR's Guidance	Resources	Commo w/unit in AO	Knowledge of Trends in AO	Time	CDR's Guidance
	1	2	3	4	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
CONDUCT LAW OF WAR TRAINING																													
PERSONNEL RECOVERY (PR) TRAINING																													
COMPLETE MEDIA AWARENESS TRAINING																													
QUALIFY WITH INDIVIDUAL WEAPON																													
CONDUCT SHORT RANGE MARKSMANSHIP (CQB / Reflexive Fire)																													
CONDUCT LONG RANGE MARKSMANSHIP (Known Distance / 300m-500m)																													
QUALIFY WITH CREW SERVE WEAPON SYSTEM IF ASSIGNED																													
EMPLOY CLAYMORE MINE AND HAND GRENADES																													
ENGAGE TARGETS AT NIGHT WITH WEAPON USING NIGHT EQUIPMENT																													
PERFORM VOICE COMMUNICATIONS SITREP/SPOTREP/9-LINE MEDEVAC																													
PERFORM MOVEMENT TECHNIQUES DURING AN URBAN OPERATION																													
ENGAGE TARGETS DURING AN URBAN OPERATION																													
DETERMINE LOCATION ON GROUND (TERRAIN ASSOCIATION, MAP & GPS)																													
NAVIGATE FROM ONE POINT TO ANOTHER (DISMOUNTED)																													
MOVE OVER, THROUGH, OR AROUND OBSTACLES UNDER FIRE																													
REACT TO INDIRECT FIRE (DISMOUNTED & MOUNTED)																													
REACT TO DIRECT FIRE (DISMOUNTED & MOUNTED)																													
REACT TO UNEXPLODED ORDNANCE HAZARD																													
REACT TO MAN-TO-MAN CONTACT (COMBATIVES)																													
REACT TO CHEMICAL OR BIOLOGICAL ATTACK/HAZARD & DECON																													
SELECT TEMPORARY FIGHTING POSITION																													
COMPLETE COMBAT LIFESAVING SKILLS BY COMPLETING BASIC FIRST AID TASKS																													
TRANSPORT A CASUALTY																													
CONDUCT GROUND OR AIR CASEVAC/MEDEVAC																													
ASSESS AND RESPOND TO THREATS (ESCALATION OF FORCE)																													
PERFORM FIELD SANITATION AND PREVENTATIVE MEDICINE FIELD CRAFT																													
PERFORM DETAINEE OPERATIONS AT POINT OF CAPTURE																													
PERFORM SNIPER COUNTERMEASURES																													
COMPLETE HOT AND COLD WEATHER INJURY TRAINING																													
CONDUCT VEHICLE OPERATOR TRAINING (DRIVING, ROLLOVER, NIGHT VISION)																													
COMPLETE COUNTRY ORIENTATION BRIEF																													
COMPLETE RULES OF ENGAGEMENT TRAINING																													
CONDUCT DESERT ENVIRONMENT TRAINING																													
COMPLETE MINE AWARENESS TRAINING																													
COMPLETE BASIC LANGUAGE / CULTURE TRAINING																													
COMPLETE SUICIDE PREVENTION TRAINING																													
COMPLETE BIOMETRICS (BATS & HIIDES) TRAINING																													

	Not Included				Included					Execution					Modified Effort					If Task Added					If Task Deleted				
	Resources	Commo w/unit in AO	Trends in AO	Time	CDR's Intent	Past Experience	Influence of OE	Ease of Resourcing	Published Lessons Learned	Not Adequate				Very Adequate	Resources	Commo w/unit in AO	Trends in AO	Time	CDR's Guidance	Resources	Commo w/unit in AO	Trends in AO	Time	CDR's Guidance	Resources	Commo w/unit in AO	Trends in AO	Time	CDR's Guidance
	1	2	3	4	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
REACT TO AN IMPROVISED EXPLOSIVE DEVICE (IED) ATTACK																													
PREPARE FOR AN IMPROVISED EXPLOSIVE DEVICE (IED) THREAT PRIOR TO MOVEMENT																													
REACT TO A VEHICLE BORNE IED (VBIED)																													
PERFORM A NINE LINE UXO/IED EXPLOSIVE HAZARD (EH) SPOT REPORT																													
REACT TO CONTACT																													
REACT TO INDIRECT FIRE																													
BREAK CONTACT																													
REACT TO AMBUSH (NEAR)																													
REACT TO AMBUSH (FAR)																													
REACT TO VEHICLE ROLL-OVER																													
ENTER AND CLEAR A ROOM																													
SUPERVISE & CONDUCT CONVOY OPERATIONS																													
CONDUCT CALL FOR FIRE																													
SUPERVISE HANDLING OF ENEMY PERSONNEL AND EQUIPMENT																													
CONDUCT PRE-COMBAT CHECKS/INSPECTION OF COMBAT PATROLS																													
SUPERVISE TRAFFIC CONTROL POINTS OR CHECKPOINTS																													
PERFORM NEGOTIATIONS/KEY LEADER ENGAGEMENTS																													
PLAN AND CONDUCT MOUNTAINOUS OPNS																													
CONDUCT CROWD CONTROL																													
CONDUCT LIVE FIRE EXERCISES																													
COORDINATE WITH COALITION FORCES																													
OPERATE COUNTER REMOTE-CONTROLLED IMPROVISED EXPLOSIVE DEVICE ELECTRONIC WARFARE (CREW) TRAINING																													
NON-LETHAL (NL) CAPABILITIES (LASERS, LIGHTS, ETC.)																													
AIR-GROUND INTEGRATION (AGI); EMPLOY ATTACK AVIATION (CCA)																													
SENSITIVE SITE EXPLOITATION																													
CONDUCT CORDON & SEARCH																													

APPENDIX B POST-DEPLOYMENT SURVEY

MI INFANTRY CAV/ARMOR FIELD ARTILLERY SAPPER LOGISTICS MP GRADE

Please examine each Mission Essential Task that you may or may not have executed while deployed, and indicate how well your pre-deployment training prepard you to execute this task. "Pre-Deployment Training" is any training conducted at your homestation

	Did Not Train & Did Not Execute	Effectiveness of Training					Trained but DID NOT Execute
		Not Trained/Not Effective				Very Effective	
	0	1	2	3	4	5	6
CONDUCT LAW OF WAR TRAINING							
PERSONNEL RECOVERY (PR) TRAINING							
COMPLETE MEDIA AWARENESS TRAINING							
QUALIFY WITH INDIVIDUAL WEAPON							
CONDUCT SHORT RANGE MARKSMANSHIP (CQB / Reflexive Fire)							
CONDUCT LONG RANGE MARKSMANSHIP (Known Distance / 300m-500m)							
QUALIFY WITH CREW SERVE WEAPON SYSTEM IF ASSIGNED							
EMPLOY CLAYMORE MINE AND HAND GRENADES							
ENGAGE TARGETS AT NIGHT WITH WEAPON USING NIGHT EQUIPMENT							
PERFORM VOICE COMMUNICATIONS SITREP/SPOTREP/9-LINE MEDEVAC							
PERFORM MOVEMENT TECHNIQUES DURING AN URBAN OPERATION							
ENGAGE TARGETS DURING AN URBAN OPERATION							
DETERMINE LOCATION ON GROUND (TERRAIN ASSOCIATION, MAP & GPS)							
NAVIGATE FROM ONE POINT TO ANOTHER (DISMOUNTED)							
MOVE OVER, THROUGH, OR AROUND OBSTACLES UNDER FIRE							
REACT TO INDIRECT FIRE (DISMOUNTED & MOUNTED)							
REACT TO DIRECT FIRE (DISMOUNTED & MOUNTED)							
REACT TO UNEXPLODED ORDNANCE HAZARD							
REACT TO MAN-TO-MAN CONTACT (COMBATIVES)							
REACT TO CHEMICAL OR BIOLOGICAL ATTACK/HAZARD & DECON							
SELECT TEMPORARY FIGHTING POSITION							
COMPLETE COMBAT LIFESAVING SKILLS BY COMPLETING BASIC FIRST AID TASKS							
TRANSPORT A CASUALTY							
CONDUCT GROUND OR AIR CASEVAC/MEDEVAC							
ASSESS AND RESPOND TO THREATS (ESCALATION OF FORCE)							
PERFORM FIELD SANITATION AND PREVENTATIVE MEDICINE FIELD CRAFT							
PERFORM DETAINEE OPERATIONS AT POINT OF CAPTURE							
PERFORM SNIPER COUNTERMEASURES							
COMPLETE HOT AND COLD WEATHER INJURY TRAINING							
CONDUCT VEHICLE OPERATOR TRAINING (DRIVING, ROLLOVER, NIGHT VISION)							
COMPLETE COUNTRY ORIENTATION BRIEF							
COMPLETE RULES OF ENGAGEMENT TRAINING							
CONDUCT DESERT ENVIRONMENT TRAINING							
COMPLETE MINE AWARENESS TRAINING							
COMPLETE BASIC LANGUAGE / CULTURE TRAINING							
COMPLETE SUICIDE PREVENTION TRAINING							
COMPLETE BIOMETRICS (BATS & HIIDES) TRAINING							
REACT TO AN IMPROVISED EXPLOSIVE DEVICE (IED) ATTACK							
PREPARE FOR AN IMPROVISED EXPLOSIVE DEVICE (IED) THREAT PRIOR TO MOVEMENT							
REACT TO A VEHICLE BORNE IED (VBIED)							
PERFORM A NINE LINE UXO/IED EXPLOSIVE HAZARD (EH) SPOT REPORT							
REACT TO CONTACT							
REACT TO INDIRECT FIRE							
BREAK CONTACT							
REACT TO AMBUSH (NEAR)							
REACT TO AMBUSH (FAR)							
REACT TO VEHICLE ROLL-OVER							
ENTER AND CLEAR A ROOM							
SUPERVISE & CONDUCT CONVOY OPERATIONS							
CONDUCT CALL FOR FIRE							
SUPERVISE HANDLING OF ENEMY PERSONNEL AND EQUIPMENT							
CONDUCT PRE-COMBAT CHECKS/INSPECTION OF COMBAT PATROLS							
SUPERVISE TRAFFIC CONTROL POINTS OR CHECKPOINTS							
PERFORM NEGOTIATIONS/KEY LEADER ENGAGEMENTS							
PLAN AND CONDUCT MOUNTAINOUS OPNS							
CONDUCT CROWD CONTROL							
CONDUCT LIVE FIRE EXERCISES							
COORDINATE WITH COALITION FORCES							
OPERATE COUNTER REMOTE-CONTROLLED IMPROVISED EXPLOSIVE DEVICE ELECTRONIC WARFARE (CREW) TRAINING							
NON-LETHAL (NL) CAPABILITIES (LASERS, LIGHTS, ETC.)							
AIR-GROUND INTEGRATION (AGI); EMPLOY ATTACK AVIATION (CCA)							
SENSITIVE SITE EXPLOITATION							
CONDUCT CORDON & SEARCH							

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APPENDIX C LEARNING CURVE DATA

TaskList	Begin Learning	Proficient
AIR-GROUND INTEGRATION (AGI) --> EMPLOY ATTACK AVIATION	2.333333333	6
ASSESS AND RESPOND TO THREATS (ESCALATION OF FORCE)	1.016666667	2.5714286
COMPLETE BASIC LANGUAGE / CULTURE TRAINING	0.433333333	1.9285714
COMPLETE BIOMETRICS TRAINING	0.85	1.9285714
COMPLETE COMBAT LIFESAVING SKILLS BY COMPLETING BASIC FIRST AID TASKS	2.5	3.8571429
PERFORM FIRST AID FOR A BLEEDING AND/OR SEVERED EXTREMITY	2.833333333	11.285714
PERFORM FIRST AID FOR AN OPEN ABDOMINAL WOUND	1.1	2.6666667
PERFORM FIRST AID FOR AN OPEN CHEST WOUND	1.566666667	8.8571429
PERFORM FIRST AID FOR AN OPEN HEAD WOUND	0.533333333	1.7142857
PERFORM FIRST AID FOR BURNS	0.85	1.7142857
PERFORM FIRST AID FOR HEAT INJURIES	0.458333333	1.25
PERFORM FIRST AID TO CLEAR AN OBJECT STUCK IN THE THROAT OF A CONSCIOUS CASUALTY	0.75	1.5714286
PERFORM FIRST AID TO PREVENT OR CONTROL SHOCK	0.958333333	1.5714286
PERFORM FIRST AID TO RESTORE BREATHING AND/OR PULSE	0.833333333	1.5714286
COMPLETE HOT AND COLD WEATHER INJURY TRAINING	0.708333333	1.4285714
EVALUATE A CASUALTY (TACTICAL COMBAT CASUALTY CARE)	1.5	6
CONDUCT GROUND OR AIR CASEVAC/MEDEVAC	1.683333333	6.1428571
COMPLETE COUNTRY ORIENTATION BRIEF	1.166666667	3.1428571
COMPLETE MEDIA ENGAGEMENT TRAINING	1.041666667	1.8571429
COMPLETE MINE AWARENESS TRAINING	0.433333333	1.3571429
COMPLETE SUICIDE PREVENTION TRAINING	0.5	1.5714286
CONDUCT CALL FOR FIRE	3	10.714286
CONDUCT CORDON & SEARCH	0.85	1.6428571
CONDUCT CROWD CONTROL	1.016666667	3.2857143
CONDUCT DESERT ENVIRONMENT TRAINING	1.083333333	3.1428571
PLAN AND CONDUCT MOUNTAINOUS OPNS	0.516666667	2.2857143
CONDUCT LAW OF WAR TRAINING	0.708333333	3.1428571
COMPLETE MORTUARY AFFAIRS TRAINING	0.266666667	1.3571429
CONDUCT LIVE FIRE EXERCISES	0.75	2.5
CONDUCT PRE-COMBAT CHECKS/INSPECTION OF COMBAT PATROLS	1.166666667	4.7142857
CONDUCT VEHICLE OPERATOR TRAINING (DRIVING, ROLLOVER, NIGHT VISION)	0.791666667	3
COORDINATE WITH COALITION FORCES	0.708333333	2.7142857
DECONTAMINATE YOURSELF AND INDIVIDUAL EQUIPMENT USING CHEMICAL DECON KITS	1.016666667	4.0714286
DETERMINE LOCATION ON GROUND (TERRAIN ASSOCIATION, MAP & GPS)	0.35	1.2142857
NAVIGATE FROM ONE POINT TO ANOTHER (DISMOUNTED)	0.683333333	1.7857143
CONDUCT DISMOUNTED PATROLLING	0.541666667	2.5714286
DISMOUNT A VEHICLE	1.833333333	8.8571429
ENGAGE TARGETS DURING AN URBAN OPERATION	1.066666667	4.2857143
ENTER AND CLEAR A ROOM	0.541666667	2.2857143
ESTABLISH SECURITY AT A HALT	0.583333333	2.7142857
EXECUTE CONVOY OPERATIONS	1.041666667	4
IMPROVISED EXPLOSIVE DEVICE (IED) DEFEAT	0.541666667	1.5714286
MOVE OVER, THROUGH, OR AROUND OBSTACLES	1.375	5
MOVE UNDER DIRECT FIRE	0.708333333	1.1428571
NON-LETHAL (NL) CAPABILITIES --> dazzlers, stun devices, sirens	1.016666667	2.5714286
OPERATE COUNTER RCIED ELECTRONIC WARFARE (CREW)	0.516666667	3.5714286
PERFORM A NINE LINE UXO/IED EXPLOSIVE HAZARD (EH) SPOT REPORT	0.22	1.3571429
REACT TO UNEXPLODED ORDNANCE HAZARD	0.22	1.3571429
PERFORM DETAINEE OPERATIONS AT POINT OF CAPTURE	0.22	1.5
PERFORM FIELD SANITATION AND PREVENTATIVE MEDICINE FIELD CRAFT	0.22	1.5
PERFORM MOVEMENT TECHNIQUES DURING AN URBAN OPERATION	0.22	1.3571429
PERFORM NEGOTIATIONS/KEY LEADER ENGAGEMENTS	0.22	1.3571429
PERFORM SNIPER COUNTERMEASURES	0.266666667	1.5
PERFORM VOICE COMMUNICATIONS SITREP/SPOTREP/9-LINE MEDEVAC	0.266666667	1.3571429
PERSONNEL RECOVERY (PR) TRAINING	0.22	1.5
PLAN AND CONDUCT URBAN OPNS	1.333333333	8.7142857
PLAN FOR IED THREATS	1.666666667	4.2857143
PREPARE FOR AN IMPROVISED EXPLOSIVE DEVICE (IED) THREAT PRIOR TO MOVEMENT	0.533333333	3.1428571
EMPLOY CREW SERVE WEAPON SYSTEMS (M2, MK19, M240B)	0.583333333	1.8571429
QUALIFY WITH INDIVIDUAL WEAPON	0.458333333	1.7142857
CONDUCT SHORT RANGE MARKSMANSHIP (CQB / Reflexive Fire)	2.333333333	11.142857
CONDUCT LONG RANGE MARKSMANSHIP (Known Distance / 300m-500m)	2.166666667	11.714286
ENGAGE TARGETS AT NIGHT WITH WEAPON USING NIGHT EQUIPMENT	0.708333333	1.7142857
EMPLOY CLAYMORE MINE AND HAND GRENADES	0.6	1.5
EMPLOY ROCKETS (AT4, SMAW-D)	1.25	5.5714286
REACT TO AMBUSH (FAR)	1.166666667	4.8571429
REACT TO AMBUSH (NEAR)	0.683333333	2.2142857
REACT TO AN IED ATTACK OR VEHICLE BORNE IED (VBIED)	0.683333333	2.2142857
REACT TO CHEMICAL OR BIOLOGICAL ATTACK/HAZARD	0.85	4.3571429
REACT TO CONTACT	0.791666667	3.7142857
REACT TO DIRECT FIRE (DISMOUNTED & MOUNTED)	0.266666667	1.2857143
REACT TO INDIRECT FIRE	0.6	2.7142857
REACT TO INDIRECT FIRE (DISMOUNTED & MOUNTED)	0.6	1.6428571
BREAK CONTACT	0.6	2.5714286
REACT TO MAN-TO-MAN CONTACT (COMBATIVES)	0.266666667	1.3571429
REACT TO VEHICLE ROLL-OVER	0.291666667	2.2857143
SELECT TEMPORARY FIGHTING POSITION	1.166666667	5.4285714
CONDUCT SENSITIVE SITE EXPLOITATION	0.933333333	1.8571429
SUPERVISE HANDLING OF ENEMY PERSONNEL AND EQUIPMENT	0.516666667	1.5
SUPERVISE TRAFFIC CONTROL POINTS	0.45	1.2142857
CHECKPOINT ENTRY OPERATIONS	2	5.1428571
USE VISUAL SIGNALING TECHNIQUES	0.875	1.7142857
OPERATE RADIOS (ASIP, MBITR, TACSAT)	0.875	2.1428571
MAINTAIN BASE CAMP DEFENSE AND SECURITY	0.875	2.25
UTILIZE AN INTERPRETER	0.22	1.5
COMPLETE COUNTER INSURGENCY TRAINING (COIN)	0.541666667	1.5714286

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