

TLOG: Training and Educating Operational Logistic Planners

**A Monograph
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Abstract

TLOG: TRAINING AND EDUCATING OPERATIONAL LOGISTICS PLANNERS by LTC Rebecca M. Freeze, U.S. Army, 43 pages.

When GEN McKiernan and LTG Wallace began planning operations in Iraq, they were able to draw upon a pool of graduates from the School for Advanced Military Studies (SAMS). Unlike the operational planning, there was no pool of trained logistics planners to call upon to plan the logistics support for a campaign covering over 1,100 kilometers. To solve this shortfall, the Combined Arms Support Command (CASCOC) created the Theater Logistics (TLog) Studies Program. The purpose of the course is to produce graduates who possess the agility, innovation, knowledge and decision analysis to solve logistical problems in today's complex environment.

This monograph analyzes the effectiveness of TLog's current curriculum in meeting the course's goal. To conduct the analysis, this paper creates a recommended course framework based on underlying skills derived from the course's stated purpose. Case studies of recent operational logistic missions and field interviews with logistic planners further identified the knowledge, skills, and abilities required by operational logistic planners. Examination of the course's purpose, case studies and interviews showed that operational logistic planners must be trained and educated in three areas: operational knowledge, problem solving abilities, and corporate business skills.

Using these three areas, an analysis of the current course curriculum identifies that TLog provides a substantive education of operational logistics knowledge, teaches statistical data analysis, incorporates MDMP in its practical exercises and passively provides opportunities to practice corporate business skills. However, the current design does not include the breadth required in the area of operational knowledge as it does not introduce the students to the concepts of operational campaign design. Nor does the current curriculum provide the depth in problem solving skills needed to meet the course objective. The analysis also indicates that the course currently does not include active training of corporate business skills.

Finally, the monograph recommends specific changes to the current curriculum. Additions in operational knowledge provide the students technical knowledge and a common frame of reference in campaign planning. The changes result in students not only technically competent to design a concept of support, but also familiar enough with campaign planning to synchronize the two efforts. The additional skills taught in problem solving and critical thinking provide a more rounded education for operating in a joint environment and incorporates more of the cognitive skills that support critical thinking. The recommended addition of corporate business skills to the curriculum provides the students methods for enhancing underlying abilities required in the planning process. The implementation of these changes enhance TLog's curriculum to meet the course's stated goal; the graduates will be the critical thinking logisticians the Army needs.

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Introduction

Who plans operational logistics for the Army? Logistics is not as exciting as maneuver, but is a subject so critical in combat that General Frederick M. Franks, Jr., VII Corps commander during Desert Storm said, “Forget logistics and you lose.” Not only is logistics critical to operational success, it is also very costly. The price associated with the logistics of a modern American military operation can easily exceed the budget of a developing nation. According to the U.S. Army’s 3d Corps Support Command, during a one year period they were in Iraq, coalition forces consumed over \$1.8 billion in fuel and the Department of Defense spent over \$1.1 billion on contractor-provided transportation and logistic services.¹ In addition, with the introduction of logistic transformation in the U.S. military, logistics has become more complicated. Previously, military logisticians were successful as long as the maneuver commanders did not lose because of shortfalls in supplies or equipment. Currently, a stated goal of logistics transformation is that logisticians not only meet the requirements of any mission, but also must have done so in the most efficient manner. Successful military logisticians now must not only provide adequate support but also demonstrate cost savings and efficiencies gained, a concept comparable to commercial business practices such as Six Sigma.² Since logistics is such a critical component of American military operations, a major consumer of Army resources, and scrutinized for efficiency, how should the Army most effectively train future logisticians for 21st Century conflicts?

In late 2002, when General David D. McKiernan, commander of the Third U.S. Army and U.S. Army Forces Central Command began planning operations in Iraq, he was able to draw

¹ 3d Corps Support Command, *OIF 05-07 3d COSCOM October 2005 to September 2006*. Power Point Brief prepared by the Support Operations Section of the 3d COSCOM.

² In the book, The Six Sigma Way, the authors describe Six Sigma as a system for improving business success by using statistical data wisely, better understanding the customer needs, and managing, improving and reinventing business processes.

upon a pool of graduates from the School for Advanced Military Studies (SAMS). Likewise, when Lieutenant General William S. Wallace, commander of U.S. Army's V Corps, needed a plan for his Corps for Iraq, he too relied upon SAMS graduates. However, who did these commands rely upon to plan the logistics support for a campaign covering over 1,100 kilometers? Unlike the operational planning, there was no pool of trained logistics planners available to plan the logistical support for this campaign. Instead, commanders selected logistics planners from within their command and based their selections on who had the required security clearance, not on any special skills or training.³ The thought of "we won, so we had to have done it right" may initially have hidden the impact of this selection criteria. The initial articles on Operation Iraqi Freedom (OIF) logistics, as well as comments from senior leaders in CENTCOM, painted a picture of success for logistics in Iraq. However, several later studies, to include a 2005 RAND report entitled *Sustainment of Army Forces in Operation Iraqi Freedom: Battlefield Logistics and Effects on Operations* reveal negative impacts on operations due to shortfalls in logistics planning. This study attributes OIF 1's shortfall in dry cargo distribution to the lack of a comprehensive theater distribution plan and the planners' inability to determine the impact that changes in the force flow would have on distribution capabilities.⁴ The lack of sufficient logistics planning also caused shortages in key supplies such as rations and tank treads.⁵ By not identifying these requirements early in the planning cycle, the U.S. industrial base was not able to mobilize in time to produce sufficient quantities of high demand items.

³ LTC Russ Clark, interview by author, Kaiserslautern, Germany, December 19, 2007.

⁴ Eric Peltz et al., *Sustainment of Army Forces in Operation Iraqi Freedom* (Santa Monica, CA: RAND, 2005) XIV-XV.

⁵ Science Applications International Corporation, *Objective Assessment of Logistics in Iraq: DUSD(L&MR) and Joint Staff (JSJ4) Sponsored Assessment to Review the Effectiveness and Efficiency of Selected Aspects of Logistics Operations During Operation Iraqi Freedom (OIF)* (Washington, DC: SAIC, 2004)

To solve the shortage of trained logistic planners, the Combined Arms Support Command (CASCOM) at Ft. Lee, VA reorganized the former Logistic Executive Development Course (LEDC) to focus on operational logistics planning. Renamed the Theater Logistics (TLog) Studies Program, the pilot course began in August of 2007. According to Major General Mitchell H. Stevenson, CASCOM commander, the purpose of the course is to, “develop agile, innovative logisticians who have the decision analysis, logistics knowledge, and skill sets to find solutions for complex operational logistics challenges.”⁶ In order for TLog to meet this purpose, the current course design needs to be modified to focus in three areas: applicable operational-level knowledge, problem solving abilities and corporate business skills.

These three areas provide useful criteria for analyzing TLog’s current course design for completeness and thus its potential to produce graduates capable of solving today’s complex logistic challenges. The first criterion, applicable operational knowledge, describes what a logistics planner needs to know to have an adequate frame of reference upon which to draw during planning. The second, problem solving abilities, illustrates the military and civilian problem solving methodologies and supporting thinking skills that a logistics planner needs to actually solve complex problems. Corporate business skills, the third criterion, identify those skills from the civilian business world that operational logistics planners can leverage to improve their planning efforts.

Fully defining these criteria required several research methods. First, a doctrinal review combined with analysis of the contemporary operating environment provided insight into the knowledge and skill sets that logistic planners need. U.S. Army field manuals, joint publications, sister service doctrine and professional journal articles identified the processes and knowledge that a logistics planner must master. This analysis was then compared with after action review

⁶ MG Mitchell H. Stevenson, “TLog: Preparing Logisticians for the Modular Force,” *Army Logistician* 39, no. 6 (November-December 2007), http://almc.army.mil/alog/TLog_modforce.html (accessed November 10, 2007).

(AAR) comments from various logistic efforts since the Gulf War and with personal interviews with current operational logistics planners. The AAR comments and interviews validated the knowledge requirements identified during the doctrinal review and identified additional skills and abilities needed. Finally, a review of current business literature provided insight into the practical application of business practices that military doctrine identifies but does not clearly explain. The examined commercial practices focused on improving individual and group performances.

The following definitions provide a common understanding of the key terms used throughout this paper:

Operational logistics: Like operational maneuver, operational logistics links the strategic level with the tactical level. It is “a collection of means, resources, organizations and processes that share the common goal of sustaining campaigns and large-scale military operations.”⁷

Macro Logistics: Qualitative, non-technical concepts used to understand the operational - logistical situation and determine initial operational and logistical designs. It includes the positioning of logistical units and the concepts for their use.⁸

Micro Logistics: Quantitative logistics calculations used for detailed analysis that includes consumption rates, attrition rates, order-to-ship times, and lines of communication. It is used to validate the logistics design done at the macro level and created the detailed logistics plan.⁹

Distribution-Based logistics: Current underlying principle of the Army’s sustainment system of velocity and control that replaced the old, supply-based concepts of quantity and redundancy.¹⁰

⁷ Moshe Kress, *Operational Logistics: the Art and Science of Sustaining Military Operations* (Norwell, MA: Kluwer Academic Publishers Group, 2002), 40.

⁸ Ibid., 93.

⁹ Ibid., 94.

¹⁰ Department of the Army, *FM 4-0: Combat Service Support* (Washington: HQDA, 2003), 1-10.

Contemporary Operating Environment (COE): The overall operating environment in which the military will operate, now and in the near future.¹¹ While this doctrinal definition is very threat-centric, the use of COE in this paper includes anything that impacts the conditions and circumstances under which an operational logistics unit operates. In addition to the threat, these factors include modern technology, friendly forces, and infrastructure.

Commander's Appreciation and Campaign Design (CACD): A cognitive model used by commanders and staff to develop a shared understanding of operational, complex problems and design a broad approach for problem resolution. The model incorporates components of Systemic Operational Design (SOD), Effects Based Operations (EBO), and classic elements of operational design.¹²

Corporate business skills: Skills identified in the corporate sector that increase overall individual and group performance at the workplace.

This monograph contains three major sections. The first substantive section of this paper explains the three criteria for success: operational knowledge, problem solving abilities and corporate business skills. This section also outlines why these three design areas are critical for the TLog curriculum to meet its stated purpose. The second section analyzes the current TLog course curriculum in respect to the criteria. Based on the analysis and discussion of the current course curriculum in section two, the third section recommends changes in the curriculum design. If implemented, these changes will produce TLog graduates who are better prepared to solve the complex logistical challenges of the 21st Century.

¹¹ Department of the Army, *FM 7-100 Opposing Force Doctrinal Framework and Strategy* (Washington: HQDA, 2003), Iv.

¹² Department of the Army, TRADOC Pamphlet 525-FW-X: *Commander's Appreciation and Campaign Design* (Fort Monroe, VA: TRADOC 2007), i.

Three Criteria for the Course Design

The TLog course seeks to create the credible and capable logistic planners who possess adequate knowledge and skills to conduct critical logistic planning at the operational level.¹³ Graduates of the course will become the pool of operational level logistic planners that was missing during preparations for Operation Iraqi Freedom (OIF). The preponderance of graduates will serve in positions within Expeditionary Sustainment Commands (ESC), Theater Sustainment Commands (TSC) and Corps G4 plans sections. The purpose of the course as well as the destination of the graduates provide the starting point for determining the criteria for the course design.

The purpose of the course, as stated by MG Stevenson, started the design determination process. Dissecting each component of his statement focused the subsequent doctrinal and literary research. The statement begins by describing ideal logisticians as “agile and innovative.” In other words, they need to be mentally alert and creative, indicating a need for the course to include critical thinking and reasoning skills. The purpose of the course also states that the graduate must possess decision analysis skills. A focus on critical thinking and reasoning skills combined with decision-making methods support this goal. The graduates must also possess the appropriate logistics knowledge for military campaign planning at the operational level. The course objective states that the graduates should possess “skill sets.” Where as this word choice is rather vague, current operational-level logistics planners identified the ideal skills as critical thinking and reasoning skills, problem-solving methods, and basic business skills. Finally, the purpose statement ends by saying, “to find solutions for complex, operational logistics challenges.” This goal implies that graduates will also develop a basic understanding of the

¹³ MG Mitchell H. Stevenson, “TLog: Preparing Logisticians for the Modular Force,” *Army Logistician* 39, no. 6 (November-December 2007), http://almc.army.mil/alog/TLog_modforce.html (accessed November 10, 2007).

sources of those challenges, which Moshe Kress suggests are the operational plan and the operating environment.¹⁴ In summation, the results from an analysis of TLog's purpose, complimented by doctrinal review and field interviews, identified three critical measures of success for the course: applicable operational-level knowledge (both logistical and maneuver), problem solving skills (methodologies as well as critical thinking and reasoning skills) and corporate business practices.

For the sake of the course design, operational knowledge breaks down further into two subcategories, operational logistics and operational maneuver. Both categories of operational knowledge share the concept of "operational-level." Per FM 1-02, the operational level is that which links the strategic and tactical levels.¹⁵ However, the two are determined and planned differently. Operational maneuver planning ensures that tactical plans support the strategic vision. Operational logistical planning, however, applies strategic capabilities to support tactical requirements.

Given that the basis for support planning is the operational plan,¹⁶ an operational logistician must have a working knowledge of operational maneuver. The ability to communicate with maneuver planners further adds to the credibility of the logistics planner. Both of these reasons for having a good understanding of maneuver operations was reinforced by a theater-level logistics planner who said, "We as loggies walk into an operational planning session, you're at a disadvantage if you don't understand what they're saying."¹⁷ The starting point for this understanding is FM 3-0, the Army's overarching doctrine on operations, which provides the

¹⁴ Moshe Kress, *Operational Logistics: the Art and Science of Sustaining Military Operations* (Norwell, MA: Kluwer Academic Publishers Group, 2002).

¹⁵ Department of the Army, *FM 1-02: Operational Terms and Graphics* (Washington: HQDA, 2003), 1-139.

¹⁶ Department of the Army, *FM 4-0: Combat Service Support* (Washington: HQDA, 2003), 4-12.

¹⁷ MAJ Grant Morris, interview by author, Kaiserslautern, Germany, December 19th, 2007. MAJ Morris is a graduate of the School for Advanced Military Studies and currently is a planner with the 21st Theater Sustainment Command.

fundamentals of warfighting. A thorough understanding of the concepts in FM 3-0 combined with the elements of operational design outlined in FM 5-0 would allow an operational logistics planner to play an active and effective role in operational campaign planning. As Mr. Brian Vaught, V Corps G4 planner pointed out, “Many log guys cannot communicate effectively with maneuver guys, which de-synchs our ability to create a cohesive plan.”¹⁸

A clear understanding of operational logistics is important for identifying the logistical knowledge on which the TLog curriculum should focus. Current operational logistics doctrine describes the operational environment, provides a list of missions that operational logistic units perform, and identifies other organizations associated with sustainment at this level. Recent operational after action reviews (AARs) and interviews with current operational logistic planners helped to expand upon what doctrine contains as well as identify areas not clearly defined or missing from doctrine.

The complex nature of modern, operational-level logistics requires a unique type of knowledge for a logistician to be successful. One of the biggest changes since Desert Storm has been the shift from a supply-based to a distribution-based Army. During campaign planning, the distribution management plan is a key element in a theater’s operational logistics concept. This plan incorporates the deployment and sustainment requirements at all levels of operations while considering the theater’s distribution capabilities available over time.¹⁹ In order to develop the theater distribution plan, logistic planners must have knowledge of distribution concepts, materiel management, and supporting Standard Army Management Information System (STAMIS) such as the Battle Command Sustainment Support System (BCS3).

¹⁸ LTC (R) Brian Vaught, interview by author, Heidelberg, Germany, December 20th, 2007. Mr. Vaught has been a V Corps G4 planner for 4 years and has had the unique position of teaching logistics at the Infantry School.

¹⁹ Ibid., 5-14.

Joint and multinational logistics are other key characteristics at the operational level. FM 3-0 states, “Although each nation is responsible for sustaining the forces it deploys, multinational CSS may achieve significant economy of force.”²⁰ Joint and multinational logistics concepts support the ideas of efficiency and reduction of the CSS presence. These are two of the three charters in CSS transformation.²¹ Understanding joint and operational logistics concepts is therefore needed in order to understand operational level logistics.

Doctrine outlines many of the missions that fall into the purview of operational logistics. The Army’s Field Manual 4-93.4, Theater Support Command, identifies several key functions associated with operational level sustainment—

- Reception, staging, onward movement, and integration (RSO&I) of units, personnel, supplies, and equipment.
- Materiel management, movement control, and distribution management.
- Allocating, managing, and redeploying units and soldiers.
- Managing and conducting in-theater contracting to acquire supplies and services to support the mission.
- Reconstituting capabilities in accordance with the ASCC’s guidance.
- Sustaining maintenance of Army theater assets that support the supply system.
- Establishing and managing medical facilities, and medical materiel management.
- Planning, coordinating, managing, and supervising the positioning and security of CSS activities.²²

In addition to these doctrinal roles and missions, recent military operations have created additional missions for operational units not clearly described in logistics doctrine. Operations in

²⁰ Department of the Army, *FM 3-0: Operations* (Washington: HQDA, 2001), 2-16.

²¹ Department of the Army, *FM 4-0: Combat Service Support* (Washington: HQDA, 2003), 1-15.

²² Department of the Army, *FM 4-93.4: Theater Support Command* (Washington: HQDA, 2003), 1-4.

the Balkans, Afghanistan, and Iraq identified the need for operational logisticians to understand force generation and force flow planning, command and control (C2) planning, security planning, and exercise design. Initial operations in both Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) demonstrate the importance of understanding force generation and force flow planning. The initial coalition force structure for OIF lacked sufficient lift assets to support both combat operations and RSOI.²³ Knowledge of force generation and force flow continues to be a requirement for CENTCOM's TSC and ESC planners as they manage the continuous replacement of over 250 different units every rotation. A clear understanding of command and control (C2) relationships has also been important at the operational level. A recent V Corps Initial Impression Report addresses C2 recommendations made by MNC-I and 3d COSCOM. 3d COSCOM also reported they took 6 months to correct their task organization and depict the intricate relationships involved in such a large theater. Knowledge of security operations is evident in the fact that over 50% of the U.S. Army sustainment forces currently in Iraq provide convoy security or base defense.²⁴ The lack of security planning manifested itself in the operational pause experienced in OIF 1. The lack of LOC security planning and the unexpected presence of the Fedayeen forced V Corps to modify its initial combat plan in order to protect their logistic bases and supply lines.²⁵ The last requirement highlighted by operational level AAR comments and reinforced through interviews is the knowledge of exercise design. Both the XVIII Airborne Corps and V Corps have commented on the failure of their pre-deployment Mission Readiness Exercises and supporting exercise design to replicate the complex logistical

²³ U.S. Joint Forces Command, *Joint Lessons Learned: Operation Iraqi Freedom Major Combat Operations* (Norfolk, VA: USJFCOM, March, 2004), 94.

²⁴ 3d Corps Support Command, *OIF 05-07 3d COSCOM October 2005 to September 2006*. Power Point Brief prepared by the Support Operations Section of the 3d COSCOM.

²⁵ Eric Peltz et al., *Sustainment of Army Forces in Operation Iraqi Freedom* (Santa Monica, CA: RAND, 2005) 55.

environment of the Iraqi theater.²⁶ While external organizations, such as the Battle Command Training Program (BCTP), facilitate these rehearsal exercises, much of the initial data, story lines, and training objectives come from the deploying units. The deploying units themselves can improve their pre-deployment exercises by better understanding exercise design.

To accomplish all of the missions outlined above, the Army uses internal organizations and leverages the capabilities of several strategic logistic partners. The Army headquarters with primary responsibility for planning and conducting operational-level logistics is the Theater Sustainment Command (TSC). An Expeditionary Sustainment Command (ESC) is subordinate to the TSC and has a more geographic focus. Conceptually, the ESCs are forward-deployed command posts of the TSC, providing the TSC commander the forward presence and focus in a particular area. The Army Training and Evaluation Program (ARTEP) manual 63-702G-MTP defines the functions of TSCs and ESCs and identifies nine major missions these units may perform. These nine major missions cover the requirements identified in FMs 3-0 and 4-0 for operational logistics.²⁷ Other strategic Army organizations that may establish a forward presence to assist operational sustainment are the U.S. Army Materiel Command (AMC), the U.S. Army Medical Command (USMEDCOM), and the U.S. Total Army Personnel Command (USTAPERSCOM). Because of its broad scope, AMC normally establishes a large forward presence during contingency operations. AMC manages the Army pre-positioned stocks (APS) less medical supplies, logistics civil augmentation program (LOGCAP), and conventional ammunition. It also provides all depot-level maintenance for the Army.²⁸ AMC's presence in a

²⁶ Center for Army Lessons Learned, *Initial Impressions Report: XVIII Airborne Corps/Multi-National Corps-Iraq* (Fort Leavenworth, KS: CALL, 2006), 80; Center for Army Lessons Learned, *Initial Impressions Report: V Corps as Multi-National Corps-Iraq* (Fort Leavenworth, KS: CALL, 2007), 169.

²⁷ Department of the Army, *Mission Training Plan for Headquarters, Theater Sustainment Command* (Washington: HQDA, 2007), 1-3 and 1-4.

²⁸ Department of the Army, *FM 4-0: Combat Service Support* (Washington: HQDA, 2003), 4-7.

theater may include Logistics Support Elements (LSE) and Army Field Support Brigades (AFSB).

Besides Army organizations, several Department of Defense (DoD) and interagency organizations assist with operational sustainment. The Defense Logistic Agency (DLA) provides consumable supplies and services common to DoD. It manages critical theater requirements such as fuel, food and property disposal. The Defense Contracting Management Agency (DCMA) provides contracting support, to include administering the LOGCAP contract. Other organizations supporting operational logistics include the U.S. Customs Service, the U.S. Postal Service, the General Services Administration, and the Army and Air Force Exchange Service. The capabilities these Army and strategic organizations bring to operational logistics are vast, as long as commanders and staff officers understand how to leverage them.

Problem solving abilities were the second pillar of course design identified during an analysis of the course purpose. This design area is broken down into three sub-areas comparable to sections found in FM 5-0, the Army's principle doctrine on planning – planning fundamentals, problem solving methodologies, and critical reasoning skills. Any instruction on problem solving must include two perspectives, the first being that the operational logistics unit is the sole owner of the entire planning process. Often operational logistics units will initiate planning requirements that focus on internal issues. When this happens, the sustainment headquarters is in control of the planning process and produces its own output. On other occasions, the operational logistician is a part of a planning process owned by someone else. In this situation, the logistics planner creates supporting plans as a subcomponent of another organization's overall plan. Both scenarios are important, as the operational logistics planner will be responsible for independent planning actions as well as being a member of external planning teams.

FM 5-0 presents the first sub-area of planning, planning fundamentals. The fundamentals provide an understanding as to why the Army plans, discuss key planning concepts, and describe the desired characteristics of military plans. This introduction to planning also shows the link

between a commander's vision, the plan, and its execution. Since the Army is transforming into a network-based organization, the fundamentals of planning also include how this cyber-world enhances planning efforts. The planning fundamentals provide the groundwork necessary to understand planning in the context of military operations.

Once planners grasp the fundamentals, then they should study and apply multiple planning methodologies. Because there are various types of problems to solve, a planner must be flexible in using and adapting various techniques to solve them.²⁹ FM 5-0 provides two analytical methods used at the operational level, Army Problem Solving (APS) and the Military Decision Making Process (MDMP). Both of these methods have prescribed steps that take the planner from identifying the problem to determining the best solution. In recognition of the more ill-structured problems for which an analytical method may not be appropriate, the Army is developing the Commander's Appreciation and Campaign Design (CACD). This method is in the developmental stage, but exposing students to it not only prepares them for future planning sessions but also provides them with a unique look at operational campaign design. In response to the "jointness" of today's operating environment, today's planners must also learn the Joint Operation Planning Process (JOPP)³⁰. In addition to the steps of the JOPP, joint planning also includes System of Systems Analysis (SoSA), measures of performance (MOP), measures of effectiveness (MOE), and operational design elements such as effects-based operations (EBO), which are not found in the Army's FM 5-0. Awareness of these planning tools will significantly enhance the competence and credibility of future logistic planners.

In addition to the models identified in Army and joint doctrine, operational logistics planning must include processes unique to sustainment. U.S. Army FM 4-0 identifies several

²⁹ Department of the Army, *FM 5-0: Army Planning and Orders Production* (Washington: HQDA, 2005), 1-2.

³⁰ *Ibid.*, 1-8

processes that logistical planners must master in order to be effective. These processes include the logistics preparation of the theater (LPT), creation of the service support plan, design of the distribution plan, and completion of the CSS estimate.³¹ The concepts of macro- and micro-logistics planning identified in the book Operational Logistics: the Art and Science of Sustaining Military Operations support the development and presentation of the CSS estimate. Macro-logistics addresses the creation of the operational concept for sustainment and includes a macroscopic view of the feasibility of current maneuver planning. Logistic planners develop the macro-logistics support plan first, during the initial development of the campaign plan. This is followed by the micro-logistics plan. The micro plan is the technical, quantitative sustainment planning that produces the detailed concept of support and distribution plan.³² This two-stage development concept will help logistic planners provide campaign designers with timely input on the logistical feasibility of the concept of the operations which is then followed by the detailed calculations needed by sustainment providers.

Besides the systemic approaches to problem solving, doctrine addresses intuitive decision making.³³ Vital to both approaches are critical reasoning skills. FM 5-0 states that critical reasoning skills are “...crucial for effective problem solving and requires study and practice.”³⁴ Learning to interpret, analyze, and evaluate information are cognitive skills involved in critical reasoning. Critical thinkers also need to be able to explain the logic of their arguments as well as understand and account for outside influences that could impact their own thinking. In order for

³¹ Department of the Army, *FM 4-0: Combat Service Support* (Washington: HQDA, 2003), Figure 5-1, 5-15.

³² Moshe Kress, *Operational Logistics: the Art and Science of Sustaining Military Operations* (Norwell, MA: Kluwer Academic Publishers Group, 2002). 89-94.

³³ *Ibid.*, 1-7.

³⁴ Department of the Army, *FM 5-0: Army Planning and Orders Production* (Washington: HQDA, 2005), 2-3.

TLog to develop critical thinkers, the course would have to include the cognitive skills found in critical thinking.

The third pillar of course design lies in corporate America. The commercial business world offers many skills, techniques and procedures centering on business management techniques designed to enhance individual and group performances, which can improve the underlying skills of an effective logistics planner. Doctrine, such as FM 5-0, Army Planning and Orders Production and JP 5-0, Joint Operation Planning, identifies requirements such as delivering briefings and working in groups. From these requirements, one can infer that the logistic planners will hold planning sessions (meetings) and be responsible for the entire planning action (project management). However, doctrine does not address the skills needed to hone one's techniques for project management, team leading, meeting management or communicating. The commercial business world provides that instruction and, if leveraged properly, can improve the overall effectiveness of logistic planners.

One of the skills applicable from the corporate business world is project management. By viewing the planning process in general as "project management," logistical planners can use project management tools from the corporate world to enhance their efforts. The Project Management Institute (PMI) is an international association of corporate project managers established for the purpose of sharing process information. PMI established the Project Management Body of Knowledge (PMBOK) that catalogues generally accepted practices in the area of project management. Applying the PMBOK definition of project management to the military planning construct, project management means the application of skills, knowledge, tools and techniques to planning actions in order to produce the best results possible.³⁵

³⁵ Duncan, William R., *A Guide to the Project Management Body of Knowledge* (Sylva, North Carolina: PMI Publishing, 1996), 12.

PMI's five processes of project management can help military planners improve their planning actions by helping them understand the details of all of the phases that a planning action goes through. The five processes are initiation, planning, executing, controlling, and closing.³⁶ An example of applying one of PMI's project management processes to military planning is the closing process. PMI argues that a successful project has a definite, well thought-out end.³⁷ In military planning, that end is often an operations order (OPORD), operations plan (OPLAN) or contingency plan (CONPLAN). Applying the closing process, the planner would consider whether publication of the OPORD was sufficient or whether additional requirements were needed to ensure a proper plans-to-operations handover. If the planner were publishing a CONPLAN, then the closing process would consider how to maintain the CONPLAN in the future to account for changes in the situation. This example shows how the application of project management concepts to the planning process enhances planning efforts by maximizing the effectiveness of every stage of a plan's life cycle.

Commercial business literature provides an in-depth look at improving teamwork, which could also enhance the productivity of planning efforts. While FM 5-0 addresses problem solving in a group environment, it merely warns of the dangers of group think.³⁸ The corporate business world offers a more comprehensive view on working in teams and improving team performance. It includes the concepts of building the team, understanding group dynamics, managing team conflicts, enhancing team creativity, and establishing team roles and goals. During a military planning effort, a planning group or "battle staff" assembles to combine the skills and knowledge necessary to address the problem at hand. Managing and leading this team often falls on the

³⁶ Ibid, 28.

³⁷ Susan J. Benjamin, *The Top Performers Guide to Project Management* (Naperville, IL: Source Books, 2007), 111

³⁸ Department of the Army, *FM 5-0: Army Planning and Orders Production* (Washington: HQDA, 2005), 2-4.

shoulders of the lead planner. A greater awareness of various concepts of teamwork, available through commercial business literature, can prepare the planner for leading this team successfully.

Closely related to managing and leading teams is managing and leading meetings. Meeting management focuses on organizing, preparing for, conducting and following up after meetings. Most military leaders know the basics of meeting management: prepare in advance, publish an agenda, and appoint a note taker. Corporate business literature addresses concepts beyond those basics, including room design, phases of a meeting, and roles of attendees. Business literature also addresses how to handle problems during meetings, offering solutions to issues such as what to do if someone dominates the discussion or is being deliberately disruptive.³⁹ Military planners will lead planning meetings. The better trained they are to do so, the more productive those meetings will be.

Communication skills are also a critical element in a planner's education process that can be enhanced by the study of commercial business practices. Communication skills are critical to a planner's ability to convey thoughts and ideas both verbally and in writing. From the meetings mentioned above to the briefings mentioned in doctrine, a planner has to be able to guide the planning process, communicate the outcome of its different steps, and convey a shared understanding of the environment that shaped the results.⁴⁰ The communication skills of the corporate business world can help. These communication skills include ensuring the right message gets across, avoiding ambiguity, and learning to listen.⁴¹ Corporate communication

³⁹ Harvard Business School Press, *Running Meetings* (Boston: Harvard Business School, 2006) 50.

⁴⁰ Department of the Army, *FM 5-0: Army Planning and Orders Production* (Washington: HQDA, 2005), 3-26.

⁴¹ Blair, Gerard M., *Conversation as Communication*.
<http://www.see.ed.ac.uk/~gerard/Management/art7.html> accessed 5 JAN 08. Pg 1

skills can make planners more persuasive, their ideas more memorable, and their presentations more helpful in supporting the commander's decision making process.

This section described the three criteria for TLog's course design in some detail, focusing on what needs to be included in the curriculum in order for the course to meet its objective. This section identified that operational knowledge needs to include both sustainment and maneuver concepts and that problem solving must include the fundamentals of planning, various problem-solving methodologies and critical thinking skills. Finally, a look into the corporate business world showed how that design area includes program management, team leading, meeting management and communication skills. Given that all three criteria are important to the development of a well rounded logistics planner, the next section will analyze the current TLog curriculum to see how it meets these requirements.

An Analysis of the Current TLog Curriculum

CASCOM based the TLog's pilot course curriculum on an examination of US Army Forces Central Command's (ARCENT) Coalition Forces Land Component Command (CFLCC), C4 section during the period of October 2002 - February 2003, the period of planning and preparation for what was to become OIF. They also received curriculum recommendations from general officers and logistic officers who had graduated from SAMS.⁴² The pilot course, which concluded in December 2007, incorporated the following main areas into the curriculum:

- Introduction to the Strategic Environment
- Joint Logistics
- Data Analysis & Problem Solving Applications for Logisticians
- Regional Economic Implications
- Capabilities & Requirements Determination

⁴² MG Mitchell H. Stevenson, e-mail message to author, November 9, 2007.

- Contracting Management
- Materiel & Distribution Management
- Development of Strategy & Logistics Policy
- Operational Logistics

The course also included logistics military history, current events, site visits and application exercises.⁴³ The CASCOM slides at Appendix A further illustrate each of these major areas showing each block's purpose, objectives and discussion topics. The individual class presentations, which are available through ALMC's Black Board, identify the objective knowledge, skills and abilities included in the current course curriculum.

Using these three design areas, an analysis of the current course curriculum identifies that TLog provides a substantive education of operational logistics knowledge, incorporates MDMP in its practical exercises, teaches data analysis, and passively provides opportunities to practice corporate business skills. Unfortunately, the current design does not include the breadth required in the area of operational knowledge as it does not introduce the students to the concepts of operational campaign design. Nor does the current curriculum provide the depth in problem solving skills needed to meet the course objective. In addition, the course currently does not include active training of corporate business skills.

In the first section of this paper, operational knowledge included both logistics and maneuver information. The TLog course thoroughly covers the area of operational logistics knowledge. However, it does not include basic maneuver knowledge that allows the logistics planner to actively participate in maneuver planning or effectively synchronize the logistics plan with the campaign plan. Also, the current course curriculum provides no instruction on exercise design, in spite of the amount of time logistics planners spend involved in exercise development.

⁴³ CASCOM, "TLog_Course Introduction," https://almc.learn.army.mil/webapps/portal/frameset.jsp?tab=courses&url=/bin/common/course.pl?course_id=801 [accessed February 2, 2008].

The TLog course does an excellent job providing the students with the operational level logistics knowledge they need as a foundation for logistics planning. The two-week block of instruction on joint logistics covers the overarching logistical concepts of the other services. It also examines inter-agency and multinational logistics. This knowledge is important because the U.S. Army's contemporary operating environment involves more joint, multi-national and interagency efforts. The TLog instruction on determining capabilities and requirements covers force generation planning, a critical piece of knowledge for providing the right forces in theater at the right time to meet mission requirements. The contracting management section provides practical information on the basics of contracting and writing the performance work statement (PWS). Given that the number of contractors in Iraq exceed the number of soldiers,⁴⁴ understanding how contracting is incorporated into planning is important. Throughout all of the blocks of instruction, the TLog course identifies the other organizations that also support operational logistics. Through this integration, the students become familiar with the roles of strategic logistics partners such as DLA and ASC. The five-week block of instruction on Operational Logistics provides the background on distribution concepts, service and support operations, STAMIS and intransit visibility (ITV), C2 planning, and Reception, staging, onward movement and integration (RSOI). Included in this block are practical exercises that require the students to use the information they learned. Overall, the current TLog course provides the underlying logistical knowledge needed by the students to plan for the missions assigned an operational logistics unit.

What the course offers in the way of depth of logistical knowledge, it lacks in breadth of operational knowledge. The course does not teach the students the basics of operational campaign design that will give them the knowledge and vocabulary to participate in combined

⁴⁴ NPR, "Day to Day: Iraq Contractors Exceed Troops in Number," July 5, 2007. <http://www.npr.org/templates/story/story.php?storyId=11749862> (Accessed February 2, 2008).

arms planning. In TLog's 66 slide presentation on the fundamentals of planning, only two of the slides address maneuver concepts. One of the two slides lists the fundamentals of warfighting while the other depicts the elements of operational design. These are the students' only formal instruction on operational campaign planning and maneuvers concepts. During the first week of the course, the curriculum dedicates a week to discussing national security strategy and how Army operations support national policy. But, during that week, the course does not cover how the concept of support impacts the commander's campaign plan or how a campaign plan is created. Nor are operational maneuver concepts discussed in the block of instruction labeled "battlefield framework." In this section, the instruction focuses on logistic operations, such as transportation, not on maneuver concepts. TLog's exercise scenario, operations in the Caspian Sea, does not expose the students to maneuver concepts and integrated campaign planning either.

The current course curriculum also does not expose students to the concepts of exercise design. Granted, participating in exercise design is not a task assigned to the logistics headquarters in doctrine. However, the plans sections at the 3d Expeditionary Sustainment Command, 21st Theater Sustainment Command, and V Corps G4 all mentioned the amount of time they spend developing exercises for their units. The after action review comments from OIF highlighted the shortfall in exercise design as well. Units participate in exercise design by establishing training objectives, participating in the development of the Master Scenario Events List (MSEL) and supporting injects, and creating the initial computer data. If the planners do not understand the development of the MSEL or the impact of the computer interface, then the exercise will not provide realistic training.

The next criterion that this paper analyzes the current curriculum with is the area of problem solving. Section one of this paper subdivided problem solving into three areas: planning fundamentals, problem solving methodologies and critical thinking skills. Planning fundamentals covers the basic concepts and language of planning that a new planner needs to understand in order to conduct planning. Current problem solving methodologies look at the systematic,

analytical planning tools that the military uses today. Critical thinking skills cover cognitive processes and their effectiveness.

TLog's course curriculum presents the fundamentals of planning and teaches some of the current methodologies available, but fails to teach the majority of the underlying cognitive skills that lead to critical thinking. During the operational logistics block of instruction, the students receive a presentation on the fundamentals of planning. This presentation's design comes from chapter one of FM 5-0, the Army's doctrinal manual on planning. The briefing examines the nature of planning and describes how planning supports the command and control process. The briefing also covers how planning facilitates decision making. It looks at the key planning concepts and describes the characteristics of an effective plan. The presentation's objectives also include how modern information systems enhance planning. The blocks of instruction given through out the entire course cover information systems' impact on planning.

For problem solving methodologies, the students learn two models for problem solving and the four components of sustainment planning. The two methods of problem solving include the Military Decision Making Process (MDMP) which is outlined in chapter three of FM 5-0. MDMP is the Army's basic model for planning and decision making. The other method presented is Six Sigma. Six Sigma is widely recognized in the business world as a process improvement method, but in its basic element is a problem solving methodology.⁴⁵ Six Sigma includes procedural steps comparable to MDMP. These steps are define, measure, improve, analyze and control. As a problem solving tool, Six Sigma provides the students a unique way of looking at problems in a fluid environment.⁴⁶

⁴⁵ Daniel R. Matchette, "Six Sigma for the DoD," *Defense AT&L* (July 1, 2006). <http://www.highbeam.com/doc/1G1-148756152.html> (accessed December 3, 2007).

⁴⁶ Ibid.

FM 4-0, Chapter 5 discusses the four components of sustainment planning that are taught in the current TLog course. During the five week block of instruction on operational logistics, the students develop the underlying skills needed to prepare the CSS estimate, service support plan, logistics preparation of the theater, and distribution plan. These skills are then exercised in a training scenario that requires the students to produce each of these products.

The TLog curriculum does not, however, expose students to the components of the Joint Operations Planning Process (JOPP) or concepts of campaign design. The students receive a two week block of instruction on joint logistics at the beginning of TLog, culminating with a practical exercise. Although joint logistics capabilities are taught in depth, the joint planning process and its elements of operational design are not covered. Commander's Appreciation and Campaign Design(CACD) is also not included. The operational-level logistician must understand their role in the process of campaign design. The lack of exposure to these two processes place logistics planners at a disadvantage during combined and joint planning sessions. The logistics planner must understand the intricacies of the process the joint planning group is using and his or her role in it. If they don't, they won't be able to contribute to the development of the campaign plan.

In the area of critical thinking, the current TLOG course only begins to touch on the instruction needed to produce the agile, creative problem solvers identified in the course's purpose statement. The focus of the critical thinking skills presented in the course is too narrow, focusing mainly on data analysis. The current course spends approximately 40 hours on statistics and data analysis. The data analysis instruction applies analytical techniques to logistic processes in order to analyze, evaluate and solve logistic problems.⁴⁷ This cognitive skill applies to some logistics planning, but it is singularly focused on data and does not provide insight into how people think. TLog's writing program contains the other instance where cognitive thinking skills

⁴⁷ ⁴⁷ CASCOM, "TLog_Course Introduction," https://almc.learn.army.mil/webapps/portal/frameset.jsp?tab=courses&url=/bin/common/course.pl?course_id=801 [accessed February 2, 2008].

are included in the curriculum. The writing program develops skills for creating a logical argument. In four separate writing assignments, the students practice developing a hypothesis and presenting supporting evidence. Statistical analysis and creating a logical argument is the extent of TLog's instruction on critical thinking skills.

The current course curriculum provides the students with only a portion of the critical reasoning skills they will need to be effective planners. FM 5-0, chapter 2 outlines the cognitive skills that planners need for critical reasoning. Of the skills listed, the current TLOG course curriculum covers the interpretation and analysis of data with the classes it teaches on data analysis. It also includes presenting logical arguments and justifying reasoning through the writing program. However, of the skills listed in FM 5-0, the course curriculum doesn't provide instruction on the interpretation, analysis and evaluation of experiences, situations, events, judgments, perceptions and beliefs.⁴⁸ Neither does it teach the students how to evaluate their own judgments and be critical of the potential biases influencing human thought processes.⁴⁹ To achieve the end state of producing agile and innovative logisticians who possess honed decision making skills, the TLog curriculum should incorporate all of the cognitive skills that compose critical thinking.

The third criterion applied to the TLog curriculum is corporate business skills. These include project management, team leading, meeting management and communication skills. An analysis of the current TLOG course along these areas indicates that the course provides opportunities for the students to practice these business skills, but lacks any formal instruction for improving them. The exception to this is written communication.

⁴⁸ Department of the Army, *FM 5-0: Army Planning and Orders Production* (Washington: HQDA, 2005), 2-3.

⁴⁹ Ibid.

The course's writing program builds the students' writing skills, improving upon each previous assignment. The goal is to develop the students' ability to write effectively and to present a reasonable argument. The program starts with the students writing a short essay, building a logical argument using their own personal experiences and knowledge to support their positions. In the next writing assignment, students build their argument using external resources. The third assignment requires analysis of an author's arguments, using examples from the books as support. The final writing assignment is a research paper. All in all, the current TLog curriculum provides the students ample opportunities to develop their written communication skills.

Unfortunately, the course does not provide the students instruction in the other business skills. There are no blocks of instruction on project management. There are however, opportunities already built into the curriculum where the students could practice project management techniques. The writing assignments and historical campaign briefs are sufficiently complex to require a some project management. Multiple practical exercises also provide opportunities for the students to see how project management skills enhance planning effectiveness. The current curriculum also omits instruction on meeting management, team leading, and visual and verbal communication skills. Again, the course offers many opportunities for the students to practice these skills, if they have them. The practical exercises and historical campaign briefs are group projects that require the students to work in teams and hold meetings. The exercises also provide an outlet for the students to hone their visual and verbal communication skills. Many opportunities for practicing these important business skills exist. Those opportunities could be put to better use if they were preceded by blocks of instruction aimed deliberately at improving those skills.

This section analyzed the current course curriculum against the three design criteria to determine how the current course design supports the course's objective. The shortfalls identified in this analysis generated recommended changes to the current course structure. The next section

identifies these changes and how they improve the correlation between the course's curriculum and its stated objective.

Recommended Changes to the Current Curriculum Design

A plethora of subjects exist related to the topic of operational logistics planning that could be included in the TLog curriculum. However, with the course duration limited to 18 weeks, determining what is included becomes critical to the course's success. Focusing the course curriculum along the three design areas will help ensure what is included is what is most critical to the creation of a credible and capable operational-level logistics planner.

The first section of this paper divided operational knowledge into logistics knowledge and maneuver knowledge. Knowledge of exercise design was also included in this section. Section two of this paper analyzed TLog's current curriculum and found that it provides the students instruction in the area of logistics knowledge; however, not in maneuver knowledge or exercise design. Adding FM 3-0, Chapter 3 "Full Spectrum Operations" and Chapter 4 "Combat Power" to the reading requirement, classroom discussions, and practical exercises provides the students exposure to Army maneuver and campaign design concepts and terminology. These two chapters of the Army's operations manual outlines the basic principles used in full spectrum operations and discuss the elements of combat power, the foundations of Army operations, and operational framework. Adding JP 5-0, Chapter IV "Operational Art and Design" provides the equivalent for joint operations. The inclusion of these two chapters into the curriculum would expose the students to the terminology and concepts they need to succeed in combined arms and joint planning environments.

To expose the students to the basic concepts of exercise design, the *Battle Command Training Program's Exercise Directors Guide* provides a look at exercise construct. The students should read chapters three "The Exercise Design Process" and four "WFX Exercise Execution" and scan the remainder of the guide. From these two chapters, the students will become familiar

with the subcomponents of exercise design process, roles and responsibilities, and much of the terminology. A classroom discussion including personnel from CASCOM's Training Directorate would reinforce what the students read. If the situation permits, the students could also participate in designing an exercise with the training directorate.

The second criterion, problem solving abilities, was divided into three sub areas: planning fundamentals, problem solving methodologies, and critical thinking/reasoning skills. The three areas guide the design of the optimal curriculum and provide the background needed for planners to be agile, innovative problem solvers.

The planning fundamentals outlined in FM 5-0, Chapter 1 provide the basics of planning and should be included in the beginning of the course. These fundamentals will help the students understand the nature of planning and how planning relates to operations. Discussions should focus on the key characteristics of plans, roles and responsibilities of key members, the purpose of planning, and how logistics planning supports and some times dictates operational planning. FM 4-0, chapter 5, "Orchestrating the CSS Effort," is an important piece to understanding the fundamentals of logistics planning and needs to be included in the fundamentals of planning section. Rounding out the fundamentals of planning is a discussion on joint, multinational, and interagency planning. JP 5-0 Chapter II, Sections B and C also Chapter IV, Operational Art and Design are the doctrinal references to support that discussion. Once students grasp the fundamentals of planning, the course should cover the various problem-solving methodologies outlined in doctrine.

Instruction on planning methodologies reviews the various problem-solving techniques outlined in Army and Joint doctrine and the concepts that support those techniques. It begins with an in depth discussion of FM 5-0, Chapter 2, Army Problem Solving. Chapter 2 describes how leaders make decisions and lays out the seven step problem solving model. The chapter also introduces the idea of critical reasoning, a subject covered later in this section.

Several readings and discussion compliment the section on critical reasoning first mentioned in Chapter 2 of FM 5-0. Critical thinkers must be able to interpret, analyze and evaluate data, situations, and problems. They must also be able to explain their interpretations logically all the while they are regulating their own cognitive processes.⁵⁰ Developing those skills takes study and practice. Dietrich Doener's *The Logic of Failure* provides an interesting look at critical thinking particularly looking at failures in thought processes that result in bad decisions. This book discusses the problems people have with problem solving, the dangers of some thinking, and the differences between good decision makers and bad ones. The look at decision making from a complex, intertwined systems perspective supports earlier discussions from CACD and SoSA. Chapters 6 and 7 of *The Logic of Failure* are particularly useful as they discuss pitfalls in planning and then offer ways to correct for these deficiencies.

Sources of Power by Gary Klein should be added to the course curriculum as it helps to develop both critical thinking and decision making skills. The book discusses the Recognition Primed Decision (RPD) model. This decision making model provides an abbreviated version of MDMP that incorporates how decision makers assess a situation in order to develop and determine which COA makes sense and then use mental visualization to evaluate that COA. Klein also addresses critical reasoning skills such as how biases, stress and uncertainty affect decision making.

Three articles from the Harvard Business Review Press round out the readings on critical thinking. "The Hidden Traps in Decision Making" examines eight psychological traps that impede effective decision making.⁵¹ The authors propose ways to limit the effects each of these

⁵⁰ Department of the Army, *FM 5-0: Army Planning and Orders Production* (Washington: HQDA, 2005), 2-2 to 2-3.

⁵¹ John S. Hammond, Raloh L. Keeney, and Howard Raiffa, "The Hidden Traps in Decision Making," in *Harvard Business Review on Decision Making*, (Boston: Harvard Business School Press, 2001) 143.

traps have on our thought processes. The article “A Leader’s Framework for Decision Making” examines how the character of the circumstances impacts the method a leader uses for making a decision. It discusses the concepts of complexity, emergence, and discourse, which reinforce what was discussed in CACD. The article also looks at problems people have with decision making and the impact those problems can have. Finally, “Breakthrough Thinking from Inside the Box” examines the idea of brainstorming and how to make this creative effort more productive.

The third criteria, corporate business skills, focused on the four sub-areas of project management, team leading, meeting management and communication skills. By capitalizing on leading business schools and corporate literature, TLog can introduce the students to current business methods that will improve planning efficiency and effectiveness. The recommendations in this section were carefully screened to ensure that the lessons are applicable to the military culture.

The first area of corporate business skills is project management. “*Just Enough Project Management*,” by Curtis R. Cook, should be introduced early in the course to allow the students to immediately benefit from the techniques of project management. “*Just Enough Project Management*” is a simple guide to project management aimed at novices and people who manage small to medium sized projects. In the book, Cook takes the multiple concepts introduced in the PMBOK and reduces them to four simple steps. His four-step process teaches students to initiate, plan, control and close their planning actions or projects. Subsequent chapters analyze each of the four steps as sub-processes and explain them in greater detail. The book also provides numerous templates and checklists to assist the students in creating their own documents to manage their military planning. With an overarching theme of applying “just enough” management to a project, this book will help students to improve project results without allowing the management to overshadow the project itself.

Since most of the work done in military planning is done within teams, learning to work as a member of a team and leading it become important. The current TLog curriculum offers many opportunities for students to experience working as members of a team. Predicating these experiences with instruction on effective team work and team leadership would increase the value of the experience and provide students with valuable skills in preparation for their roles as part of a planning team. Adding two books and a magazine article to the course reading requirements combined with classroom discussion on the readings would enhance the students' ability to work as team members.

The first book the students should read is from the Harvard Business School titled *Leading Teams*. This book examines the mechanics and dynamics of leading a team from an introductory perspective. The book describes various types and purposes of teams, benefits of teamwork and pitfalls of team leadership. It also discusses basic skills for building, managing, and leading a team. In less than 100 pocket-sized pages, *Leading Teams* provides the basics necessary to lead a team effectively. The second book added to the curriculum is *The Five Dysfunctions of a Team* by Patrick Lencioni, management consulting firm president and nationally recognized author. In the book, Lencioni uses a fable to illustrate the five dysfunctions that impact the effectiveness of a team. He concludes with practical advice on how to overcome these obstacles to maximize team efficiency. The story format of the book creates a memorable and easy to read method for addressing the hurdles that planning teams often face. The final reading to assist students with managing and participating in teams is an article from the Harvard Business Review on managing multicultural teams. Given that the contemporary operating environment is multi-service and multi-national, planning teams at the theater level will most likely include members who possess different service and national cultures. The article "Managing Multicultural Teams" illustrates the challenges rooted in multi-cultural environments and offers strategies for maintaining team effectiveness in the presence of these differences.

The next corporate business skill, meeting management, complements team leading. As planners, students will organize planning sessions, brief their superiors, and assume responsibility for hosting orders briefs. All of these actions occur at meetings. Learning how to prepare for, host, facilitate, and close-out a meeting will enable students to increase the meeting's productivity and efficiency. Proper meeting management techniques will also produce a more creative, positive atmosphere, resulting in a more productive meeting. Once again, the TLog course provides students with many opportunities to apply meeting management skills. The course should also teach the students meeting management techniques that opportunities in the course work will reinforce.

Again, business literature provides a wealth of knowledge on meeting management. *How to Make Meetings Work!* is currently used as the basis for the "Mastering Meetings" course taught at Massachusetts Institute of Technology (MIT).⁵² It emphasizes interaction during meetings to increase productivity and the value of the output. The book looks at four roles that comprise the meeting members, the facilitator, the recorder, group member, and chairman. Other chapters define each role and present methods for maximizing the role's input into the meeting. Many basic skills and practical techniques presented in the book prepare the reader for the realities of meetings. Skills such as dealing with disruptions, creating the right atmosphere, recording group sessions, and increasing members' participation contribute to the meeting's productivity. Harvard Business School's *Running Meetings* complements the techniques presented in the previous reading. It provides many of the same overarching concepts though offers different techniques for producing effective results. This book focuses more on the mechanics of a meeting where as the previous book focuses on the dynamics. A combination of the information

⁵² Massachusetts Institute of Technology, "Recommended Resources," MIT, <http://web.mit.edu/hr/oed/learn/refs.html> (accessed February 10, 2008).

presented in the two books will provide TLog students the basic meeting management skills to be active participants or directors of meetings.

MIT's Sloan School of Management course titled "Management Communication for Undergraduates" provides a template for the final subcomponent of corporate business skills, communication. The topics of the MIT course, persuasion, effective presentations, and listening well, would enhance TLog's program.⁵³ As established in the previous section, the current TLog course requires the students to practice effective writing. The addition of the topics from MIT's course will expand TLog's program to improve students' ability to write clearly and persuasively.

This recommended course curriculum addition introduces students to how a speaker can be more convincing in their communications. This is taught by examining various factors that affect the speaker's ability to be persuasive and recommending various communication strategies to be more effective. One technique is the "common ground" effect where establishing a common goal or understanding between the speaker and the audience will improve the chances of the speaker persuading the audience on other points.⁵⁴ TLog students would learn the art of being more persuasive by reading "Persuasion: What the Research Tells Us," by Joanne Yates, which is offered free through MIT's open courseware. A complement to being persuasive is making ideas that are easy to remember and influence the audience. Adding *Made to Stick* by Chip and Dan Heath to the course's reading requirement would help students understand why some ideas, no matter how false, are easier to remember and communicated more frequently than relevant and good ideas. In this book, the authors examine urban legends and successful advertisement

⁵³ Sloan School of Management, Management Communication for Undergraduates: Lecture Notes," MIT, <http://ocw.mit.edu/OcwWeb/Sloan-School-of-Management/15-279Spring-2005/LectureNotes/index.htm> (accessed February 20, 2008).

⁵⁴ Jo Anne Yates, "Persuasion: What Research Tells Us," MIT, <http://ocw.mit.edu/NR/rdonlyres/Sloan-School-of-Management/15-280Communication-for-ManagersFall2002/C9AAB6C2-C19D-4445-A6BF-A693BA98DFDA/0/persuasionJYrev3.pdf> (accessed 5 January 5, 2008).

campaigns to identify characteristics that make ideas understood, memorable and enduring.⁵⁵

The authors then discuss how an author or speaker can leverage those same characteristics in order to make their ideas influence the audience. By understanding the roles that simplicity, unexpectedness, concreteness, credibility, emotions and stories play, a person is more likely to communicate their ideas successfully.

The next communications area is effective presentations. Briefings are the medium in which the military communicates information and facilitates decision-making. For example, in the military decision making process, there are four occasions when the staff briefs the commander and then receive a decision or guidance. Correctly depicting information in these briefings becomes critical to facilitate decision making. However, when briefings are so complex, contain so much data, and confuse the argument that they overwhelm the decision maker, the briefing can actually hinder the decision making process.⁵⁶ Edward R. Tufte is one source of advice on how improve presentations and use them to more effectively communicate a message. In *The Cognitive Style of PowerPoint*, he warns of the many ways that the software actually detracts from a briefing. Often briefers are so caught up in what Tufte calls “PowerPointPhluff” (inaccurate charts, worthless pictures, and busyness) that they do not provide true analysis or true, coherent statements.⁵⁷ In another publication, *Visual and Statistical Thinking: Displays of Evidence for Making Decisions*, Tufte uses the space shuttle Challenger explosion to demonstrate how the ineffective presentation of data can lead decision makers to bad decisions. Adding Tufte’s critical analysis of presentation mediums and study of how to present

⁵⁵ Chip Heath and DanHeath, *Made to Stick: Why Some Ideas Survive and Others Die* (New York: Random House, 2007), 8.

⁵⁶ Ron Ashkenas, “Simplicity-Minded Management: A Practical Guide to Stripping the Complexity out of Your Organization, Harvard Business Review (December 2007): 106.

⁵⁷ Edward R. Tufte, *The Cognitive Style of PowerPoint* (Cheshire, Connecticut: Graphics Press LLC, 2003), 4.

well-focused data to TLog's curriculum will enhance the students' ability to prepare well-crafted presentations.

Tufte focuses on the visual presentation of information in briefings, Timothy Koegel in *The Exceptional Presenter* addresses the art of delivering a briefing. This book provides the basic skills of presentation style a planner needs to deliver a presentation effectively. Koegel covers basics such as gesturing, inflection, eye contact, posture, and practicing. He also covers more advanced issues such as answering questions, refocusing nervous energy, and learning about the audience. Combining Koegel's easy-to-read book on the art of presenting with Tufte's publications on the style of presentations will provide the TLog students the ability to create and present briefings that enhance decision making.

The final area of communication is effective listening. Most courses on communication identify the criticality of listening skills. The Air University, Harvard Business School and MIT's Sloan School of Management all include listening skills as part of their communication courses. Two publications can improve the effective listening skills of the TLog students. From the *Harvard Business Review on Effective Communication* comes a 23-page article entitled "Listening to People." This article introduces the students to the need for effective listening as well as some techniques for improving this skill. Couple with this recommendation is a paper from the Air University Press entitled "Effective Listening." This paper also outlines the need for better listening skills, but from a more military perspective. It also discusses common fallacies about listening, discusses the types of listening and the listening process, and presents a guide for developing better listening skills. Through these two readings, students will gain a better appreciation for the importance of listening and acquire the skills needed to develop effective listening habits.

The changes recommended in this section directly support the development of operational-level logistics planners by including all of the knowledge and skills they will need to be successful. The operational knowledge is aimed at providing the students the technical

knowledge and common frame of reference. They will not only be technically competent to design a concept of support, but also familiar enough with campaign planning to synchronize the two efforts. The additional skills taught in problem solving and critical thinking provide a broader education for operating in a joint environment and incorporate more of the cognitive skills that support critical thinking. The addition of corporate business skills to the curriculum provides the students methods for enhancing underlying abilities required in the planning process. The combination of these changes enhance TLog's curriculum to meet the course's stated goal; the graduates will be the critical thinking logisticians the Army needs.

Conclusion

This monograph analyzes the current TLog course curriculum using the three recommended criteria established through an analysis of the course's purpose, applicable doctrinal concepts, and personal interviews. This study assesses the current curriculum's ability to meet the course's stated purpose of producing operational logistics planners who possess the decisions analysis abilities, required knowledge base, and appropriate skills to solve complex problems. Section three contains recommendations on how to adjust the course design as well as the curriculum to help the course meet its stated purpose more effectively. Finally, this paper highlights further research needed in order to continue to improve the quality of TLog's graduates.

This paper was written to assist CASCOM with refining TLog's course design and its course curriculum. TLog plays a critical role in the future success of military operations. It provides a key element that was missing in past operations – trained, operational-level logistic planners. The COE indicates that future conflicts will be increasingly complex as we incorporate joint, multi-national, and interagency responses to a full spectrum of operations in undeveloped theaters while leveraging new technologies and transformation concepts. To meet these future challenges, the Army needs logistic planners who possess the required knowledge, are versed in

different problem solving methods, and who can capitalize on these two areas because they have mastered basic business skills.

The analysis in the first section of this monograph suggests that the TLog course design should focus on the three areas of operational knowledge, problem solving abilities and corporate business skills in order to produce graduates capable of solving critical logistical problems. The appropriate knowledge base serves as the basis around which all planning is conducted. The knowledge required of a logistics planner extends beyond just logistics. Logisticians, like their civilian counterparts, must also understand their customers and the environment in which they operate. So, the education of a TLog student needs to include the contemporary operating environment (COE), operational maneuver as well as operational logistics. The area of problem solving must include more than the standard training in the Military Decision Making Process (MDMP). The curriculum should also include the use of Army Problem Solving (APS), the Joint Operations Planning Process (JOPP), Systems of Systems Analysis (SoSA), and Commander's Appreciation and Campaign Design (CAC-D). Understanding the various processes provides the graduate with multiple ways of understanding, framing and solving the complicated and complex problems facing today's military. Familiarity with the various processes will also allow the graduates to participate more fully in combined arms and joint planning sessions which utilize the various planning processes. Finally, TLog students can improve their performance by leveraging corporate business techniques. These business management skills include organizational skills, team leading, meeting management and communication. While one may argue which of the three, knowledge, skills, or abilities, is more important, the synergy gained through education and training in all three areas will be the strength of the TLog graduate.

Finally, to continue improving the effectiveness of the course, CASCOM should augment the recommendations in this paper with research into appropriate adult learning models. The differences of the three areas of the recommended course design imply that there might be a requirement for different adult learning strategies. CASCOM should host a planning session with

leaders in the field of adult education and the staff at the TLog course. The purpose of this session would be to examine the course curriculum from learning theory and teaching theory perspectives in order to determine the most effective methods to maximize efficiency of the learner-teacher interface. These methods could then be applied to the course curriculum.

The criticality of operational logistics planning has been apparent throughout history. Our military's failure to plan for it effectively was apparent most recently during the initial stages of Operation Iraqi Freedom. This failure to plan resulted from a lack of trained logistics planners at the operational level. TLog was created to fill that gap and create the planners needed to plan the complex and critical support. The current course design does not maximize its potential because of its limited focus on operational logistics and MDMP. Modifying the current course design and curriculum to incorporate all three design areas will produce better rounded graduates more capable of meeting the challenges of today's complex environment.

APPENDIX A



Theater Logistics Studies Program (TLog)

...as military logistics professionals progress in their careers and begin to play a role in theater- and national-level planning, their knowledge base must expand as they move from more tactical, transportation- and physical distribution-oriented execution management to more strategically oriented logistics-system and supply-chain design and management positions.

Eric Peltz, RAND
Army Logistician



*Educating Logistics Leaders, Generating Solutions Today,
Shaping Tomorrow's Logistics...*

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