FORECASTING EXPEDITIONARY TRAINING FOR COMPANY GRADE LOGISTICS READINESS OFFICERS: A DELPHI STUDY

THESIS

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Abstract

Since the development of the Expeditionary Airman concept and the start of combat operations in the Global War on Terrorism, the Logistics Readiness Officer's (LRO) duty environment has expanded beyond traditional garrison-based duties. This expansion can arguably incorporate current topics of joint operations, irregular warfare, and cultural intelligence. The intent of this study is to determine what training, if any, future company grade LROs will require on these three topics. The research uses Delphi methodology, utilizing an expert panel of twelve LROs with experience in joint operations within a deployed environment, and interactions with foreign nationals. The study applies two rounds of surveys; the first seeks the participant's recommendations on training statements on the three different topics. The second round survey consists of consolidated responses from the first survey, which panel members ranked for likelihood of implementation and impact using a 5-point Likert scale. The mean and standard deviation for these rankings describe the differences in participant's observations. A scatter plot graph for each of the three topics represents the relationship between the means of likelihood of implementation and impact for each statement. Finally, a 3x3 matrix corresponding with each scatter plot graph categorizes the findings to provide a graphic representation of the expeditionary training panel members recommend for future LROs.

To my fellow brothers and sisters in arms

Acknowledgments

I would like to express sincere appreciation to my wife and daughters for their support, patience, and personal sacrifices. Additionally I wish to thank Dr. William Cunningham, Lt Colonel Pamela Donovan, Lt Colonel Bradley Anderson, and Dr. Jeffery Ogden for their guidance and support throughout the course of this thesis effort, their insight and experience was certainly appreciated. Finally, I thank my sponsor Colonel Rose Ramirez, from the Air Force Education and Training Command for both the support and the latitude she gave in this endeavor.

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Table of Contents

Page

Abstract iv

Dedication v

Acknowledgments vii

List of Figures viii

List of Tables ix

I. Introduction 1

Overview 1
Background 1
Changes in Doctrine 1
Changes in the Duty Environment 5
Training Gaps 5
Research Objective 7
Research Focus 8
Methodology 10
Assumptions/Limitations 10
Significance 11
Summary 12

II. Literature Review 13

Overview 13
Is Training Needed? 14
Current Issues in LRO Training 14
The Joint Operations, Irregular Warfare and Cultural Intelligence Link 16
What Does Current Training Provide? 21
Forecasting Training Needed 23

III. Methodology 24

Overview 24
Methodology 24
Delphi Technique Description 24
The Delphi Technique and Education 25
The Delphi Process for this Study 26
Research Description 27
Defining the Problem 27
Participant Selection 27

Page

First Round Questionnaire Structure and Medium 29
Combine and Refine the Initial Input....30
Second Round Questionnaire Structure and Medium....30
Computing the Mean and Standard Deviation....30

IV. Results and Analysis....32

Overview....32
Expert Panel Composition 32
First Round....34
Implementation 34
Results....34
Second Round 35
Implementation 35
Results....35
Analysis....36
Joint Operations 36
Irregular Warfare 46
Cultural Intelligence....50

V. Conclusions and Recommendations 55

Conclusions and Recommendations 55
Joint Operations Training Recommendations....56
Irregular Warfare Training Recommendations....57
Cultural Intelligence Training Recommendations 58
Comments on Methodology....58
Suggestions for Follow-on Studies 59
Summary 60

Appendix A. First Round Survey....61

Bibliography 67

Vita 72

List of Figures

Page

Figure 1. Airmen Battlespace and Risk Perspective 4
Figure 2. Current LRO Training and Education Roadmap 6
Figure 3. Proposed LRO Training and Education Roadmap....7
Figure 4. Logistics Readiness Focus 12
Figure 5. Joint Force Capabilities....17
Figure 6. Logistic Readiness Officer Career Path Pyramid 22
Figure 7. Joint Operations Training Scatter Plot Chart 37
Figure 8. Joint Operations Training Matrix....37
Figure 9. Irregular Warfare Training Scatter Plot Chart 47
Figure 10. Irregular Warfare Training Matrix....47
Figure 11. Cultural Intelligence Training Scatter Plot Chart 51
Figure 12. Cultural Intelligence Training Matrix....51

List of Tables

Page

Table 1. Agile Combat Support Master Processes versus Logistic Readiness Responsibilities 21

Table 2. Delphi Technique Steps 26

Table 3. Panel Member Composition by Rank and Major Command. 29

Table 4. Delphi Study Participant Composition 33

Table 5. Joint Operations Training Statements 38

Table 6. Irregular Warfare Training Statements 48

Table 7. Cultural Intelligence Training Statements 52

FORECASTING EXPEDITIONARY TRAINING FOR COMPANY GRADE LOGISTICS READINESS OFFICERS: A DELPHI STUDY

I. Introduction

Overview

This chapter outlines the background, research focus, research objective, methodology, assumptions, limitations, and significance for this research. It poses the primary question on Logistic Readiness Officer (LRO) training in relation to issues merging from the Global War on Terror (GWOT). This question includes two exploratory questions on current training and need for training; to clarify entry-level training LROs need in order to have the capabilities for tomorrow's demands.

Background

> *"we cannot accurately characterize the security environment of 2025; therefore, we must hedge against this uncertainty by identifying and developing a broad range of capabilities. Further, we must organize and arrange our forces to create the agility and flexibility to deal with unknowns and surprises in the coming decades."*
> - Gen Peter Pace, 2006 Quadrennial Defense Review Report

Changes in Doctrine

Historical examples of revolutionary changes in warfare, and the subsequent effects of a country's military to adapt successfully or unsuccessfully are topics discussed thoroughly in countless commentaries. The accepted assumption is that adaptation to change is necessary for survival, and the reason the DoD publishes theoretical documents like "Capstone Concept for Joint Operations" (CCJO), and "The Joint Operating

Environment: The World Through 2030 and Beyond." They are a means of defining forecasts of potential threats and creating a discussion on the best way to prepare for those threats. In the Chairman's Foreword of the CCJO, General Myers maintains the need to incorporate lessons from past and present conflicts, while looking and preparing for the future. Another very pertinent recommendation comes from "The Joint Operating Environment: The World Through 2030 and Beyond," which says future defense planning should be based on capabilities (2007:7).

Commentators like Nagel and Peters offer convincing arguments on current trends within the threat environment facing the DoD as it begins to accept concepts and doctrines outside of conventional warfare. The GWOT has brought issues on more efficient joint operations, a new respect for irregular warfare (IW) and cultural intelligence. The new opponent, or "warrior class," facing the US military most likely won't wear a uniform or have any infantry training, much less the capability of air support. Their value of human life is much different compared to western culture, economy of force does not matter, and they are ideologically prepared to not only kill, but also die (Peters 1999:32-34). However, we have faced this type of threat before, and have sufficient community memory of how to counter its influences. Our weakness is getting past doctrinal paradigms and incorporating the training, tactics and procedures (TTP) that counter IW (Nagel 2002:3-5).

An argument against this commentary is that it is perception and opinion; however, the DoD is making a directed effort to expand its abilities to fight unconventional warfare and develop doctrine as the GWOT continues. An example is the draft of Joint Publication 4-0, *Logistics Support*, chapter six titled "Future Joint

Logistics," which describes the DoD's potential course (2007:VI-1-4). This chapter describes environments US forces may expect to navigate and portrays three current topics of joint operations, IW and cultural intelligence.

Air Force documents are beginning to incorporate language that relates to joint operations, IW and cultural intelligence. Both the Air Staff/XOS-F Integrated Process Action Team (IPT) report (2005:4) and Air Mobility Command (AMC) Instruction 10-407, *Expeditionary Airmen Training* (2007:2), refer to assumptions from an Air Staff White Paper *Long-Term Integration of Expeditionary Airmen Concepts Into the Air Force* for perspective. These are:

- The vulnerability and desirability of attacking airfields is an established historical fact and is not anticipated to change.
- The lessons learned from Operations ENDURING FREEDOM and IRAQI FREEDOM continue to validate both history and the need for preparing Airmen for ground combat action.
- Future battle space will be replete with evolving asymmetric threats with no defined front line.
- Now and in the future, Airmen will require the ability to protect themselves, their teammates, and their base while continuing to generate the mission.
- The construct of a linear battlefield will most likely not exist for the foreseeable future unless the United States engages a "near peer" adversary.
- The Joint battlefield of the future will require the Air Force to take on nontraditional roles.

Both the IPT report and AMC instruction refer to a spectrum of close battlespace and risk for which Airmen should train. The training is defensive in nature and varies by threat expected, as shown in Figure 1. All Airmen fall in the lowest category as Expeditionary Airmen. The third category consists of Battlefield Airmen, who experience the greatest risk and exposure; examples are Combat Controllers, Pararescue, and Tactical Air Control Parties (TACP). The second category belongs to Expeditionary Combat Airmen, who live "inside the wire," but at times work "outside the wire." Examples of this

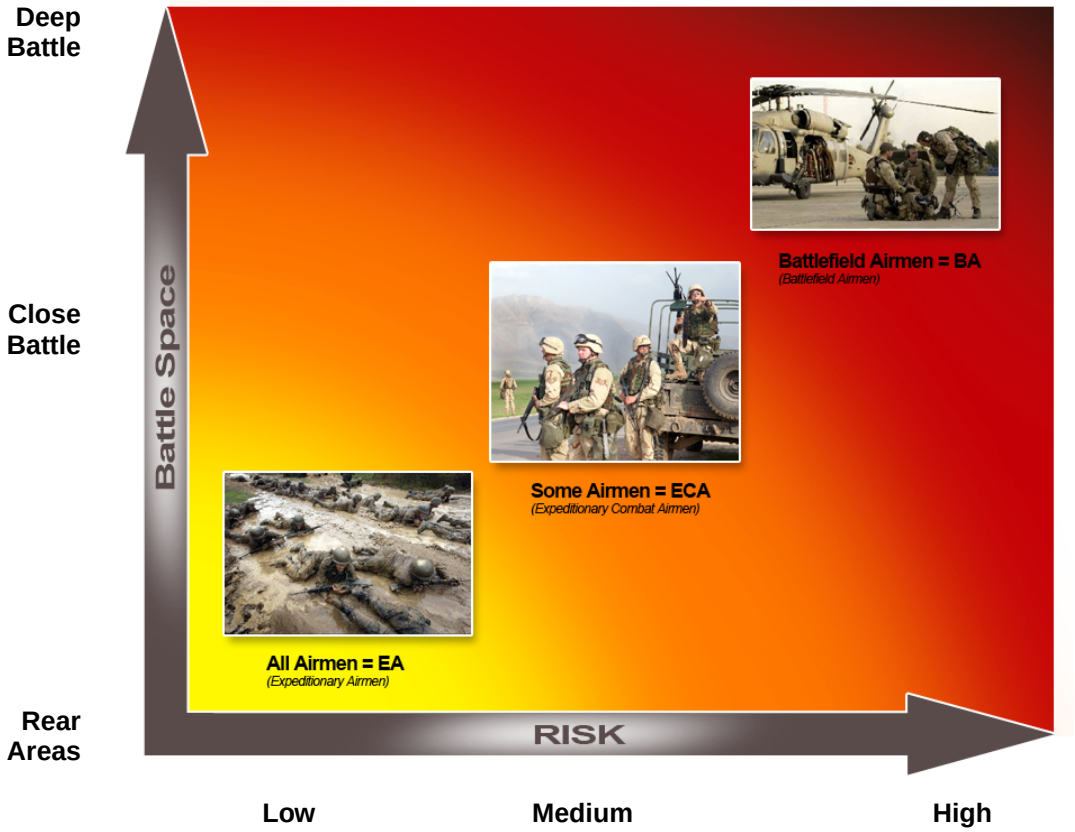

Figure 1: Airmen Battlespace and Risk Perspective

category are Security Forces, Office of Special Investigations (OSI), Explosive Ordinance Disposal (EOD), and organizations like the Contingency Response Groups (CRG), whose mission is initiating airfield operations in austere and hostile environments. By the definition, the ILO taskings fall in the second category also since ILO duties require travel "outside the wire." The significance of pointing out the category Expeditionary Combat Airmen includes CRGs and ILO taskings, is that this group may also include LROs, illustrating where their expeditionary duties compare to other Air Force specialties.

Changes in the Expeditionary Duty Environment

Reflecting the expeditionary duty comparison is the high Air Expeditionary Force (AEF) deployment rate for junior LROs supporting combat operations in the Global War of Terror, and Operation Iraqi Freedom. In 2007 the lead LRO, Major General Gary T. McCoy, briefed that the career field has the second highest deployment rate across the Air Force, and LROs should expect to deploy once every AEF cycle (15 months) for 179 days (2007). A 2006 Force Shaping Board cut 150 company grade LROs (2006), leaving a population of 1008 (AFPC 2007), further increasing the deployment tempo.

In addition to AEF deployments, LROs also began supporting Army In-Lieu-Of (ILO) taskings in 2003, consisting primarily of Embedded Training Teams (EET), Provincial Reconstruction Teams (PRT), and Combat Service Support Teams (CSST). This tasking has increased since 2003 in not only length, from 179 to 365 days, but also the number of taskings during subsequent years (McCoy 2007). At the end of July 2007, Air Force Personnel Command's (AFPC) LRO career field assignment team posted 365-day ILO requirements of 50 CGOs for fiscal year 2008 (AFPC 2007). LROs have the highest 365-day deployment rate and the expectation is that the number of taskings will continue to increase (McCoy 2007). Air Force Chief of Staff General Moseley stated the ILO mission would not be going away soon (2007).

Training Gaps

Training is beginning to change also with an eye to the future and current operational needs. LRO senior leadership recognizes training gaps exist and additional training is necessary. Gen McCoy highlighted these gaps in his briefing for LROs,

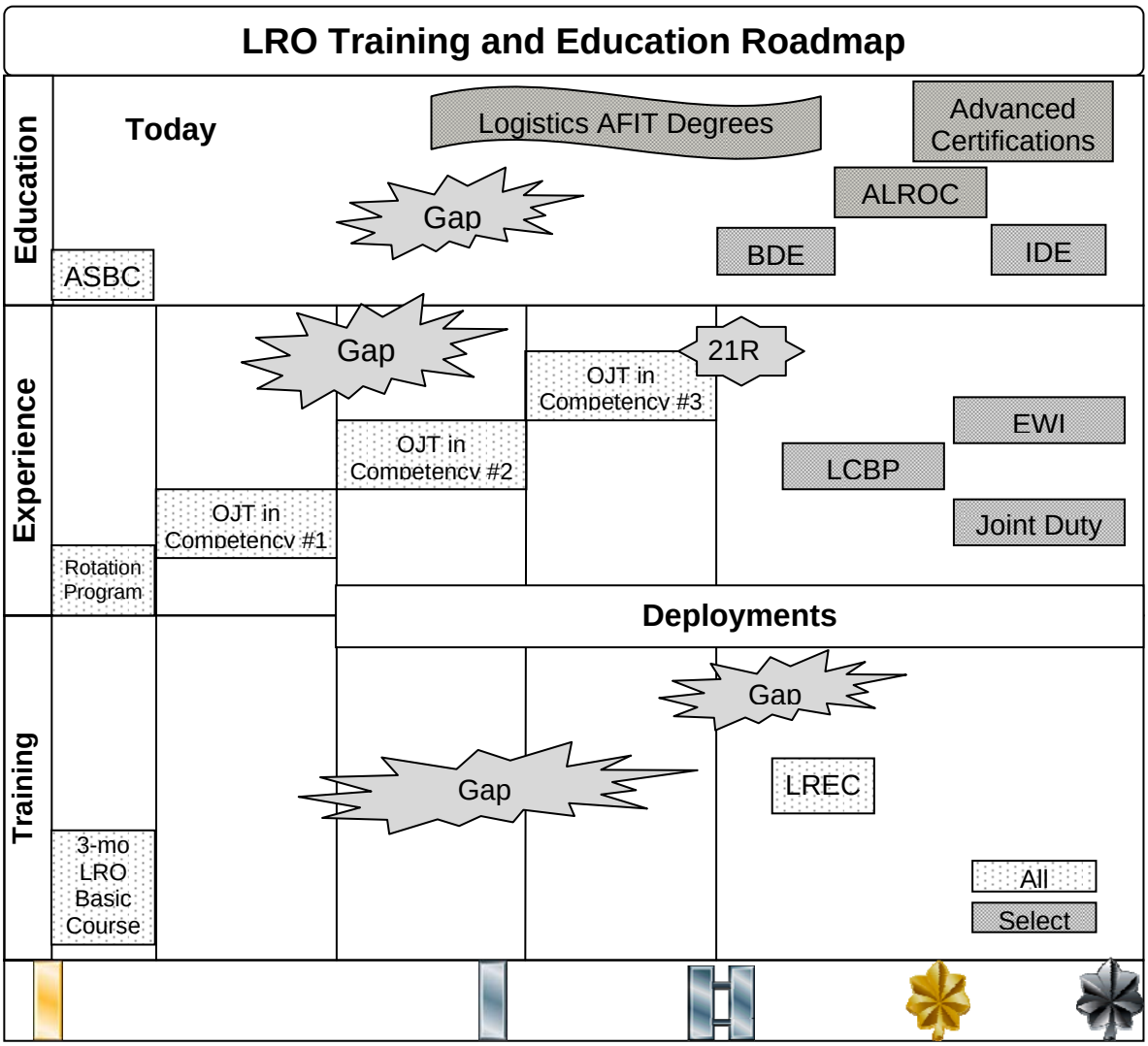

Figure 2. Current LRO Training and Education Roadmap (McCoy, 2007)

shown in Figure 2. After entry-level training, no formal career field related training is available to a company grade officer (CGO) until they reach senior captain and major, when they become eligible for a number of advanced courses, to include joint operations. Figure 3 displays the proposals for closing them, essentially adding extra formal training blocks, done through computer-based training (CBT), with tests following each block.

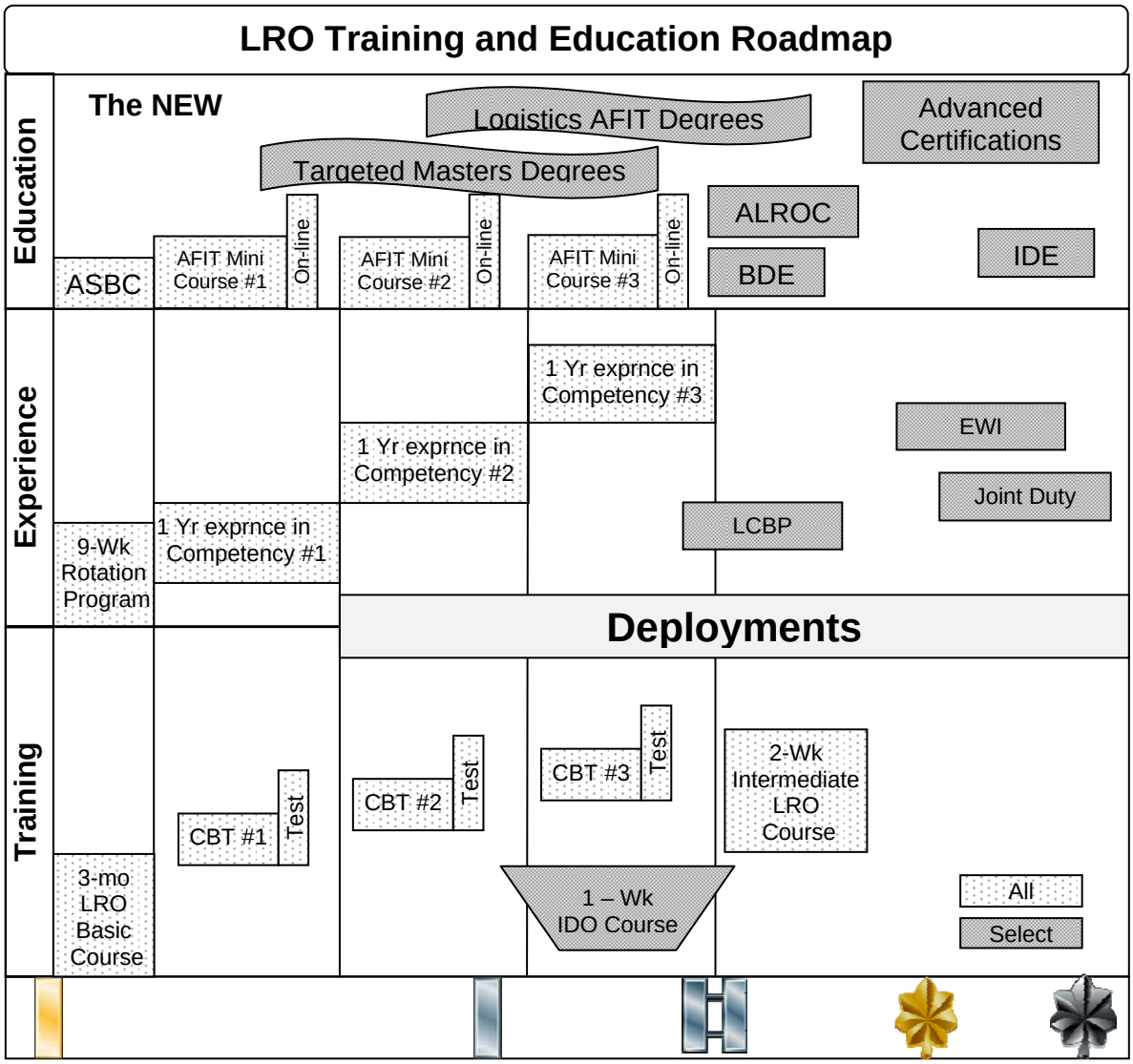

Figure 3. Proposed LRO Training and Education Roadmap (McCoy, 2007)

Research Objective

The draft JP 4-0 and the Air Staff White Paper *Long-Term Integration of Expeditionary Airmen Concepts Into the Air Force* expect joint operations and IW with its emphasis on cultural intelligence to continue into the future. A need for operational efficiency within southwest Asia and a tight defense budget has pushed recognition for joint service cooperation among the branches. Additional indicators of increased interest

in these topics within the Air Force are the recent release of Air Force Doctrine Document 2-3, Irregular Warfare, and USAF Chief of Staff Gen T. Michael Moseley's announcement in February 2006 to include language and cultural studies in Air Force Air Command and Staff College curriculum.

These events demonstrate the significance these subjects are beginning to have within the Air Force. These in turn will define a company grade LRO's expeditionary duties, leading to the necessary training that can fill the existing gaps. Therefore, the primary question this study will seek to answer is:

- What expeditionary training will future company grade LROs require in joint operations, IW, and cultural intelligence?

Two additional preliminary questions need answers in order to define the context of the primary question and give insight to current discussions on the topic:

- Is training needed?
- What does current training provide?

The ultimate answer to the primary question should provide a better understanding of what entry-level training LROs need to have the capabilities to meet tomorrow's demands.

Research Focus

Joint operations, IW, and cultural intelligence are expansive topics; just one could support in-depth analysis alone. This study will approach them within the context of LRO career field-specific expeditionary duties in order to maintain a baseline for research. Additional requirements exist, but continually change as the Air Force seeks to better prepare Airmen for deployment. Definitions as they relate to this study are:

- *Joint operations* integrate logistic resources, processes and information from multiple military branches towards a common goal, therefore requiring the ability to plan, execute, and control operations (JP 4-0, 2000:GL-9).
- Air Force Doctrine Document (AFDD) 2-3 describes i*rregular warfare* as 'a violent struggle among state and non-state actors for legitimacy and influence over the relevant populations.' (2007:1).
- *Cultural intelligence* refers to the capability to operate effectively in a foreign cultural environment.

None of these three topics is completely separate; there are seams where they blend. For example, at the strategic and operational levels, joint operations require an understanding of other services doctrines on IW, which in turn requires cultural intelligence. This paper assumes the continued need for entry-level training on core Logistics Readiness Squadron's processes. However, because the integrative nature of logistics as illustrated in the Supply Chain Management concept, the LRO career field is in a unique position to be highly competitive for senior leadership positions. This is indicative when comparing LRO promotion numbers with the rest of the line of the Air Force officers. In ranks of Major through Lieutenant Colonel, promotions for the years 2003 to 2006 has been at or above the line of the Air Force, with the exception of three instances. These were determined to be a result of retirement or detrimental statements on their Officer Performance Report (McCoy 2007). The value of continuing this trend, coupled with combat operations experience early in a career, is that it provides the Air Force with a leader indoctrinated with not only combat support, but with battlefield experience and familiarity with other services.

Methodology

The forecasting method used for this research is the Delphi technique. The rationale for using this methodology is to focus on recommending solutions, rather than identifying a problem. For this study, panel members will consist of eight captains, two majors, and two lieutenant colonels, all of which have deployed to a joint environment. They will provide input in three rounds of survey, with the goal of reaching consensus. The first round will be primarily brainstorming. The second and third rounds will be assessing responses from subsequent rounds using a Likert scale to evaluate likelihood of implementation and degree of impact. This panel's input will consist of answering two to three rounds of questions, depending on the progression of consensus. The product is identification of key functions that are easily transferable into recommendations.

Assumptions/Limitations

The amount of literature on the three subjects is mostly strategic in nature, and quite extensive. This study does not seek to provide empirical evidence that declares the extent, or impact joint operations, IW, and cultural intelligence are having on current and future logistics doctrine. The author was not successful in finding research on the impact of IW and cultural awareness on current logistics processes. Therefore, in asserting they do is to some extent an assumption.

Other underlying assumptions of this study are that all LROs are deployable, and the current method for sourcing for deployment taskings utilizing the Air Expeditionary Force (AEF) cycle concept will continue. This implies all future LROs will require the same type of training.

Finally, there is an assumption that a leader makes intuitive decisions based on personal experience. Based on this, training future LROs for leadership should begin in the early stages of their careers.

Limitations to the study lie with the Delphi methodology. The panel members do not have any time or financial constraints for the training to occur. These would be major factors in actually implementing training. Time is also a factor in implementing the study. Delphi studies typically rely on consensus between participants for a conclusion. In order to obtain quality input and maximum participation, the study will go two rounds and use the standard deviation from the average means to measure consensus.

Significance

The value of this study is that rather than pointing out problems in the LRO career field, it offers solutions. It provides a product borne by analysis of first-hand feedback from LROs who have deployed to a joint environment, and recommendations that prepare future LROs with capabilities to meet future deployment demands. In the previously mentioned briefing given by Major General McCoy, he outlined a vision for development of the career field (Figure 4), which is his highest priority. Within the first few months of 2008, the career field developmental team (DT) will meet and review entry-level training with a "ground-up" approach (Closson 2008). Finally, it takes time for curriculum development within Air Education and Training Command. All these factors are indicators for the timeliness of this research.

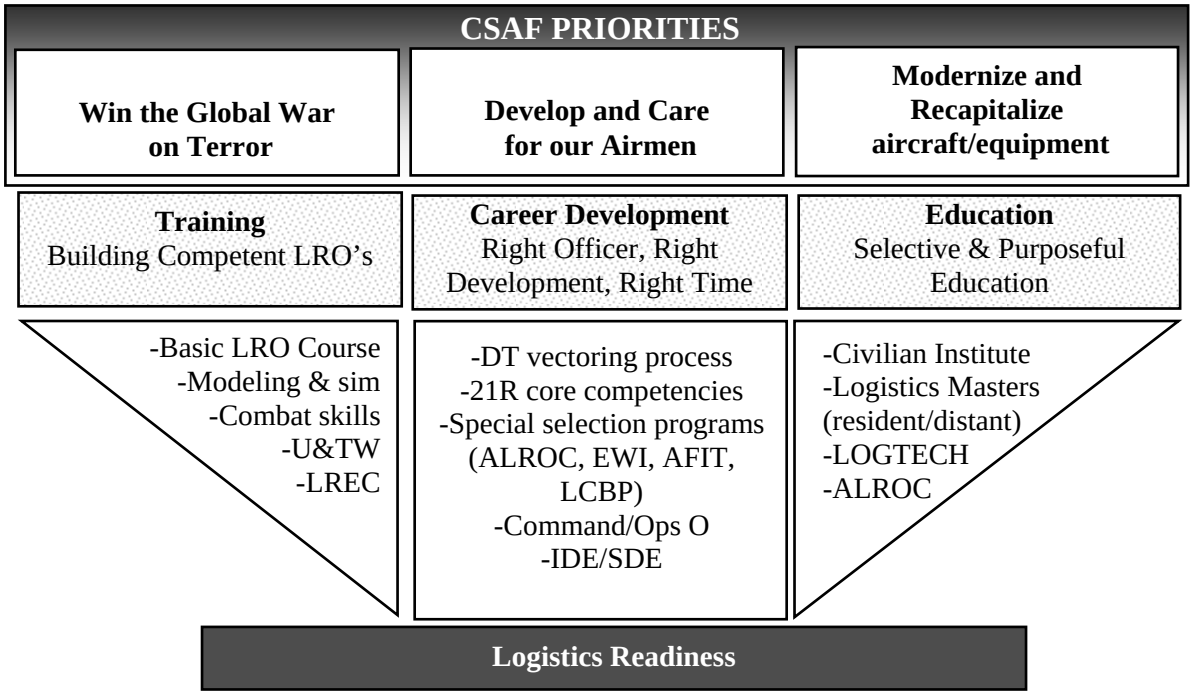

Figure 4. Logistics Readiness Focus (McCoy, 2007)

Summary

The current generation of company grade officers is facing a much different environment than their predecessors. As adversaries, budgets and political goals change, so do the methods for providing precise logistics of the armed forces and anticipation of their needs. The following chapter will review literature discussing two basic exploratory questions; bringing up current issues within the LRO career field, and further explores the link with joint operations, irregular warfare and cultural intelligence. From this foundation, successive chapters provide the studies participant's responses to the primary question of what expeditionary training LROs need to have the capabilities for tomorrow's demands.

II. Literature Review

Overview

This chapter will review literature discussing two basic exploratory questions on the need for company grade LRO skills and current training offered. It brings up current issues within the LRO career field, illustrating the link with joint operations, irregular warfare, and cultural intelligence in preparation for answering the primary question in following chapters.

Is Training Needed?

> *Victory smiles upon those who anticipate the changes in the character of war, not on those who wait to adapt themselves after the changes occur.*
> - Giulio Douhet

The changes within the LRO's expeditionary duty environment described in chapter one have led to many passionate discussions in academic papers, trade journal articles and conferences on LRO training shortcomings. Company grade LROs wrote many of these papers, the same population of interest for this study. They draw attention to LRO training issues, discussing when it should occur in officer's career echoing Major General McCoy's briefings discussed in chapter one, as well as other challenges facing the career field.

Current Issues in LRO Training.

Bennes reported on LRO's readiness for duties within the deployed and joint operations environment using a survey to poll LROs across the Air Force. Two of the statements Bennes posed to a population of 57 Captains (12.6% of his target group) were:

> 'I was adequately trained to work in the joint environment prior to my deployment/joint staff job.'

> ‘Attending a Joint Logistics Officers Course where I can attend with other service officers and learn joint doctrine and how the other services deploy, sustain, and employ forces, would have been an advantage prior to my deployment/staff position.’

In response to the first, 56% disagreed and 15% strongly disagreed that they received adequate training (2005:17). To the second statement, 98% of the respondents affirmed (41% agree, 57% strongly agreed) that attending joint training before a deployment would have been an advantage (2005:19).

Clark carried out a study similar to Benne’s, surveying a sample population of 59, 5% of his target. Of the respondents, 64.4% were Captains, 25.4% were Majors, and 8.5% were Lt Colonels. Three of the 21 statements given to this varied group:

> ‘It is important to teach Joint logistics doctrine to entry-level LROs in a formal training environment.’
>
> ‘It is important to teach Joint logistics doctrine to junior company-grade (approx 4-5 year O3s) officers in a formal training environment.’
>
> ‘When initially required to operate in a Joint environment, I had to undergo a significant “learning curve” in order to perform effectively.’

To the first statement, 62% affirmed formal training at an entry-level, 28.8% disapproved and 8.5% were neutral. In the second statement, where the time shifted to 4 years into an officer’s career, positive responses increase to 91.5%, 5.1% were negative, and 3.4% were neutral. The last statement about experiencing a “learning curve” resulted in 49.1% affirmation, 9.2% did not, and 6.8% were neutral. However, of this last group, 33.9% had no joint experience (2005:26, 29).

Hall completed a study in 2001 that with findings similar to Bennes and Clark. His results indicated a relationship at the .05 level (-446, n=38) between training for

deployed duties and on-the-job training at the deployed location. Hall describes the on-the-job training method that many LROs are familiar with as 'Baptism by fire,' learning new duties for the first time at the deployed location (2001:24).

Hobbs examined student's perception of training transfer after graduation. Her empirical research utilized a survey of LROs who finished the new career field entry-level training between 2002 and 2004. From 275 replies (a 45.8% response rate) she was able to quantifiably determine five areas that have an impact on whether training transfer occurs:

- Training reputation of the school
- Subordinate and supervisor support
- Transfer enhancing activities and task constraints (training methods and aids)
- Intrinsic incentives and organizational commitment of student
- Pre-training motivation of student

She reports that the open-ended questions that allowed students to comment on training received predominantly unenthusiastic replies. The value of this study comes from identifying areas to place emphasis in order to positively influence students, and make the most of a training investment (pgs 78-89).

Bennes also recommends Joint Logistics Officer Course (JLOC) as intermediate career-field training for an LRO (2005:4). Baker argues the JLOC concept further and includes a description of the intermediate courses offered by the Army and Marine Corps, high-lighting their mix of Professional Military Education (PME) with career field specific training (2006:6-21). The significance of this is that by the time Air Force LROs are Majors or Lieutenant Colonels and receiving initial training for joint staff billets, they

are at a disadvantage to their sister-service counterparts. Carrico indicates the recommendation of an intermediate logistics course for Captains was presented to the Air Force Staff LRO Developmental Team (DT) as early as 2005 (2008). As mentioned earlier in chapter one, Major General McCoy pointed out a gap in CGO training in his 2007 brief to LROs (2007) and the topic is expected to be addressed during the next career field training review starting in February 2008 (Closson 2008).

Pike evaluated at LRO joint training and its usefulness for the ILO mission, drawing the conclusion that CGOs could use more (2007:24). He surveyed 35 company grade LROs on their opinion of whether joint and sister service doctrine was useful for the ILO mission. Their replies were 85% affirming, and 15% were neutral (2007:24).

The Joint Operations, Irregular Warfare and Cultural Intelligence Link.

The preceding training issues on LRO expeditionary training, leading to an assessment of training in the areas of joint operations, irregular warfare, and cultural intelligence.

Joint Operations. As described earlier in chapter one, this term refers to integration of logistic resources, processes and information from multiple military branches towards a common goal, therefore requiring the ability to plan, execute, and control operations (JP 4-0 2000:GL-9). The topic of training for logistics and joint operations is extensive. Some within the Air Force debate whether it is an Air Force issue; suggesting that joint training should be done at a higher level (Closson 2008). Mauldin views joint logistics with a Marine Corps perspective, pointing out the need for training on Supply Chain Management, along with processes and procedures within DOD for material acquisition for own service, other services DOD and civilian vendors

(2005:26-28). Wittkoff presents the argument that junior Marine Corps officers can do well in a joint environment if they receive preparation, tools, and support (1999:19-21). Lieutenant General C. V. Christianson, Director of Logistics (J4) for the Joint Staff briefed his view of the ideal skills for a joint logistician, shown in Figure 5, at a J-4 "town hall meeting" (2007).

Joint Force Sustainment				
Force Health Protection	**Personnel Services**	**Operational Engineering**	**Supply Chain Operations**	**Logistics Services**
• Casualty Mgmt. • Patient Mvmt. • Medical Log Preventive Med	• Postal / Finance • Per Readiness • Legal Services • Religious Support • Exchange Support	• Combat (MCM) • Infrastructure Geospatial	• Plan • Supply / Source • Maint / Repair • Deploy / Dist • Return	• Contracting Support • Food Service • Mortuary Affairs • Field and BASEOPS Svcs

Figure 5. Joint Force Capabilities (Christianson, 2007)

Irregular Warfare. The definition in AFDD 2-3 is 'a violent struggle among state and non-state actors for legitimacy and influence over the relevant populations' (2007:1). Current literature covered the topic quite extensive, but in terms of logistics being a target. Perhaps the current view on Air Force logistic support for IW is that it is identical to support for conventional warfare.

However, when considering the mission of the Embedded Training Teams (ETT) and Provincial Reconstruction Teams (PRT) to Afghanistan and Iraq, LROs are engaged in an IW role. These Army ILO taskings are directly involved with countering the influence of IW. The duration for Air Force participation in the ILO mission is undetermined, although the Chief of Staff, General Mosely has said it would not be going

away soon (2007). Lopez illustrates how similar Expeditionary Combat Support is to joint operations, and as more Airmen return from operations in a joint ground warfare environment, their feedback reflects the need to learn Army techniques, tactics and procedures (2004:3). Browning points out that logisticians were facing unconventional threats such as Improvised Explosive Devices (IED) and the specter of being a hostage, concluding additional training was necessary (2004:21-22).

One of the fundamental aspects of IW is that it is asymmetrical; we should expect an enemy utilizing IW tactics to look for ways to be unpredictable, to use their strengths and avoid ours. As AFDD 2-3 points out, employing Agile Combat Support presents risks since logistics lines becomes a target (2007:42). Examples are the IEDs that threaten convoys in Iraq and Afghanistan; as well as mortars lobbed into airfields, which is the reason for cargo aircraft engine-running offloads (ERO) in these areas. These activities require defensive measures across the threat spectrum; as determined by a leadership risk assessment, who then implements threat countermeasures.

Lieutenant General Christianson mentioned two skills and attributes a logistician should have as being 'OK with uncertainty' and 'Can make decisions with minimal information' (2007). For this commander capability, AFDD 2-8, *Command and Control*, refers to the Observe- Orient-Decide-Act (OODA) loop that if completed first, gives a commander the advantage on the battlefield (2007:8). Interestingly, Air Force doctrine emphasizes decision-making in an operational level context (2007). In reviewing Air Force leadership training doctrine, the description for decision-making is not at the tactical level (AFDD 1 2003:29-31) even though LROs begin leadership duties while company grade officers.

Marine Corps commandant General Charles Krulak referred to the beliefs of Napoleon, Sun Tzu, and Patton on the concept of speed and decision-making; and advantageous opportunities are lost while waiting for perfect knowledge. General Krulak also pressed a "strategic corporal" concept, pushing battlefield decision-making skills commensurate to responsibility to the lowest levels (1999:18). Navy doctrine discusses command and control decision making along these lines, defining not only the differences between analytical and intuitive decisions, but also when they are appropriate (1995:23). It points out the 'intuitive model works on the assumption… [of]…drawing upon personal experience.'

For an LRO this leadership capability adds value to their combat skill toolbox and expands basic leadership skills past garrisoned force paradigms as expressed by General Moseley, current Chief of Staff of the Air Force:

> '…we cannot be the garrison force of the last century… Ours is a force that must be capable of seizing an austere base, setting up and flying combat operations, and redeploying once we've achieved our intended effect, all in real time and in partnership with our coalition brothers and sisters (2007).'

This concept of opening an airstrip in austere environments is the basis for the Contingency Response Groups assigned to Air Mobility Command (AMC), Pacific Air Forces (PACAF), and US Air Forces Europe (USAFE). Company grade LRO's are a core part of these units, whose duties require working with foreign nationals (Jellick, 2008).

Cultural Intelligence. Defined previously, cultural intelligence is the capability to operate effectively in a foreign cultural environment. The term "intelligence" is key to

the context, as it promotes situational awareness. Maitre used Langewiesche's *Stick and Rudder: An Explanation of the Art of Flying*, to describe situational awareness:

> 'there is a great difference between merely perceiving something and noticing it. A [primitive human], put on an American city street, would see the traffic lights just as you do—maybe better. He would probably overlook them and watch instead the flashing neon sign, the lights of cars, all sorts of other clues that are more impressive but much less important; for he would not know what a traffic light means. But we see traffic signs even with bad eyes and while thinking of something else because we watch for them and understand their meaning instantly and know that, though they are not very attention-catching, they are important.' (2007:40)

Cultural intelligence is very much like this analogy, illustrating how differences between cultures can have a profound effect on interactions.

The link cultural intelligence has with logistics and LRO duties lies with the Air Force core competency Agile Combat Support (ACS). AFDD 2-4, *Combat Support*, lists Logistic Readiness responsibilities as (2004:48):

A. Provides expeditionary site planning, management of war reserve materiel, and implementation of efficient combat support across the range of military activities.
B. Provides the transportation component for deploying to, reception of forces in, sustaining, and redeploying from the theater of operations.
C. Responsible for managing and maintaining the fleet.
D. Facilitates efficient availability of the right materiel, in the right place, in the right condition, and in the right quantities to meet the mission needs of the warfighter.
E. Ensures quality petroleum products and cryogenic fluids are acquired and issued to meet combatant commander mission requirements.

Table 1 compares these responsibilities to ACS master processes from AFDD 2-4 (2005:47-48).

Many of these responsibilities may require interacting with foreign nationals at different organization levels, since most AEF deployments are to locations outside the

Table 1. ACS Master Processes Versus Logistic Readiness Responsibilities

ACS Master Processes	Responsibilities
Readying the Force – Ensuring force fitness and organizing, training, and equipping to provide military capability.	D
Preparing the Battlespace – Assessing, planning, and posturing for rapid employment.	A, B, C, D, E
Positioning the Force - Tailoring, preparing for movement, deploying, receiving, and integrating forces.	A, B, D, E
Employing the Force – Generating timely launch and/or strike capability, providing right-sized essential support, and ensuring safe recovery of engaged forces.	B, C, D, E
Sustaining the Force – Maintaining effective levels of support for global operations worldwide beginning day one of employment operations.	D, E
Recovering the Force – Redeployment and reconstitution, ensuring that the instrument of air and space power can effectively and repeatedly be applied at the direction of the President/SecDef.	A, B, C, D, E

United States. Although the Air Force has standardized language programs, it does not have any cultural training programs. The Air University library has a number of culture related papers written by strategic studies students within the last few years as the topic has gained relevance. Research seems to indicate any training that occurs is peripheral, like the Cross Cultural Communication lesson from the Advanced Air Mobility Operations Course at the USAF Expeditionary Center. However, the Air Force is expanding the Air University Center for Culture and Language, only established in March 2006, with a mission to increase cultural awareness across the service (Wright 2007) at a strategic level.

What Does Current Company Grade Officer Training Provide?

To stay within the context of LRO career field-specific training, the definitive document is the 21R Career Field Education and Training Plan (CFETP), which outlines LRO entry-level training requirements. There are three primary sources; two are

mandatory, and the third is elective. The first of the mandatory training is for basic skills in-residence at Lackland AFB, TX. The second involves on-the-job training at home or a deployment duty station after the basic skills course. Both of these focus on the different functional areas within a Logistics Readiness Squadron (LRS); aerial port operations, contingency operations, distribution management, fuels management, material management, and vehicle management, shown below in Figure 6, the lower tier of the LRO career path pyramid. The focus of this entry-level training is on garrison duties (21RX CFETP 2002:17).

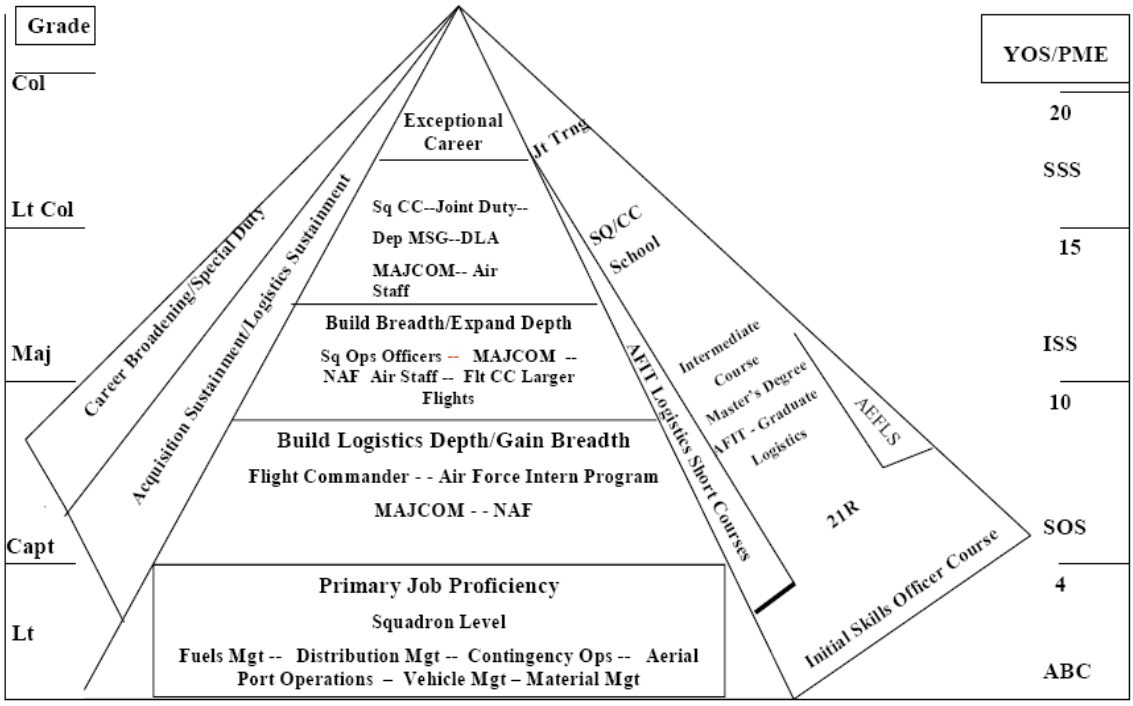

Figure 6, Logistic Readiness Officer Career Path Pyramid (21RX CFETP 2002)

Elective training is usually unit funded, with seating provided by allotment to major commands, and therefore limited. The most commonly available courses are Air Force Institute of Technology (AFIT) Combat Logistics course LOG 299, the Contingency Wartime Planning Course (CWPC) from Air University, and Joint

Operations Planning and Execution System (JOPES), from United States Transportation Command (USTRANSCOM). Some, like the AFIT introductory short course Logistics 199, are available online. Additionally, competitive programs exist such as an AFIT masters degree, Education with Industry (EWI), Logistics Career Broadening Program (LCBP), and the new Advanced Logistics Readiness Officer Course.

Forecasting Training Needed

The literature reviewed thus far has shown there are gaps in training, and the need to expand on joint operations concepts. Additionally, there is a wealth of literature on the topics IW and cultural intelligence, but the connections to logistics are only implied. The intent of current LRO training is to establish a solid base of Logistics Readiness Squadron (LRS) functions and processes, which are nearly identical to a deployed LRS, or Expeditionary LRS (ELRS). However, this training focuses on "inside the wire," garrison-based duties. This leads to the primary question – what training in joint operations, IW, and cultural intelligence will future company grade LROs require? The following chapter describes the Delphi methodology used to find an answer.

III. Methodology

Overview

The objective of this chapter is to describe the methodology used in this study. This explanation is methodical, progressing in a sequential order of preparing, collecting and analyzing data that answers the primary research question.

Methodology

Delphi Technique Description

RAND originally used the Delphi method during the late 1940s (Sackman 1974:Preface) to obtain solutions to complex questions, forecasting (Linstone and Turnoff, 1975:3-4), and generating new ideas (Brancheau and others, 1996:226) from a panel of experts. Rowe and Wright state the method has shown to be reliable in forecasting accuracy (1999:372-373) where no quantifiable data exists for analysis (1999:372).

Linstone and Turnoff list key properties of a problem that make the Delphi method useful:

- The research question can't be analyzed precisely, but it can be evaluated subjectively
- The panel may not know each other, and have diverse backgrounds
- Getting the panel to meet is economically infeasible
- Maintaining anonymity between panel members to prevent a "bandwagon" effect (Linstone and Turnoff, 1975:4)

These principles fit the nature of this study. This research is exploratory; the details necessary for precision analysis do not exist. Details about the panel members will come

later. They have diverse backgrounds and research funding prohibits them from meeting, and dynamics of military relationships will require anonymity.

The technique typically uses questionnaires through a series of rounds to obtain input from the participants until they reach a consensus (Dalkey and Helmer 1962: v). Literature on defining consensus in a Delphi study differs. Rowe and Wright point this out in their comparative analysis of various Delphi studies (1999:363-367). The general definition of consensus is a panel converging on a specific value. For empirical studies, it is a reduction of variances within a range defined by the author. Differences in views occur in literature on why responses are converging; whether panel member's opinions are changing or they are conforming because they are tired of participating while progressing through the rounds (354). Goldfisher reports accuracy does not improve enough to warrant going further than two rounds on studies about new products and abstract topics (1993:11). The studies Rowe and Wright reviewed ranged from two to six rounds (357-359). Because of the abstract nature of the material and limits on time, this study will go two rounds, and the mean and standard deviation calculated.

The Delphi Technique and Education

Helmer reported on two pilot studies designed to evaluate the potential of the Delphi technique in education-related research. Both studies used educators and sought to make a forecast. The goal of the first was to suggest planning goals (1966:6), and the second proposed innovations for a future environment (1966:7-22). He concluded both studies successfully utilized the methodology (1966:22). A more recent study by Martin and Chaney used Delphi methodology for college curriculum in intercultural business communication. The three panels they used produced 10 major topics and 87 subtopics

(1992:281). Grove and Upshaw used the technique in their thesis on establishing content for a contracting course using a panel of six DoD executive level civilians, recommending 25 topics (1993:3-3).

The Delphi Process for This Study

Techniques used within a Delphi study vary. This is apparent in Rowe and Wright's analysis of studies evaluating Delphi techniques from several studies, with the intent of comparing the author's methodologies. They discuss little in their literature review, citing extensive use of the Delphi and listing a number of studies (1999:372). The process steps taken to carry out a Delphi study vary. Goldfisher describes the generic Delphi study steps as selecting experts, giving them the first questionnaire, compute the mean and range, send the second questionnaire, and compute the mean and range (1993:10-11). Terstine and Riggs use these same generic steps, with the addition of creating a work group to manage and implement the study (1976:54). Ogden and others modified Goldfisher's process, increasing it to eight steps to include defining the problem, structure the questionnaire, and select the medium. They used these steps to organize a description of their methodology (2005:31). Table 2 reflects a modification to their steps, and describes the process this study will follow.

Table 2. Delphi Technique Steps.

Step	Activity
1	Define the problem
2	Participant Selection
3	Questionnaire 1: Structure and medium
4	Combine and refine the initial input
5	Questionnaire 2: Structure and medium
6	Compute the average and standard deviation

Research Description

Define the Problem

The recognition for combat operational efficiency and a declining defense budget are pushing for joint service cooperation among the branches. Additionally, the publication of Air Force Doctrine Document 2-3, Irregular Warfare, and USAF Chief of Staff Gen T. Michael Moseley's announcement of increased language and cultural studies demonstrate the significance these subjects are beginning to have within the Air Force. Deployments filled by company grade LROs also imply knowledge in these areas may be necessary. This leads to the primary question being researched, what training in joint operations, IW, and cultural intelligence will future company grade LROs require?

Participant Selection

The benefit of using a panel over a single person's ideas, round table or committee meeting is that it provides better insight on the details on the problem. Each panel member has different experiences that lend multiple, unique inputs to the issue (Linstone and Turnoff, 1975:3-4), and the input is given and kept in confidence allowing panel members to freely express themselves (Spinelli 1983:77). This anonymity influences group dynamics by preventing "halo" or "bandwagon" effects (Tersine and Riggs, 1976:51). Anonymity in this study will ensure responses are kept confidential. Panel members received the first round surveys individually, rather than as a bulk email. The following round used an online survey, and individual information was not recorded.

Terstine and Riggs suggest four issues as consideration criteria when selecting a panel of experts for a Delphi study:

- They must have enough basic knowledge of the problem to apply it
- They must be able to be objective and rational
- They must have time to participate, and be willing to make a commitment
- Knowledge composition, whether technical or more multi-subject insight is needed
  (1976:54)

Additionally, when the study is education related, the panel should represent the assessed population and have experience in the organization (Olshfski and Joseph, 1991: 298). Panel selection used this criterion as it applied to the three significant aspects of the primary question: junior company grade LROs, joint operations, irregular warfare and cultural intelligence. Therefore, panel member qualifiers are LROs who have deployed and have joint operation experience. Irregular warfare qualifications were difficult to identify, however a deployment to Iraq and Afghanistan provides experience due to the nature of operations. Almost any deployment will suffice for a cultural intelligence qualifier, as a majority of LRO deployment duties requires some type of foreign national interaction. Having a range of ranks, both company and field grade officers will add maturity, variety in perspective and objectivity. A comment on the time burden and commitment was included in the request for contributors so they understood the expectation for participation, while still allowing participation to be voluntary. The context narrowed this study to junior company grade LROs, and because it is exploratory, it is abstract. The difference in ranks and experience gave the panel a broad composition of knowledge. Company grade officers with joint experience will have likely gained it from ILO taskings, while field grade officers will provide a staff perspective.

There is no rule for the optimum number of panel members; however Terstine and Riggs recommend 10-15 members if the group is homogeneous (1976:54). The

number should increase as the extent of homogeneity decreases. The research sponsor, AETC/A4 provided participants by requesting 13 volunteers from the Air Force major commands shown in Table 3 below.

Table 3. Panel Member Composition by Rank and Major Command.

Major Command	Captain	Major	Lieutenant Colonel/ Colonel
Air Mobility Command	1	2	2
Air Combat Command	1	2	2
Air Education and Training Command	1	1	1
Total	3	5	5

Questionnaire 1: Structure and medium

Format for survey questions in a Delphi study vary by author and study. Some use prior information source for the questionnaire and utilize a Likert scale to collect data (Ogden and others 2005:30-32, Sasser 2004:30-31). Others have open-ended questions, which the researcher consolidates into statements for consensus. The first survey's intent was to explain the study's objective, describe the process and allow panel members to brainstorm. They received three open-ended questions, allowing panel members freedom to express their ideas. Each question related to one of the three categories of the primary question: joint operations, irregular warfare and cultural intelligence. Using these questions, they were to generate no more than 10 short phrases describing the training a junior company grade officer will need in each area. Panel members provided some biographical data related to their rank, deployment experience, time in service and interaction with foreign nationals. This information validated their qualifications for

participating in the survey. A test group of LROs validated the survey for functionality, and then it was emailed to the panel members. A database stored the respondent's biographical data and question inputs during analysis.

Combine and refine the initial input

The next step is to combine and refine the respondent's statements. As the following survey is dependent on these statements, they need to be clear and retain the panel member's intent. The respondent will receive the questions as they appear in the following survey to ensure the meaning is accurate.

Questionnaire 2: Stucture and medium

The second questionnaire was online, and had panel members rate the consolidated statements for likelihood of implementation and impact. The likelihood of implementation refers to the degree in the respondent's mind they believe that training should be implemented. Impact refers to the level of usefulness the respondent believes the training will be to LROs in an expeditionary environment. The ratings used a five point Likert scale with the categories of none, very little, somewhat limited, somewhat significant, and very significant. The intended focus for the second round was the relationship between implementation and impact, if and to what degree. If the panel members disagree with a statement, they could make comments explaining why. A group of LROs tested the survey to validate its functionality.

C***ompute the average and standard deviation***

Computing the average means for likelihood of implementation and impact is a way to separate, or rank, the different training statements from the first round. Referring

back to the Liker scale ratings, the panel can identify the training that will have greater impact if implemented and the likelihood of training being implemented.

The standard deviation of the average likelihood of implementation and impact means from the second questionnaire's data determines the level of consensus, or agreement on a ranking. For this study, the definition of panel consensus is a standard deviation < 1.0. This measurement is where the composition of the panel members brings value to the research. Having company grade and field grade officers with differing experiences reach consensus on a topic highlights the importance of that topic. The next step is to evaluate data from the findings and bring meaning to the panel's recommendations.

IV. Results and Analysis

Overview

This chapter summarizes the implementation and results of the Delphi methodology in this study. It includes a description of the panel, creation of the questionnaires, and presents the consensus evaluations. The survey data are organized, analyzed and presented as it relates to the primary question.

Expert Panel Composition

The sponsor for this research, AETC/A4R, assisted with providing panel members by requesting them from ACC, AMC, and within AETC as outlined previously in chapter three. Of the names 13 provided by AETC, three field grade officers agreed to participate in the study. In order to obtain the 13 necessary for the study, the author solicited company grade officers with joint experience for names of individuals who they knew also had experience. This search supplied 20 additional names of company grade LROs across the Air Force with various experiences joint experience ranging from Provincial Reconstruction Team (PRT) to joint staff and Air Liaison Officer (ALO) duties. Of this group of 20 company grade officers, nine agreed to participate in the study, making 13 experts for this Delphi study. The group's composition, shown in Table 4, includes time in service, deployment time, experience and interaction with foreign nationals. This information came from demographic questions in the first round survey.

Table 4. Delphi Study Participant Composition

Participant	Rank	Time in Service (Yr/MO)	Total Deployment Time (Yr/Mo)	Joint Operation Deployment Time (Yr/Mo)	Deployment Location (Unclassfd)	Foreign National Interaction	Joint Duties
1	Capt	7/8	0/11	0/10	Afghanistan Turkey	Yes Yes	PRT
2	Capt	7/6	1/0	1/0	Iraq	No	
3	Capt	14/6	1/3	0/10	Afghanistan Turkey	Yes Yes	PRT
4	Maj	20	1/3	1/0	Kuwait Italy	Yes Yes	Staff
5	Capt	6/5	1/1	0/8	Qatar Afghanistan	Yes Yes	 PRT
6	Capt	13/8	1/3	1/1	Afghanistan MacDill AFB, FL	Yes No	PRT Staff
7	Maj	13	11	11	France Afghanistan Kyrgyzstan	Yes No No	
8	Capt	16	3/5	1/5	Saudi Arabia Kuwait Qatar Iraq	Yes Yes Yes Yes	 Staff
9	Capt	10	2/6	1/3	Guatemala Thailand Diego Garcia Afghanistan Afghanistan	No Yes Yes Yes Yes	 PRT
10	Capt	6/10	1/3	1/0	Iraq Kuwait Korea Afghanistan	Yes Yes Yes Yes	 PRT
11	Lt Col	16	1/11		JSOC (4.5 yrs) Qatar Iraq Afghanistan Oman Saudi Arabia	 No No No Yes Yes	Staff
12	Capt	8	1/4	1/4	Qatar Afghanistan	No Yes	Staff PRT

First Round

Implementation

The panel members received the first questionnaire, shown in Appendix A, by email and asked to complete it within two weeks. This questionnaire described the study's intent and process. It included the three open-ended questions on company grade LRO training, one for each of the three categories of the primary question: joint operations, irregular warfare and cultural intelligence. Also included were statements on related material that came from the literature review to stimulate ideas and to represent the recommended format for a panel member's response. The example statements for joint operations were Lieutenant General C. V. Christianson's ideal skills of a joint logistician from his "town hall meeting" brief, shown in Figure 5, Chapter II. For IW the statements were leadership capabilities, situational awareness and paradigm concepts from Chapter II's literature review. The example statements under cultural intelligence came from the USAF Expeditionary Center's Advanced Air Mobility Operations Course block on Cross Culture communication (2008). Referring to these questions, they should generate no more than 10 short phrases in each area. Additionally, the questionnaire requested biographical data related to their rank, deployment experience, time in service, and interaction with foreign nationals. This information validated their credentials as experts for participating in this Delphi study.

Results

All but one of the participants responded by the date given. Some of the panel members commented on the example questions as areas they would have included with their inputs. All of the participant's responses were organized and consolidated to avoid

duplication. The researcher queried members about uncertainties in statements to ensure intent was intact. The majority of responses included comments that had similar focus, within the three primary subjects of joint operations, irregular warfare and cultural intelligence. Many comments made under irregular warfare were similar to those in joint operations, and therefore combined with the joint operations statements. Some core views were:

- Increased training to be a competent Air Force logistics liaison
- If ILO duties are to continue, training on Army logistics procedures, doctrine and combat skills
- Use of Computer Based Training (CBT) for location specific training
- Break out of a garrisoned force mindset
- Developing deployment leadership in addition to home station management skills
- Cultural differences matter

As part of Delphi study methodology, the consolidated product is to be the second round's questionnaire, including all views and ideas.

Second Round

Implementation

The second round's intent was to rank the input panel members gave in round one on likelihood of implementation and impact. Panel members received an email with a link to an Internet-based survey, initiating the second round. They were given a week to rank the consolidated statements from round one using a five point Likert scale: 1=none, 2=very little, 3=somewhat limited, 4=somewhat significant, and 5=very significant. A comment section allowed participants to include additional views about the statements.

Results

Of the 12 participants who received the second questionnaire's online link, seven responded. Software used for the online questionnaire formatted survey data into a

spreadsheet. The spreadsheet's statistical analysis tools provided the mean and standard deviation for each statement's ratings on likelihood of implementation and impact. The results are in tables within the corresponding areas of analysis, which will follow.

Analysis

The second round's survey data follows, outlined into the three subject areas, and presented in a table listing each statement with its mean and standard deviation. Scatter plot charts accompanying the tables convert the data to information by presenting the relationships between likelihood of implementation and impact using each statement's mean. An L-shaped analysis matrix follows; the format provides a very descriptive indicator on relationships (Brassard. 1989:135, Ogden and others. 2006:35-36). The scatter plots are the foundation for each corresponding 3x3 matrix, which represents the "high", "medium" and "no to low" likelihood of implementation and impact. Each quadrant will include the statement's mean, as they are located on the scatter plot. The intent of these matrices is a simple graphical representation of the five point Likert scale ratings divided into three equal parts, 0 – 1.66, 1.67 – 3.33, and 3.34 – 5. Brief explanations on the statements follow, however many are the author's interpretations based on comments the panel included with their inputs.

Joint Operations

The second questionnaire included 41 statements on the subject of joint operations training a company grade LRO would require. Figure 7 on the next page depicts the average mean for each training statement's rating as a scatter plot chart, with the majority of the these in the mid to high range. Some statements have the same point so there appears to be less than 41 data points. The corresponding matrix in Figure 8

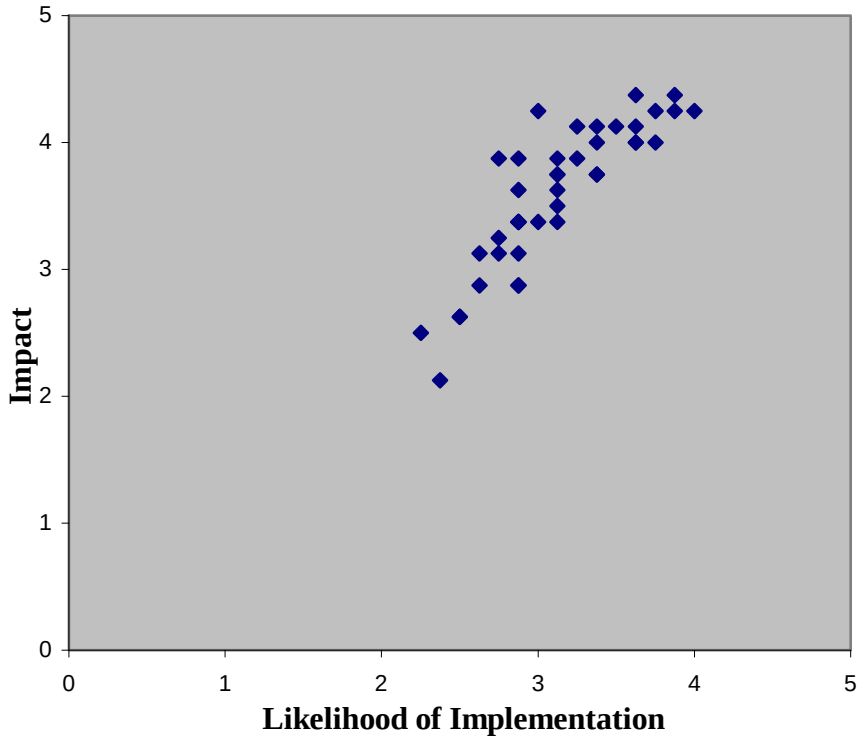

Figure 7: Joint Operations Training Scatter Plot Chart

Impact			
High		Statements: 1, 6, 8, 12, 19, 20, 21, 23, 26, 28, 30, 31, 32, 33, 34, 37	Statements: 2, 3, 4, 5, 16, 17, 18, 27, 29, 35, 36, 38, 39, 40
Medium		Statements: 7, 9, 10, 11, 13, 14, 15, 22, 24, 25, 41	
No – low			
	No – low	Medium	High

Likelihood of Implementation

Figure 8: Joint Operations Training Matrix

identifies the training statements, none of which rated low likelihood of implementation or impact. Table 5 ranks each training statement according to the their placement within the matrix, starting with high impact and high likelihood of implementation. Prioritization within a group is by level of consensus (< 1 standard deviation), starting first with those statements with consensus for both impact and likelihood of implementation, then by average mean. A lower standard deviation indicates a greater consensus and a higher average mean shows a stronger rating. Impact is the baseline for prioritization because it inherently implies the greatest significance for an LRO.

Table 5: Joint Operations Training Statements

Statement	Impact		Likelihood of Implementation	
	Stnd Dev	Mean	Stnd Dev	Mean
High Impact/High Likelihood of Implementation				
29. Joint convoy operations.	0.4	4.1	0.9	3.6
5. Joint transportation methods/strategies; includes convoy, fixed/rotary wing airlift, airdrop.	0.5	4.0	0.7	3.4
16. Joint Supply Chain Management (SCM) concepts.	0.5	3.8	0.5	3.4
39. Combat Life Saver expanded (i.e. more than 4 days of training) for high-threat specific areas.	0.7	4.4	0.8	3.9
18. What a Deployed Distribution Operations Center (DDOC) and Air Mobility Division (AMD) are, and what do they can do for you.	0.7	4.3	0.8	4.0
2. Joint logistics duties, specific to deployment tasking. - Done as CBT online, within 1-2 months before departure. - Require end of tour report be sent to replacement 30 days before home station departure to facilitate familiarity, training. - Module based, different duties require different training.	0.7	4.3	0.8	3.9
17. Joint staff principles to recognize depth of integration, which service has Joint lead position, (Operational/Tactical/Administrative Control – OPCON, TACON, ADCON) and is transferable to different taskings.	0.8	4.1	0.8	3.7

Table 5: Joint Operations Training Statements (Cont'd)

Statement	Impact		Likelihood of Implementation	
	Stnd Dev	Mean	Stnd Dev	Mean
4. Joint logistics planning; includes sourcing, tasking, reporting, Joint Operation and Execution System (JOPES), Movement/Time Phased Force Deployment Document (TPFDD) processes.	0.8	4.0	0.7	3.6
40. Army weapons standards/expanded weapons training/familiarization, including reflexive firing, night firing, with/without gas mask.	0.8	4.0	0.9	3.8
27. End to end explanation of Army supply chain	0.6	4.1	1.1	3.4
35. Combat skills training (including, but not limited to): Base defense Small arms Crew-served weapons Combat lifesaver Communication Land navigation Small unit tactics Calling in a 9-line MEDEVAC In- direct fire support IBE setup Securing a landing zone Indirect fire support 5/25 checks Close combat tactics	0.7	4.4	1.2	3.6
38. IED training and recovery techniques.	0.7	4.3	1.3	3.8
3. Basic knowledge regarding Joint A4 (down to S4) operations.	0.8	4.0	1.1	3.6
36. Ground combat operation principles and strategy, emphasis on non-permissive/austere environment (beyond Eagle Flag).	0.9	3.8	1.1	3.4
High Impact/Medium Likelihood of Implementation				
30. Casualty management in joint operations (I.e., OPCON, TACON, reporting to home station/AFPC).	0.5	3.8	0.8	3.1
26. Background information on computer systems joint operators may be utilizing in the AOR (i.e., ITV, convoy tracking).	0.5	3.6	0.8	3.1
12. Theater specific DRMO, vehicle repair/replacement and retrograde procedures.	0.5	3.5	0.8	3.1
33. Small unit combat/field/austere environment leadership – different than flight commander role.	0.6	3.9	0.8	3.1

Table 5: Joint Operations Training Statements (Cont'd)

Statement	Impact		Likelihood of Implementation	
	Stnd Dev	Mean	Stnd Dev	Mean
37. Radios/communication devices used during joint operations.	0.6	3.9	0.9	2.8
6. Services from a joint perspective: contingency contracting support, food service, and mortuary affairs.	0.7	3.4	0.9	3.0
1. Joint Logistics (JP 4-0) and sister service's logistics doctrine, to include their logistics officer's responsibilities.	0.7	3.3	0.8	3.1
31. Basic unit designations and how they affect transportation requirements (e.g., size of brigade vs. battalion).	0.9	3.6	0.8	2.9
20. Air Mobility Liaison Officer (AMLO) duties.	0.9	3.4	0.8	2.9
21. Interaction/comparison of Air Force aerial port operations with other service's aerial port functions.	0.6	4.1	1.0	3.3
34. Joint perspective of basic combat skills.	0.7	4.3	1.3	3.0
32. Other services doctrine, command/rank structures and basic military cultural differences.	0.8	3.9	1.1	2.9
28. Army vehicle, weapons, artillery, and ammunition maintenance concepts.	0.9	3.8	1.0	3.1
8. Supply chain operations from a joint perspective: operational planning, supply/procurement, vehicle maintenance/repair, deployment, distribution, and retrograde movements.	1.1	3.9	1.0	3.3
19. Acronym "decoder ring."	1.1	3.4	1.2	2.9
23. Munitions procurement, storage, handling, and shipment.	1.2	3.4	1.1	2.9
Medium Impact/Medium Likelihood of Implementation				
11. Force health protection from a joint perspective: casualty management, patient movement, medical logistics, and preventive medicine.	0.5	2.6	0.5	2.5
9. Operational engineering from a joint perspective: combat (mine countermeasures), infrastructure, and geospatial.	0.5	2.5	0.7	2.3
10. Personnel services from a joint perspective: postal, finance, personnel readiness, legal services, religious support, and exchange support.	0.6	2.1	0.5	2.4
41. Handling detainees (POW or "peacetime").	0.7	3.3	0.9	2.8
22. Contract representative (duty specific) and ethics.	0.8	2.9	0.8	2.9
25. Project management concepts.	0.8	2.9	0.8	2.9

Table 5: Joint Operations Training Statements (Cont'd)

Statement	Impact		Likelihood of Implementation	
	Stnd Dev	Mean	Stnd Dev	Mean
7. Differences between sustainment versus build up phases (i.e., if contracting support, food service and mortuary affairs are already established).	1.0	3.1	0.7	2.8
24. Property management differences between services.	1.0	3.1	1.0	2.9
15. Cross service, NGO or other governmental agency support/reimbursement for Classes of Supply not fully integrated, i.e., II, VI, IV, X.	1.0	3.1	1.3	2.7
13. Foreign Military Sales procedures/rules/regulations.	1.3	2.6	1.3	2.5
14. End item acquisition - i.e., MRAP or latest equipment procurement, its maintenance process, and the associated timelines.	1.4	2.9	1.3	2.6

High impact, high likelihood of implementation statements

Panel members ranked the fourteen statements on joint operations training in this quadrant the highest. They reached consensus for both impact and implementation on nine statements. Training that had the greatest consensus related to joint transportation methods and strategies, with convoy operations having the most impact, followed by fixed or rotary wing airlift, and airdrop capabilities. Joint Supply Chain Management (SCM) concepts follow closely, not only in consensus and ratings, but also as related logistics topics. Next is the first combat skills related topic, an expanded Combat Life Saver course. It has the highest impact average mean, but does not have the level of consensus as previous topics. The next two topics have the same level of impact consensus and ranking. The first is on logistics topics, knowing what a Deployed Distribution Operations Center (DDOC) and Air Mobility Division (AMD) are and what they do. The second relates to taking computer-based training (CBT) on joint logistics duties, specific to deployment tasking within 1-2 months of departure. This training

would be module based, since different duties require different training; and includes a requirement for sending an end-of-tour report to the replacement 30 days before their departure from home station to facilitate familiarity, and enhance training. The following two topics are similar in their applicability to working in a joint staff. The first describes basic knowledge on determining which service has lead positions and principles to recognize depth of integration in a staff, facilitating familiarization with operational control (OPCON), tactical control (TACON), and administrative control (ADCON). This should not be tasking specific. The second covers joint logistics planning concepts, including sourcing, tasking, reporting, the Joint Operation and Execution System (JOPES), and movement processes using a Time Phased Force Deployment Document (TPFDD). The last topic in joint operations to obtain consensus for both impact and implementation is about expanding weapons training beyond that Air Force members receive at base level. The recommendation is to implement standards similar to Army weapons standards of reflexive firing, night firing, both with and without a gas mask.

The remaining five topics within the High Impact and High Likelihood of Implementation quadrant had panel consensus for impact, but not implementation. The first covers the US Army supply from end to end. This topic may stem from EET and PRT duties of training Iraqi and Afghan militaries on supply chain processes, using the US Army system as an example. One topic is about basic knowledge of a joint staff structure, specifically the A4 and S4 areas, which deals with logistics operations. The other three topics are associated with combat skills. One statement had a moderate consensus level and ranked high, but generalized a large number of topics under the heading “Combat Skills training:”

- Base defense
- Small arms
- Crew-served weapons
- Combat lifesaver
- Communication
- Land navigation
- Small unit tactics
- Calling in a 9-line MEDEVAC
- In- direct fire support
- IBE setup
- Securing a landing zone
- Indirect fire support
- 5/25 checks
- Close combat tactics

However, it did not receive consensus for implementation; perhaps because the panel did not believe all topics were necessary. Supporting this theory are two similar topics, Combat lifesaver and small arms, independently listed previously as having consensus for impact and implementation. Breaking this group down may identify those topics with the greatest value. The recommendation for Improvised Explosive Device (IED) training and recovery techniques reflects current dangers facing convoys, as does the recommendation for ground combat operations principles and strategies. Emphasizing a non-permissive environment beyond Eagle Flag refers to conditions outside an airbase perimeter. Eagle Flag is open to all Air Force members as a training exercise on bare-base set up and operations, and has a garrisoned force perspective. This statement suggests LROs need training that goes beyond a garrisoned force perspective.

High impact, medium likelihood of implementation statements

All but one of these fourteen statements have consensus on impact and are ranked as having a high impact, but have a medium range ranking for likelihood of implementation. The topic with the highest consensus for this category deals with the

delicate subject of casualty management, which LROs will only deal with in a joint environment. The specific areas recommended refer to operational control (OPCON) and tactical control (TACON), in addition to reporting to home station and Air Force Personnel Command (AFPC). Closely ranked is gaining information on computer systems joint operators may be utilizing in the Area of Responsibility (AOR). From a logistician's perspective, these include systems for intransit visibility (ITV) and tracking convoys. The next topic is also on the logistician's scope, theater specific procedures for reverse logistics, such as vehicle repair, replacement and retrograde shipments. The two that follow are associated with combat skills, and have similar consensus and implementation numbers. The first is on leadership roles in combat and austere environments, how this is different that being a flight commander at home station. The second relates to communication, specifically equipment used during joint operations. A unique topic that LROs typically do not associate as being part of logistics, but is from a joint perspective are services duties, including contingency contracting support, food service, and mortuary affairs is listed next. Several inter-service topics obtained consensus in both impact and implementation, with a mid-range rankings that are very similar, starting with training on Joint Publication 4-0, *Joint Logistics*. This training would also include a description of sister service's logistics doctrine and their logistics officer's responsibilities. Although having slightly less consensus, material on basic unit designations (e.g., size of brigade vs. battalion), how they affect transportation requirements, and Air Mobility Liaison Officer (AMLO) duties follow. The recommendation for understanding the interaction and comparison of Air Force aerial port operations with other service's aerial port functions relates deployed areas where

fixed and rotary wing aircraft operate. A joint perspective of basic combat skills and learning about the other service's doctrine, command and rank structures, along with basic military cultural differences gained consensus and were ranked higher for impact, but didn't receive consensus for likelihood of implementation. The last four topics within this category are logistics related. The first incorporates Army vehicles, weapons, artillery, and ammunition maintenance concepts; perhaps due to ILO taskings. The second is generic, covering supply chain operations from a joint perspective. It includes operational planning, supply, procurement, vehicle maintenance, repair, deployment, distribution, and retrograde movements. Most of these topics are in other training statements, which indicates the training is necessary but the statement is too broad. The recommendation for an acronym "decoder ring" is a colloquial term suggesting a method to decipher the multitude of acronyms across the DoD. Finally, munitions procurement, storage, handling, and shipment may be considered too deployment duty specific for consensus.

Medium impact, medium likelihood of implementation statements

The eleven statements within this quadrant received the lowest ranking, and some have consensus showing the panel agreed closely on the rankings. At the top are three statements from Lt General Christianson's recommendations for a joint logistician that were included in the first round as examples. The results may be a result of an Air Force perspective that does not associate with logistics. The first is about force health protection from a joint perspective, including casualty management, patient movement, medical logistics, and preventive medicine. The second covers operational engineering from a joint perspective such as mine countermeasures, infrastructure, and geospatial.

The third incorporates postal, finance, personnel readiness, legal services, religious support, and exchange support as a joint perspective of personnel services. The rest of the suggestions are possibly duty and location specific, such as handling detainees (POW or "peacetime"), contract representative (including ethics) and project management concepts. The statement on differences between sustainment and build-up phases, which includes contracting support, food service and mortuary affairs, includes topics the Air Force does not generally associated with logistics as mentioned earlier. The statement on property management differences between services follows this same premise. The last three topics on reimbursements, foreign military sales, and acquisitions are likely to be areas panel members perceived field grade-level officers should receive training.

Irregular Warfare

On the subject of training a company grade LRO would require for irregular warfare, the second questionnaire consisted of 14 statements. Relationships between statement impact and implementation means are shown in the scatter plot chart of Figure 8. Less than 14 data points show since three of the statements have the same point. Figure 9 is the corresponding matrix, and identifies the training statements; none ranked low impact or likelihood of implementation. In Table 6, each statement is listed according to their placement within the matrix, starting with high impact and high likelihood of implementation. Prioritization within a group is by level of consensus (< 1 standard deviation), starting first with those statements with consensus for both impact and likelihood of implementation, then by average mean.

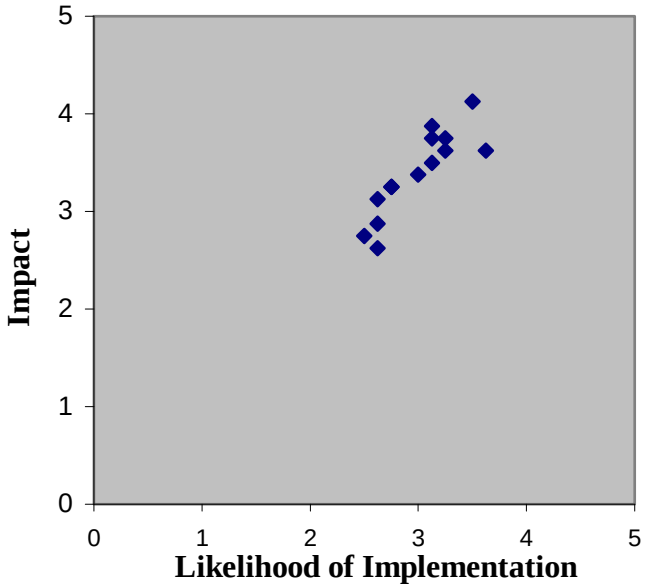

Figure 9: Irregular Warfare Training Scatter Plot Chart

Impact			
High		Statements: 2, 3, 4, 913, 14	Statements: 6, 7,
Medium		Statements: 1, 5, 8, 10, 11, 12	
No – low			
	No – low	Medium	High

Likelihood of Implementation

Figure 10: Irregular Warfare Training Matrix

Table 6: Irregular Warfare Training Statements

Statement	*Impact*		*Likelihood of Implementation*	
	SStnd Dev	*MMean*	*Stnd Dev*	*Mean*
High Impact/High Likelihood of Implementation				
6. Geneva conventions and LOAC, coupled with heavy emphasis on ethics	0.7	3.6	0.9	3.6
7. Strategies for maintaining situational awareness.	1.0	4.1	1.1	3.5
High Impact/Medium Likelihood of Implementation				
3. Strategies for shifting paradigms – how to get the mission done, but in a different way that originally planned.	0.7	3.8	0.8	3.1
4. Use of technology and information systems that help in combating the enemy in an irregular warfare situation.	0.9	3.4	0.9	3.0
14. Pre-deployment overview of GWOT lessons learned.	0.7	3.6	1.0	3.3
2. Indoctrinating leadership capabilities for changing environment – how to think quickly on your feet in the heat of battle.	0.8	3.9	1.1	3.1
13. Insurgent Common Training, Tactics and Procedures (TTP).	0.9	3.8	1.0	3.3
9. Decision making theories, benefits/weakness of analysis and intuition, and the Observe, Orient, Decide, Act (OODA) loop.	0.9	3.5	1.0	3.1
Medium Impact/Medium Likelihood of Implementation				
8. Strategies for shifting paradigms for liaison type positions or positions where interfacing with Joint partner is on a more technical level (Army CC and staff to AF CC and staff).	0.7	3.3	0.7	2.8
11. Strategies for minimizing property loss or damage resulting from irregular warfare during resupply/retrograde actions.	0.8	3.1	0.7	2.6
10. Impact of irregular warfare on contractor service.	0.9	2.8	0.8	2.5
5. Differences between conventional/unconventional irregular/traditional warfare.	1.0	3.3	0.7	2.8
12. Basic irregular warfare doctrine in preparation for application at field grade level.	1.1	2.6	1.1	2.6
1. Irregular warfare training that parallels sister services.	1.1	2.9	1.2	2.6

High impact, high likelihood of implementation statements

There is only two statements related to irregular warfare this quadrant. The first had panel member consensus, discussing two ethics-related topics - Geneva conventions and Law of Armed Conflict (LOAC). Comments from the survey point out the need to understand these, especially in the "heat of the moment." This can also relate to the next statement on strategies for maintaining situational awareness, which was borderline consensus, but had a higher average mean ranking.

High impact, medium likelihood of implementation statements

The six statements categorized in this area relate to knowledge skills. All had consensus for impact, and were at least borderline for implementation. The first follows the theme of changing environments, how to think quickly on your feet in the heat of battle. It incorporates strategies for shifting paradigms, accomplishing mission objectives differently than originally planned. This can incorporate the topic that follows, which is the use of technology and information systems. This awareness should include a pre-deployment overview of GWOT lessons learned. An example of this is the Army Knowledge Online (AKO) Battle Command Knowledge System (BCKS) forum for individuals involved with ETT and PRT duties. This example also fits the recommendation for establishing community knowledge of common insurgent Training, Tactics and Procedures (TTP). The final recommendation for decision-making theories of analysis and intuition coincide with all these topics, from the perspective it enhances the speed of cycling through the Observe, Orient, Decide, Act (OODA) loop, which if done faster than an opponent gives one an advantage. Because these topics rank high for impact, with borderline consensus, there appears to be value in studying them further.

Medium impact, medium likelihood of implementation statements

Panel members ranked the final six statements in this category with the lowest average means. The first is borderline to the previous rating category and is similar in context, as it relates to shifting paradigms while working liaison type positions or positions requiring interface with joint staffs. Also included in this category is the impact of IW on contractor service and strategies for minimizing property loss or damage resulting from IW during resupply and retrograde actions. Interestingly, doctrinal topics such as differences between conventional, unconventional, irregular and traditional warfare, basic IW doctrine in preparation for application at field grade level, and IW training that parallels sister services are in this category. However, a high standard deviation for these topics indicates there was very little consensus among the panel.

Cultural Intelligence

The panel rated 26 statements in the second questionnaire on the subject of cultural intelligence training. Figure 11 is the scatter plot chart, and Figure 12 the corresponding matrix reflecting the training statements. As with the previous charts, there are less than 26 data points because eight of the statements have the same point. None of the statements ranked lower than medium impact, medium likelihood of implementation. Table 7 gives a prioritized list of the statements, their standard deviation showing consensus, and average mean.

High impact, high likelihood of implementation statements

Of the eight statements on culture intelligence training within in this quadrant, the first four had consensus for both impact and likelihood of implementation. The first of these, comments on maintaining ethical standards without insulting host country

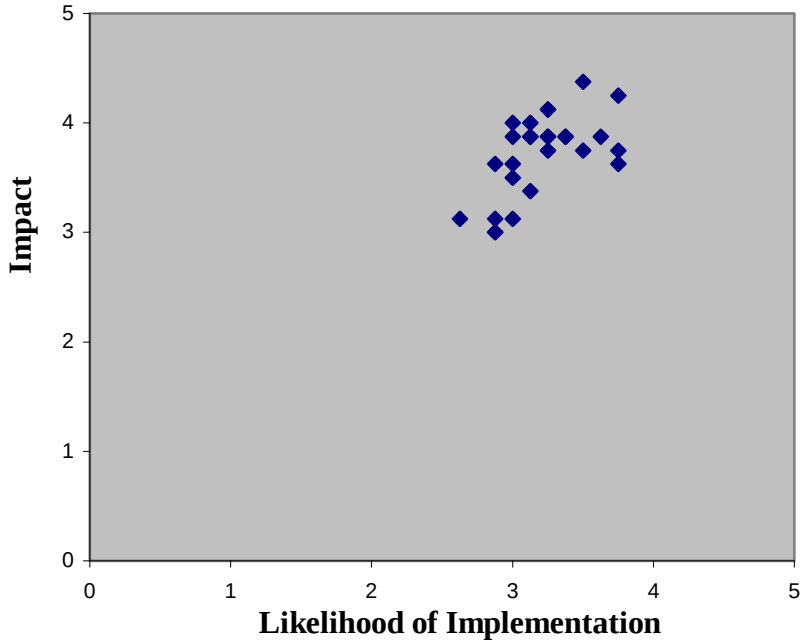

Figure 11: Cultural Intelligence Training Scatter Plot Chart

Impact			
High		Statements: 2, 3, 4, 5, 10, 11, 13, 15, 16, 19, 24, 25, 26, 27	Statements: 7, 12, 17, 18, 20, 21, 22, 23
Medium		Statements: 1, 6, 8, 9, 14	
No – low			
	No – low	Medium	High

Likelihood of Implementation

Figure 12: Cultural Intelligence Training Matrix

Table 7: Cultural Intelligence Training Statements

	Statement	*Impact*		*Likelihood of Implementation*	
		Stnd Dev	*Mean*	*Stnd Dev*	*Mean*
	High Impact/High Likelihood of Implementation				
22.	Maintaining ethical standards without insulting host country nationals.	0.7	4.3	0.7	3.8
17.	How to work effectively through an interpreter.	0.7	3.8	0.7	3.8
18.	Hands on training working through interpreters.	0.7	3.6	0.7	3.8
20.	Basic history of people in AOR.	0.9	3.8	0.9	3.5
7.	Effect of culture on communication.	0.8	3.9	1.1	3.4
23.	Deployment specific language, culture, customs training, if working with local nationals.	0.9	4.4	1.2	3.5
21.	Basic description religion, belief system, values and affects on culture.	1.0	3.9	1.1	3.6
12.	Impact culture has on mission objectives.	1.0	3.9	1.2	3.4
	High Impact/Medium Likelihood of Implementation				
25.	How religion, national and cultural allegiances affect working with locals.	0.4	3.9	0.9	3.0
4.	Effect of culture on inter/intra-personal relations.	0.5	4.0	0.8	3.1
19.	Hands on training with non-Americans and different value systems.	0.5	3.6	0.9	3.0
11.	Cultural impact/differences on national military and police forces.	0.7	3.8	0.7	3.3
15.	CBT online, country/region specific.	0.7	3.4	0.8	3.1
16.	Cultural training that extends past a couple days.	0.8	3.9	0.6	3.1
26.	Effect of IW on culture and communication.	0.9	3.5	0.9	3.0
10.	Effect of culture on work ethic.	0.8	3.9	1.0	3.3
13.	Gender/ethnic issues with respect to mission effectiveness.	0.8	3.9	1.0	3.3
5.	Strategies for inter/intra-personal interaction.	0.8	4.1	1.3	3.3
2.	Strategies for cross-culture communication.	0.9	3.6	1.0	2.9
3.	Effect of culture on perceptions.	1.0	3.9	1.1	3.1
24.	Deployment specific understanding of country's history/government and the influence that has on the current situation.	1.1	4.1	1.3	3.3
27.	Mentoring skills, in context of ETT.	1.1	4.0	1.5	3.0
	Medium Impact/Medium Likelihood of Implementation				
14.	Practical exercises on cultural interactions.	0.8	3.1	0.8	3.0
6.	Effect of culture on the concept of time.	0.8	3.0	0.8	2.9
8.	Effect of culture on spatial concepts.	0.9	3.0	1.0	2.9
1.	How cultures are created.	1.0	3.1	1.2	2.6
9.	Effect of culture on managing contracts.	1.1	3.0	1.1	2.9

nationals. This is an issue when working with cultures where giving gifts is a norm, because of the potential ethical issues it can become for US military members. The next two statements are significant for their impact on communication, working through an interpreter effectively, including a recommendation for hands-on training. Understanding the history within an area of responsibility (AOR) appears to have value, in addition to understanding the affect culture has on language. Both had similar consensus and rating numbers. Deployment specific language, culture and customs training had consensus for impact, but not for likelihood of implementation, perhaps because of the cost involved. When preparing for a global expeditionary capability there are many cultures to consider. Using this reasoning, the results for the next topic listed, a basic level description of religion, belief and value systems, with their affect on culture seems to be misplaced. However, this can be viewed as too basic to be of any use also, as is the last statement in this category, discussing the impact culture has on achieving mission objectives.

High impact, medium likelihood of implementation statements

With 14 statements, this category is the largest for cultural intelligence. Some are general; strategies for cross-culture communication, the effects of culture on perceptions, inter- and intra-personal interaction, as well as how religion, national and allegiances affect interactions with locals. The statement about cultural impact and differences national and military police is borderline, which shows it has value and is a candidate for further study. Interestingly, the two statements that relate to training methods seemed to vary even though their means were close and the standard deviations low. The first is country or region specific CBTs online, and the second cultural training that extends past

a couple days. Hands on training working with non-Americans and those without our value systems had consensus, and ranked high on impact, yet lower on implementation. Perhaps this reflects the view that the experience has value, but implementation within an educational setting would be difficult. Mentoring skills, a part of embedded training team responsibilities and a related statement on the effect of IW on culture and communication fall in this category also.

Medium impact, medium likelihood of implementation statements

The five statements ranked in this category rank lowest for cultural intelligence. Four of these, practical exercises on cultural interactions, understanding how cultures are created, the effects of culture on the concept of time and spatial concepts, were given to the panel as "idea starters" and may be too basic. The statement on the effect of culture on managing contracts may have ranked low because it is not a common duty in a deployed environment, although there is a ethics aspect that was not specifically addressed.

Chapter V. Conclusions and Recommendations

Conclusions

This study's intent was to determine what training future company grade LROs will require in the areas of joint operations, irregular warfare, and cultural intelligence. The research used Delphi methodology, utilizing an expert panel of twelve LROs with joint operations experience in a deployed environment and interaction with foreign nationals. They went through two rounds of surveys; the first sought their views on training needed in the three different areas, the second round consisted of responses from the first survey, of which the panel members ranked the likelihood of implementation and impact using a 5-point Likert scale. The mean and standard deviation for these rankings were calculated and plotted accordingly into a scatter graph. A 3x3 matrix representing the relationship between the rankings categorized the findings; providing a graphic representation of training topics the panel members believe LROs will need in the future.

A summary of the most significant topics follows, with some recommended methods for fulfilling this type of training. Even though the other statements are not included, many received noteworthy ratings and consensus evaluation, and have value. Previously the context was LRO career field-specific training; however, as some of the panel's topical training suggestions are applicable to all Airmen the context will bend to incorporate additional training options available. Considering training obtained through other sources, such as professional military education (PME), is reasonable since it can save time and money. However, this external career field training needs monitoring to determine whether it is meeting the LRO community's needs. One particular opportunity

for adding the panel's training recommendations into a LROs formal training schedule is in the training blocks proposed by Maj Gen McCoy in Figure 3, on page 7. Company grade officers would complete these formal online training courses yearly until they are captains, and prepare them for the ALROC course described in the literature review.

Joint Operations Training Recommendations

Joint operations was defined in this study as integrating logistic resources, processes and information from multiple military branches towards a common goal, therefore requiring the ability to plan, execute, and control operations. Panel members came to consensus on nine statements for both impact and implementation, distinguishing their significance. Central themes consisted of a joint perspective to supply chain topics that include transportation methods, planning, sourcing and the systems in use. The preferred training method is using deployment specific CBTs. Different combat skills received emphasis with the two most noteworthy topics being lifesaving capabilities and weapons familiarization.

The literature review showed that at the company grade level there is no requirement for joint operations training, the training that is offered is has limited availability, and scope when compared to the input of this study's panel members. These topics would be prime candidates for the proposed yearly CBT training block described earlier as a short-term solution. Perhaps in the future, as an understanding of how the DoD is going to manage joint operations training emerges, an more permanent course of action will emerge.

On the topic of combat skills training, the Air Force is still within the early stages of defining what it means to be "expeditionary," and its implications as the Air Staff

White Paper on the topic describes. It has only been within the last year of this study's publication that Air Force Chief of Staff General Moseley began infusing a "warrior ethos" into Air Force culture. A potential solution for LROs is the planned Common Battlefield Airman Training (CBAT) course that provides ground combat skills. This course will be incorporated into entry-level training pipelines for a number of career fields starting in 2011 (AETC 2007). Until this type of training is a fundamental part of a LROs career, obtaining it may only happen prior to a deployment when it is required.

Irregular Warfare Training Recommendations

Irregular warfare for this study refers to 'a violent struggle among state and non-state actors for legitimacy and influence over the relevant populations' (AFDD 2-3 2007). Two of the topics have consequence, as defined previously in the discussion on methodology, and may potentially relate to each other. The first has an ethics theme, associated with Geneva Conventions and Law of Armed Conflict (LOAC). The second topic is about strategies for maintaining situational awareness.

The impact of IW and logistics is still a topic that requires exploration. However, from a leadership development perspective situational awareness may be incorporated now by simply making the connection in current classrooms across the Air Force where the subject comes up and while mentoring young LROs. This can be said for ethics also, when Geneva Conventions and LOAC training becomes due. There is a logical link between the appropriate level of force taught in combat skills and ethics, so as the Air Force expands on combat skills increased emphasis on ethics should occur also.

Cultural Intelligence Training Recommendations

Cultural intelligence refers to the capability to operate effectively in a foreign cultural environment. Four training statements rated high impact and implementation had consensus for both these areas. Maintaining the ethical standards set by the US government policies without insulting host country nationals. The next two statements relate to effective communication, working through an interpreter effectively and a recommendation for hands-on training. The last topic Understanding the history within an area of responsibility (AOR) appears to have value,

Currently, a deploying Airman can obtain broad cultural intelligence as optional resources online. These include, but are not limited to; Rosetta stone language courses, private businesses such as Tactical Language and Training System, as well as Air Force Knowledge Online (AFKNO) country and culture classes.

Comments on Methodology

Delphi methodology is useful for its flexibility; however this is may also be perceived as a weakness for someone who prefers an analysis technique that is less abstract. For example, there is no set procedure for analysis compensation when members are unable to complete all rounds. In this study, a decrease in participation rates between round one and round two may have had an impact on the survey results. In the second round, the participation rate decreased by five members (7 out of 12 total Delphi participants). Time, duty-related responsibilities, and base network security policies prevented some members from participating. Due to participation anonymity, there is no way to know who responded. A certain amount of the studies credibility is dependent on including the experiences of both company and field grade officers for

balance. The outcome implies stretching the perspective spectrum to a view by company grade officers of training needed. This view has merit also, from the position those officers who have entered the Air Force since 2000 have had a vastly different career to create a different view of logistics than their predecessors, and so they view the future differently.

Suggestions for Follow-On Studies

This study was exploratory; there are many areas for follow-on studies. In light of the small population used, a larger survey may validate the results of this study. Additional research using quantitative methodology needs to identify specific training areas within a particular topic, and the levels of training needed, from basic recognition to implementation capabilities. Similarly, a empirical study can examine the current behavioral statements in entry-level training, and how well they prepare an expeditionary logistician; an example of this is Crow's study on perceived training transfer for combat skills (2007).

Any one of the three topics this research discusses can be an area of study on their own. Additionally, this research does not just apply to the field of training, but in the logistics processes as a whole. One example would be taking a wide-angle view of all irregular warfare threats to our transportation and supply chains. This type of research should take into account cyberspace as well as physical assets, and the weak seams in joint operations. The effect of cultural intelligence is a topic that is gaining recognition as a significant issue, as the literature review shows. Joint logistics is a current topic of discussion; one particular subject is whether the Air Force should even be responsible for implementing and funding joint training (Closson 2008).

Given the literature review on LROs gaining experience beyond traditional garrison duties, perhaps it is time to question the cultural trend within the Air Force favoring rated officers for the majority of senior leadership positions, including those in the logistics roles, and looking at ways to develop LROs for these responsibilities.

Summary

Due to the integrative nature of logistics and unique expeditionary experiences, the LRO career field is currently at a crossroads to position itself to not only be highly competitive for future senior leadership positions, but also be capable logisticians. Therefore in defining the expeditionary capabilities future LROs need, consider Lt Gen Roger A. Brady's perspective in his statement to the Senate on Air Force initiatives to develop 'the world's best air, space and cyberspace warriors – expeditionary, knowledge-enabled, ethical, and prepared for the interdependent fight' (2007:7).

Appendix A: First Round Questionnaire

Fellow Logistics Readiness Officers:

Thank you for participating in this study, which is sponsored by Air Education and Training Command and being conducted by the Air Force Institute of Technology. The study's goal is to forecast training for company grade Logistic Readiness Officers (LRO) in a deployed environment. Your willingness to share valuable insight from deployment experiences is vital to the study's success.

Consider the assumption that LROs who entered the Air Force within the last seven years have experienced a vastly different career than most of their predecessors. Ongoing joint combat operations, the merging of transportation/supply/logistics plans career fields, force shaping, budget reductions, in addition to changes in logistics doctrine and business practices have created an environment vastly different from the Cold War years.

Chapter six in the draft of Joint Publication 4-0, *Logistics Support*, titled "Future Joint Logistics" provides insight to the DoD's potential direction. Topical issues include joint operations, irregular warfare and cultural intelligence; all high-interest items for US forces in the Global War on Terror. The following paragraphs describe the context of these three areas in the study.

- **Joint operations** integrate logistic resources, processes and information from multiple military branches towards a common goal, therefore requiring the ability to plan, execute, and control operations. Current examples are the Army In-Lieu-Of taskings (e.g., Provincial Reconstruction Team, Embedded Training Teams and combat convoy teams) and AEF cycle taskings to joint operation centers.

- **Irregular warfare** (IW) is defined in AFDD 2-3 as 'a violent struggle among state and non-state actors for legitimacy and influence over the relevant populations.' Indirect and asymmetric methods make the threat response spectrum broad, and traditional logistic functions may apply, however activities often lie outside established duties. Therefore, consider attitudinal capabilities: adapting to changing environments, dealing with uncertainty, broadening situational awareness and evolving out of garrisoned force paradigms.

- **Cultural intelligence** refers to the capability to operate effectively in a foreign cultural environment. There is a broad spectrum of cultural interactions within the LRO duties from force bed down responsibilities, PRT/ETT taskings and maintaining relations with local officials or coalitions.

The scope is limited to junior company grade officers (CGOs), second lieutenants to captains with less than three years time-in-grade. The need for traditional basic career knowledge taught at Lackland is assumed, and emphasis is not on identifying problems or

evaluating current training, but offering solutions by suggesting capabilities-based skills for future LROs.

There will be three rounds of surveys. The Privacy Act of 1972 applies; only I will be able to make a connection between participants and their answers.

- Round one is brainstorming, with each participant offering input of no more than 10 bullet-type statements for each of the three topic areas.
- Round two is ranking the consolidated inputs for significance of need/probability of implementation.
- Round three is like the second, with the focus on consensus

It first survey starts on the following page. A handful of inputs have been provided as examples and to trigger ideas. Answers may be added, save and returned to me using this document, don't worry about correcting the format.

Very respectfully,

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Part I: Demographic Data

1. What is your rank?
   -

2. How many years of service do you have with the USAF?
   -

3. How much deployment time do you have working joint operations (Yrs/Mths)?
   -

4. What is the total amount of time have you spent deployed (Yrs/Mths)?
   -

5. Please list the deployment locations influencing your input and whether your duties required notable interaction with <u>any</u> non-US personnel (please do not compromise classified information).

Location	***Interaction (Y/N)***

Part II: Joint Operations

In section 1 below, and in bullet format, please list up to ten areas of training in joint operations you believe a junior company grade LRO will need in a deployed environment. Shown are recommendations from research that may be used as examples and to trigger ideas.

If you do not believe any training in this area is necessary, you may say "none", but please comment why.

Section 2 may be used if you wish to include additional comments.

Section 1

- Services from a joint perspective: contingency contracting support, food service, and mortuary affairs.

- Supply chain operations from a joint perspective: operational planning, supply/procurement, vehicle maintenance/repair, deployment, distribution, and retrograde movements.

- Operational engineering from a joint perspective: combat (mine countermeasures), infrastructure, and geospatial.

- Personnel services from a joint perspective: postal, finance, personnel readiness, legal services, religious support, and exchange support.

- Force health protection from a joint perspective: casualty management, patient movement, medical logistics, and preventive medicine.

- Supply Chain Management (SCM) concepts, with addition of integration of joint operations.

Your recommendations:

Section 2

Part III: Irregular Warfare

In section 1 below, and in bullet format, please list up to ten areas of training in irregular warfare (IW) you believe a junior company grade LRO will need in a deployed environment. Shown are recommendations from research that may be used as examples and to trigger ideas.

If you do not believe any training in this area is necessary, you may say "none", but please comment why.

Section 2 may be used if you wish to include additional comments.

Section 1

- Impact the spectrum of IW strategies has on logistic processes.

- Indoctrinating leadership capabilities for changing environments.

- Strategies for maintaining situational awareness.

- Strategies for shifting paradigms.

Your recommendations:

Section 2

Part IV: Cultural Awareness

In section 1 below, and in bullet format, please list up to ten areas of training in cultural intelligence you believe a junior company grade LRO will need in a deployed environment. Shown are recommendations from research that may be used as examples and trigger ideas.

If you do not believe any training in this area is necessary, you may say "none", but please comment why.

Section 2 may be used if you wish to include additional comments.

Section 1

- Fundamental reasons that create culture.
- Effect of culture on perceptions.
- Effect of culture on inter/intra-personal interactions.
- Strategies for inter/intra-personal interaction.
- Effect of culture on values.
- Effect of culture on the concept of time.
- Effect of culture on communication.
- Strategies for cross-culture communication
- Effect of culture on the concept of space.
- Impact culture has on mission objectives.

Your recommendations:

Section 2

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Vita

Captain P. Kirk Larson graduated from Holbrook High School in Holbrook, Arizona. He graduated with a Bachelor of Science degree in Professional Aeronautics from Embry-Riddle Aeronautical University in October 2001. He was commissioned through the USAF Officer Training School where he was recognized as a Distinguished Graduate.

His first assignment was Davis-Monthan AFB as an Air Transportation Specialist in October 1991, deploying several times to Saudi Arabia. From May 1996 to June 1997 he was the Korean peninsula Air Clearance Authority while assigned to Osan AB, Korea. From there he worked in the 627th Air Mobility Support Squadron Air Terminal Operations Center at RAF Mildenhall, UK. Starting June 2000 he served as a Deployment Instructor at Holloman AFB, NM, and deployed in 2001 for the start of Operation Enduring Freedom. His next assignment was to the 366 Logistics Readiness Squadron at Mountain Home AFB, ID as a Logistics Readiness Officer in 2002, where he worked in the Readiness Flight, Management and Systems Flight, Vehicle Maintenance Flight; deploying several times for operations in Southwest Asia. In September 2006, he entered the Graduate School of Engineering and Management, Air Force Institute of Technology. Upon graduation, he will be work in 12 AF/A4R at Davis Monthan AFB.

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14. ABSTRACT
Since the development of the Expeditionary Airman concept and the start of combat operations in the Global War on Terrorism, the Logistics Readiness Officer's (LRO) duty environment has expanded beyond traditional garrison-based duties. This expansion can arguably incorporate current topics of joint operations, irregular warfare, and cultural intelligence. The intent of this study is to determine what training, if any, future company grade LROs will require on these three topics. The research uses Delphi methodology, utilizing an expert panel of twelve LROs with experience in joint operations within a deployed environment, and interactions with foreign nationals. The study applies two rounds of surveys; the first seeks the participant's recommendations on training statements on the three different topics. The second round survey consists of consolidated responses from the first survey, which panel members ranked for likelihood of implementation and impact using a 5-point Likert scale. The mean and standard deviation for these rankings describe the differences in participant's observations. A scatter plot graph for each of the three topics represents the relationship between the means of likelihood of implementation and impact for each statement. Finally, a 3x3 matrix corresponding with each scatter plot graph categorizes the findings to provide a graphic representation of the expeditionary training panel members recommend for future LROs.

15. SUBJECT TERMS
Logistics Readiness Officer, Joint Operations Training, Irregular Warfare Training, Cultural Awareness Training, Delphi Methodology, Training Forecast

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