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Decision-Centered MOUT Training for Small Unit Leaders

Jennifer Phillips, Michael J. McCloskey, Patricia L. McDermott, Sterling L. Wiggins, Deborah A. Battaglia, Marvin L. Thordsen, and Gary Klein
Klein Associates, Inc.

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14. ABSTRACT *(Maximum 200 words)*:

This research effort applied principles of Naturalistic Decision Making to identify the cognitive challenges involved in platoon leader decision making in Military Operations in Urban Terrain (MOUT) building clearing missions. The findings informed the development of classroom, hardcopy, and multimedia training products to support Infantry Officer Basic Course students in MOUT decision making. A Cognitive Task Analysis of the building clearing task entailed a series of in-depth interviews with Army personnel experienced in MOUT. The analysis resulted in a detailed representation of eleven high-level decision requirements associated with the building-clearing task. Cognitive demands related to each requirement – critical decisions and judgments, sensory cues, other factors, and expert strategies – are included in the representation. Four products were developed based on the findings of the analysis: sixteen decision-centered training scenarios for MOUT environments; an interactive, multimedia tool (IMPACT) that supports instructors in training MOUT decision making skills; a classroom exercise that supports situation awareness appreciation and understanding; and a guide that provides supplemental information regarding the building clearing task from a platoon leader's perspective.

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Small Business
Innovative Research

FOREWORD

The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) has been conducting research over the past several years to better understand the challenges of Military Operations in Urban Terrain (MOUT). Such operations place great demands on military personnel for new types of technical skill. They also generate a peculiar set of cognitive requirements related to a wide range of judgments and decisions necessary in an urban setting. It is critical our military be prepared for MOUT because the U.S., in large measure, is a victim of its own successes. Due to our technological superiority, few adversaries will be tempted to engage us in conventional warfare. At the same time, the specter of urban conflict offers attractive advantages to adversaries, such as the potential loss of civilian life, destruction of important landmarks, ease of access for media coverage, and increased potential to inflict injuries on our soldiers with relatively unsophisticated weapons systems. To make matters worse, the U.S. military has spent much less time preparing for MOUT than for conventional warfare, and has comparatively less expertise upon which to draw.

This report is the third of four Klein Associates research products developed under a Small Business Innovation Research (SBIR) contract aimed at training platoon leaders to make more accurate and timely decisions during urban operations. It offers a detailed and comprehensive accounting of the decision-making requirements of platoon leaders in building clearing missions, as well as the analytical procedures used to identify those requirements. It also illustrates the process by which training materials were developed after platoon leader decision requirements had been identified.

Recently, we published a guide for the warfighting community that provided an overview of the decision requirements platoon leaders will face in the process of clearing buildings, perhaps the most procedurally complicated and dangerous of all MOUT tasks (ARI Research Product 2001-02). It was based on interviews with veterans having substantial urban combat experience and it provided a non-technical introduction to much of the material contained in the present report. This year we also released a CD-based instructor training program called IMproving Performance through Applied Cognitive Training (IMPACT). Appropriate for either institutional or unit training, IMPACT enables instructors to facilitate their own Decision Making Game sessions, to create their own Decision Making Game scenarios, and to help platoon leaders become better at making platoon-level MOUT decisions. In the near future, we anticipate publishing a technical report of an evaluation of the IMPACT program using cadets and instructors at the U.S. Military Academy at West Point, NY. The results of this research were presented to the Director, Combined Arms Training Directorate, U.S. Army Infantry School in May 01.

ZITA M. SIMUTIS
Technical Director

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CSM Sam Spears (Ret.) contributed invaluable advice and information throughout the project. We could not have been successful in understanding the intricacies of MOUT environments nor in developing the Decision Skills Training without his ongoing and generous assistance.

Likewise, MAJ John Hyatt (Ret.) provided critical assistance with regard to logistics and content knowledge. We especially acknowledge his role as a facilitator for the videoclips used in the IMPACT multimedia tool, and his input to the Decision Making Games.

We thank Drs. Ken Evans and Scott Graham of the U. S. Army Research Institute at Fort Benning, GA, for their valuable support, advice, and feedback. They provided sound direction and guidance throughout the project.

The Infantry Officer Basic Course enabled us access to their instructors and recent graduates. We thank the organization for providing these information sources, and we thank those individuals for generously sharing their time and knowledge.

DECISION-CENTERED MOUT TRAINING FOR SMALL UNIT LEADERS

EXECUTIVE SUMMARY

Research Requirement:

This research effort sought to understand and support U.S. Army platoon leader decision making in Military Operations in Urban Terrain (MOUT). Specifically, the MOUT building clearing mission was investigated. A program of Decision Skills Training for MOUT was developed to meet the needs of platoon leaders. The following research requirements were addressed in the project:

- Expand and validate a detailed representation of the decision requirements involved in clearing a building from the platoon leader perspective.
- Develop a new knowledge elicitation technique to support the previous goal.
- Assess the decision training needs of instructors at the Infantry Officer Basic Course (IOBC) at Fort Benning, GA.
- Refine and document a methodology for translating decision requirements into Decision Making Game training scenarios.
- Utilize the research findings to develop a multimedia tool to support IOBC instructors in training decision-making skills in new lieutenants.
- Develop and conduct an initial evaluation of the multimedia tool.
- Develop an exercise that supports Army platoon leaders in appreciating the importance of a solid situation awareness in MOUT environments.
- Identify and document lessons learned by MOUT experts.

Some of these requirements were set at the start of this research effort, while others emerged as the project progressed. All of them, however, supported the overall objective of supporting and improving platoon leader decision making in MOUT.

Procedure:

The methodologies employed to achieve these requirements were grounded in the Naturalistic Decision Making framework for investigating real-world decision making. Given the project objectives, the methods relied on the knowledge and skill of Army experts in MOUT and training. In a previous effort, a Cognitive Task Analysis of Army MOUT experts resulted in initial descriptions of the critical decisions and judgments in building clearing operations (Phillips, McDermott, Thordsen, McCloskey, & Klein, 1998). These findings were represented in Decision Requirements Tables. In the current effort the Decision Requirements Tables were expanded and validated, applying new and existing knowledge elicitation techniques to another group of Army MOUT experts. The findings of the Cognitive Task Analysis, represented in the Decision Requirements Tables, provided the basis for the content of the Decision Skills Training. The findings from a user needs analysis conducted on IOBC instructors identified characteristics of the trainers envisioned to

implement the Decision Skills Training. In conducting the IOBC user needs analysis, both experienced and novice instructors were regarded to ensure that the training tools developed would assist all levels of instructors.

Findings and Products:

The Cognitive Task Analysis conducted in this effort validated and expanded upon the earlier findings. Most notably, two additional decision requirements were uncovered. First, it was found that the determination of how to evacuate the building once cleared involves a series of critical assessments by the platoon leader. In this task-focused decision requirement, the platoon leader must consider extraction points, deal with noncombatants, ensure subordinate vigilance, and place himself in an appropriate location, while simultaneously orchestrating the removal of his soldiers.

The second new decision requirement identified is that of understanding and applying Rules of Engagement (ROE). A platoon leader's actions must adhere to stated ROE, however these ROE can be vague, ambiguous, or even contradictory. Further, with the transient nature of MOUT environments, it can be especially challenging to operate within a solitary set of ROE. This results in significant cognitive demands on the platoon leader to both interpret and apply ROE.

A scenario-based program of Decision Skills Training was assembled based on the Decision Requirements Tables and the user needs analysis. The primary Decision Skills Training product is IMPACT – IMproving Performance through Applied Cognitive Training. IMPACT is a multimedia tool, which teaches instructors how to facilitate Decision Making Games, conduct decision-centered critiques, and create their own Decision Making Game scenarios. Sixteen MOUT Decision Making Games, developed from the Decision Requirements Tables, are also included in IMPACT.

It became clear in the research effort that situation awareness is not only critical for platoon leaders in MOUT environments, but is one of the skills with which lieutenants are most likely to struggle. New platoon leaders often fail to appreciate the importance of good situation awareness. Therefore, a secondary Decision Skills Training product was created. The Situation Awareness Appreciation Exercise focuses on giving platoon leaders an appreciation for the importance of situation awareness. Specifically, the exercise is designed to illustrate how situation awareness can change over time, how it can be different for different people in the same situation, and how it can affect actions and mission outcomes.

A third product, a guide to MOUT decision making, was also developed and is intended for use by both instructors and soldiers. The guide utilizes the findings represented in the Decision Requirements Tables to present the stages of the building clearing operation, explain factors and issues that arise during each stage, and describe the decision-making challenges unique to MOUT environments. This handbook is not part of the Decision Skills Training program, however, it would serve as a good supplement for instructors teaching MOUT decision making.

DECISION-CENTERED MOUT TRAINING FOR SMALL UNIT LEADERS

CONTENTS

I. INTRODUCTION

The Challenges of MOUT

The past decade has seen a rise in Military Operations in Urban Terrain (MOUT), where units operate in cities and villages rather than traditional battlefields that are characterized by vast expanses of uninhabited terrain. It is estimated that the trend toward a higher proportion of MOUT missions will continue given that a huge segment of the world's population resides in urban centers. Army Rangers and Special Forces have handled most of the Army's most recent MOUT missions. However, Army senior leadership anticipates that with the rise in MOUT battles, regular Army infantry units will be called upon on a more frequent basis to conduct these operations (Erwin, 2000). It therefore becomes critical to prepare infantrymen appropriately.

The MOUT environment presents a distinct set of challenges to soldiers and leaders. The streets and buildings comprising the terrain possess unique characteristics, and the nature of inter-city warfare, where civilians are intermixed with hostile units, is quite different from traditional battlefields (Grau & Kipp, 1999). Furthermore, the intensity level of operations conducted in MOUT varies tremendously, and different levels of conflict call for drastically different responses and tactics. While current training addresses MOUT tactics and procedures, the extent of that training pales in comparison to traditional combat training (Klug, 2000), and as a result the unique nature of decision making in MOUT receives relatively little attention.

The danger is that soldiers, no matter how well trained and prepared to carry out difficult procedures and actions, cannot be protected from the consequences of their poor *decisions*. MOUT places leaders in highly demanding situations where they have to operate with a high degree of independence. Thus, relatively junior officers are going to be facing high risks and demanding situations with very little preparation for handling the decisions and judgments in the MOUT mission (Grau & Kipp, 1999; Klug, 2000). As we have seen in Chechnya, Mogadishu, Berlin in WWII, Hue City, and many other urban battlefields, the casualty rates can be staggering compared to warfare conducted in open terrain such as Desert Storm (Grau & Kipp, 1999).

MOUT missions involve a broad range of critical and challenging decisions and judgments. One potential reason for the virtual exclusion of decision-making training within instructional programs is that it is difficult to identify the decisions and the strategies that skilled soldiers use. Generally, only the experts in a field have a bank of knowledge regarding how to effectively deal with these critical decisions. And, like experts in most fields, they often cannot articulate the tacit knowledge surrounding their decision making without the assistance of an outside party trained in eliciting such information. Given the expectation that more and more Army infantrymen will participate in MOUT, it has become necessary to capture the tacit knowledge from experts and make it available to less-experienced operators through decision-centered training.

Objective of this Effort

The objective of this project was to capitalize on the considerable MOUT experience that exists among selected soldiers and combat veterans to identify the critical cognitive aspects of MOUT decision making and subsequently enhance current Army training. The experts in urban operations have extensive operational experience and have learned lessons that cannot be found in any training manuals. By using Cognitive Task Analysis (CTA) methods (e.g., Hoffman, Crandall, & Shadbolt, 1998; Militello & Hutton, 1998; Schraagen, Chipman, & Shalin, 2000) to elicit these lessons, we can identify the decision requirements: the critical and challenging decisions and judgments, the information (cues and factors) that influences those decisions and judgments, and the sources of that information. We can use the arsenal of CTA methods to define the decision requirements of MOUT missions, and we can use those decision requirements to guide the development of a training program that boosts decision skills in MOUT. The training is intended to teach lieutenants to learn like experts, so that they can more quickly climb the learning curve and make sound decisions more quickly than would otherwise be possible.

Small-unit leaders, such as lieutenants leading platoons, have little or no operational experience from which to draw when making combat decisions. Therefore they are a prime audience for training in decision making. Furthermore, the training lieutenants receive for MOUT-specific requirements is scant in comparison to other mission types. In this project we developed a program of Decision Skills Training specifically aimed at boosting decision performance of platoon leaders in MOUT. However, the program is applicable to other echelons of command and mission types.

Two products comprise the Decision Skills Training program. The first is a multimedia, train-the-trainer CD-ROM titled IMPACT[1] – IMproving Performance through Applied Cognitive Training, which was developed to prepare and support instructors in Decision Skills Training. The CD includes a substantial library of scenarios called Decision Making Games (DMGs) that have been carefully structured to simulate practice in effective decision making. The second is a supplementary paper-and-pencil exercise, the Situation Awareness (SA) Appreciation Exercise, which was developed to guide instructors in the specifics of facilitating the understanding of the changing nature of SA during mission execution (See Section IV).

In addition to the Decision Skills Training products (IMPACT and the SA Appreciation Exercise), a third product resulted from this effort. *MOUT: Decision Making in Action*[2] describes the nature of decision making in MOUT. The guide presents lessons learned from experienced MOUT operators. It is intended for instructors of platoon leaders as well as soldiers and leaders who may fight in MOUT environments.

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[1] For more information about IMPACT, or to order a copy, contact Debbie Battaglia of Klein Associates (937-873-8166 ext. 139 or Debbie@decisionmaking.com).

[2] For more information about the *MOUT: Decision Making in Action*, or to order a copy, contact Debbie Battaglia of Klein Associates (937-873-8166 ext. 139 or Debbie@decisionmaking.com).

This report documents the development of the Decision Skills Training. We begin by discussing how we used CTA methodologies to validate and expand the decision requirements of platoon leaders in MOUT that were derived from the initial CTA, and how the refined requirements were used as the basis for training development. We continue by describing how MOUT scenarios, called Decision Making Games (DMGs), are developed. DMGs are the foundation of the decision training. A set of MOUT DMGs that address the decision requirements identified through the CTA are incorporated in IMPACT. Finally, we describe the Situation Awareness Appreciation Exercise.

Another report related to the effort has been written under separate title. *Evaluating an Approach to MOUT Decision Skills Training*[3] describes an evaluation study conducted at the U.S. Military Academy at West Point whereby the Decision Skills Training program and IMPACT were assessed as tools to improve decision-making performance.

II. COGNITIVE TASK ANALYSIS

Overview

The cornerstone of our approach to developing decision-centered training for Army soldiers in MOUT operations is Cognitive Task Analysis. CTA is the process of understanding the cognitive complexities of a task. It provides a set of tools for eliciting and representing general and specific knowledge pertaining to a particular activity, in this case, MOUT decision making. CTA allows us to go beyond procedural knowledge and the behavioral aspects of MOUT operations. The purpose is to get inside the soldier's head, and try to understand the "cognitive map" that guides his decision-making processes. We must understand how both novice and experienced soldiers view their environments, and what critical cues, expectancies, and goals they require to make a good decision in a specific context. Employing CTA allows us to understand many of the cognitive aspects involved in the judgment, decision-making, and problem-solving skills that are so critical in the uncertain and ever-changing MOUT environment.

CTA methods evolved from the study of Naturalistic Decision Making (Klein, Orasanu, Calderwood, & Zsambok, 1993; Zsambok & Klein, 1997). They comprise techniques for both eliciting and representing knowledge, and provide a means to identify and articulate the cognitive demands and skills related to a given task. In MOUT environments, proficient task performance places cognitive demands on the platoon leader as well as physical ones. These cognitive demands include such activities as decision making, judging, problem solving, and situation assessment. These cognitive demands serve as the drivers of the physical tasks. That is, the platoon leader often must make some judgment or decision before knowing which procedure or action to implement.

CTA provided us with a set of tools for eliciting general domain knowledge as well as specific knowledge pertaining to the cognitive demands for MOUT environments. (These tools will be discussed in further detail below.) The results of the CTA provide a framework

[3] The ARI Technical Report, "Evaluating an Approach to MOUT Decision Skills Training," can be obtained through the U.S. Army Research Institute or through DTIC.

for developing training applications by treating human decision processes explicitly and incorporating them as the basis for the final product.

In the initial study we conducted a CTA of the building clearing operation within a MOUT environment (Phillips, McDermott, Thordsen, McCloskey, & Klein, 1998), we conducted nine interviews with seven highly skilled and experienced Army operators from the 75th Ranger Regiment (two individuals were interviewed twice). The result was a set of Decision Requirements Tables describing cognitive demands of the building clearing task from a platoon leader's perspective.

The first activity under the current effort involved validating and expanding the CTA findings. This task was accomplished through additional CTA interviews with MOUT subject-matter experts (SMEs). The finalized CTA findings would serve as a basis for creating training interventions intended to improve decision-making and cognitive skills of lieutenants likely to operate as platoon leaders in MOUT. Because the overarching goal of the project was to develop training tools that could be implemented by Army instructors, a second set of CTA interviews was conducted to identify requirements of the user group (i.e., instructors who train Army lieutenants). Each of these two rounds of CTA interviews will be discussed in turn.

Validation of Initial CTA Findings

Method

Three SMEs were identified to validate the initial CTA findings (Phillips et al., 1998). All were retired soldiers with significant experience in MOUT. Two were retired Sergeants Major; one spent most of his career in the 75th Ranger Regiment, and the other was with Army Special Operations. The third interviewee was a retired Colonel who had been an infantry officer for 14 years and was involved with Army Special Operations (including Delta Force) for 14 years.

Each of the three interviews employed a semi-structured format and spanned approximately 2 hours. The Decision Requirements Tables (DRTs) created in the earlier effort provided a focal point for the interviewer questions and SME responses.[4] As the interview progressed, the DRTs were edited to reflect the new information and clarifications of prior information that resulted from the SME responses. Two additional knowledge elicitation techniques were employed as well: the Knowledge Audit, and a new technique utilizing scenarios.

Knowledge Audit

The Knowledge Audit is a method designed to efficiently survey various aspects of expertise (Militello & Hutton, 1998). It identifies ways expertise is or is not used in a domain

[4] Decision Requirements Tables are one format for representing knowledge elicited through a CTA. For further information about the initial version of the DRTs, see Phillips, McDermott, Thordsen, McCloskey, & Klein (1998).

and provides examples based on actual experience. The Knowledge Audit draws directly from the research literature on expert-novice differences (e.g., Chi, Glaser, & Farr, 1988; Ericsson, 1996; Ericsson & Smith, 1991; Feltovich, Ford, & Hoffman, 1997) and our own Critical Decision Method studies of decision making (e.g., Crandall & Getchell-Reiter, 1993; Crandall, Kyne, Militello, & Klein, 1992; Klinger, et al., 1993; Militello & Lim, 1995).

The Knowledge Audit was developed as a relatively inexpensive and simple method for applying CTA to the process of training development. It focuses on the categories of knowledge and skills that distinguish experts from others, using elicited examples that are based on actual experiences. These categories include: diagnosing and predicting, situation awareness, perceptual skills, improvising, metacognition, recognizing anomalies, and compensating for equipment limitations. The Knowledge Audit employs a set of probes which elicit examples of the types of skills used on-the-job. The probes enabled the interviewers to deepen on the information already present in the DRTs from the initial effort, and produce additional entries where necessary.

Scenario-Based Elicitation

A new interview technique – scenario-based elicitation – was used in two of the three interviews. The goal of the technique is to elicit a broader and deeper range of cues and factors related to decision making by grounding the interview in a series of situational contexts. This elicitation technique is highly interactive between the interviewers and interviewee. The interviewee is asked to build a scenario, and the interviewers probe key aspects of the scenario as well as the decisions that must be made. Dimensions of the contexts are altered one at a time (e.g., through 'what-if' probes) and the impact of the change on the SME's situation assessment and decisions are recorded. Not only does the resulting data produce sets of cues and factors, it also indicates the relative importance of certain pieces of environmental information, and how particular patterns of cues and factors are interpreted.

The process for the scenario-based elicitation is as follows:

1. The lead interviewer begins by presenting and explaining the DRTs, including how they were developed, their purpose, and the meaning of each column of data. The contents of the tables (i.e., the MOUT-specific data) are also explained as they pertain to the purpose of the study. In this case, we described our goal of eliciting the decision requirements of platoon leaders in a building clearing operation. The interviewee is also given the opportunity to ask questions about the tables and their contents.

2. The lead interviewer presents and explains DMGs, which are low-fidelity (paper-and-pencil), context-rich scenarios used primarily for training purposes (Klein Associates Inc., 1999; Schmitt, 1994). See Section III for further description of DMGs. The purpose of this step is to familiarize the interviewee with the nature of the scenarios around which the interview will occur.

3. The interviewee is asked to read a DMG scenario (in this case, a MOUT DMG). The purpose of this step is similar to Step #2 – to familiarize the interviewee with the nature of DMGs.

4. The lead interviewer refers the interviewee to the DRTs, and asks the interviewee to select a high-level decision requirement with which to begin the scenario development. In this case, the high-level decision requirements corresponded to stages of the building clearing mission. Using the decision requirement selected, the interviewee is assisted in creating a rough scenario that might be encountered on the MOUT battlefield.

5. The interviewers employ Critical Decision Method (Klein, Calderwood, & MacGregor, 1989; Hoffman, Crandall, & Shadbolt, 1998) and Knowledge Audit (Militello & Hutton, 1998) probes to elicit decisions, judgments, cues, factors, and expert-novice differences pertaining to the situation. Then the interviewers alter one dimension or piece of context, and probe to determine whether and how the decisions and judgments are altered. At times, the interviewers ask the interviewee what changes to the scenario would produce a different assessment or decision. This process of altering the scenario and recording the impact on decision making continues until the key variations are exhausted. Note that within a particular decision requirement, the set of key variations is substantial but not extensive; on average, we discussed 7-10 variations. The set of decisions within the decision requirement selected serve as a guide to ensure thoroughness by the interviewers.

6. The interviewers then probed another decision requirement. In this case, since all the decision requirements were highly related and semi-linear in nature, it was not necessary to develop a new scenario. The scenario developed for the first decision requirement selected was effective as a frame for each of the other decision requirements. The process described in Step 5 was utilized for each of the remaining decision requirements in turn.

Overall this interview technique was highly effective for validating and expanding pre-existing CTA data. We believe the linear nature of the decision requirements was critical to the success of this method given the short time frame (i.e., 2-hour interviews). We also believe the extensive amounts of experience and skill possessed by the SMEs contributed to the success of the technique. It is unclear whether this approach could be utilized with interviewees at lower levels of experience.

Results

The findings of this research have been combined with the earlier findings. Two additional decision requirements resulted from the current effort's validation interviews (*Determine how to evacuate the building* and *Understand and apply Rules of Engagement*). Additional data and clarifications of previous data were also obtained through the validation interviews. All data are represented in the DRTs (see Appendixes A and B). Each DRT centers on one decision requirement, and the information within each table details the

cognitive aspects related to that decision requirement. These cognitive aspects include:

- the critical decisions and judgments relevant to each decision requirement,
- the unique challenges of each critical decision or judgment (why the decision is difficult),
- the subtle cues (pieces of information that are directly perceived from the environment) and other factors (pieces of general background knowledge) that shape the decision, and
- the strategies employed or aspects of expertise possessed by the decision maker.

The decision requirements identified in this effort fall into two distinct, yet related, categories. The first category is the *task-focused* decision requirements. These six requirements are the steps involved in a building-clearing operation. They are linear in nature in that the platoon leader will generally address them one at a time and in the order presented below. The task-focused decision requirements are:

- Determine how to secure the perimeter
- Determine how to approach the building
- Determine how to enter the building
- Determine how to clear the building
- Determine how to maintain and extend security
- Determine how to evacuate the building

The second category is *task-independent* decision requirements. These five decision requirements are critical across all stages of a building-clearing mission. At any point during the operation all of these decision requirements should be active. The task-independent decision requirements are:

- Maintain the enemy's perspective (Think like the enemy)
- Lead subordinates
- Maintain the big picture and situation awareness
- Project into the future
- Understand and apply Rules of Engagement (ROE)

Figure 1 depicts the relationships between the decision requirements. The decision requirements inside the boxes are task-focused. The decision requirements in the ovals surrounding the boxes are task-independent, and apply across all of the task-focused decision requirements. While each decision requirement has a distinct nature, there is tremendous interdependence among the decisions during application. Placement of perimeter security will influence the decisions made during the approach, entry, and clearing of the building. Information collected during the approach and entry will impact the manner in which the platoon leader instructs the clearing to occur. The method by which the platoon leader decides to clear the building will affect the location and technique by which he will decide to approach and enter the building. The way in which the clearing proceeded will impact the decisions related to extracting the platoon from the building.

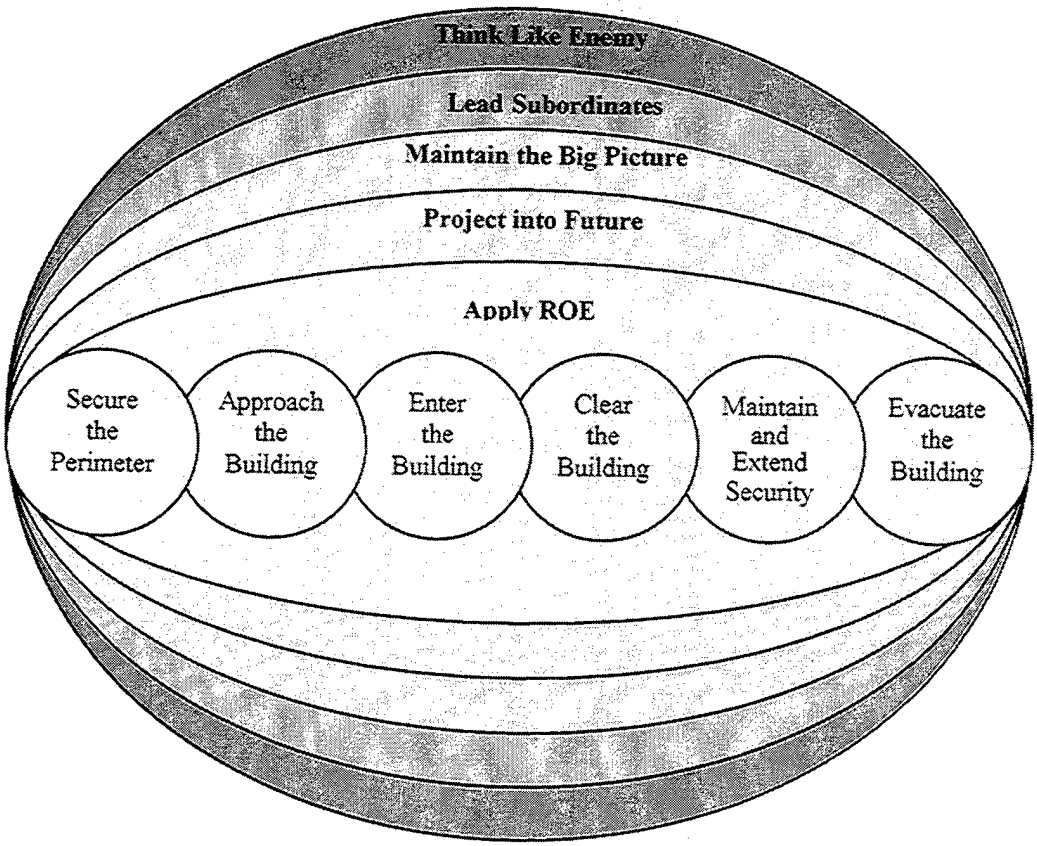

Figure 1. Decision requirements.

Similarly, the task-independent decision requirements have a large impact on each of the task-focused requirements and on each other. The platoon leader's situation awareness and projection of future events will shape his decision making as he secures the perimeter, approaches, enters, and clears the building, and maintains security within the building. Moreover, his situation awareness will be molded by his ability to think like the enemy, and in turn, his situation awareness will mold his projection of future events. Throughout the mission, the platoon leader's leadership abilities and application of the ROE are crucial.

Note that each of the eleven decision requirements is relevant during the pre-mission planning as well as mission execution. In nearly every building-clearing operation, the plan developed prior to the mission will break down to some extent during its execution. Therefore the platoon leader will be forced to adjust the plan on-the-spot, as the environment presents unexpected obstacles or additional information cues. For the purposes of this project, we have focused on the decisions and adjustments a platoon leader must make during mission execution. While the planning and preparation stages present their own variations of these unique challenges, it is during mission execution that decision making becomes time pressured, the situation continuously changes, stakes are high, and uncertainty runs rampant. This is the time when decision making becomes the most challenging for the platoon leader.

Task-Focused Decision Requirements

The task-focused decision requirements correspond to the stages of the building-clearing operation. The technical report produced from the earlier CTA effort describes five task-focused decision requirements (Phillips et al., 1998). In this section we will summarize those five decision requirements and describe in greater detail the additional decision requirement identified in the current study (*Determine how to evacuate the building*). The unabridged task-focused DRTs can be found in Appendix A.

Determine how to secure the perimeter. The task addressed by this decision requirement has to do with strategically placing units around the outside of the objective building in order to provide fire support to the clearing units. Depending on the mission, the support element will provide cover and/or backup fire during all stages of the mission (the approach, the entry, and the clearing), will prevent people from entering or exiting the area surrounding the building, and will serve as an overwatch or early warning function for the platoon leader and higher command. This is an essential decision requirement in building clearing. As one interviewee remarked, "A support by fire position will make or break you."

The determination regarding how to secure the perimeter occurs to a great extent during the planning stage prior to the mission. However, given the difficultly of pinpointing the environmental conditions under which the mission will occur, most plans will require at least minor adjustments once the mission is begun. Within this decision requirement the critical decisions and judgments are:

- *determining how to seal off the area*;
- *determining where to place security assets*;
- *determining which assets and people to employ*;
- *determining where to concentrate fires*;
- *determining how to synchronize fires and the shifting of fires*; and
- *if multiple buildings are to be cleared, determining which to clear first.*

Determine how to approach the building. The platoon leader's goal in this decision requirement is to get his units to the building in a safe and effective manner. Sometimes the approach will be by air (via helicopter), sometimes by ground (on foot or in vehicles), and sometimes under ground (through the sewer systems). The four critical decisions and judgments within the decision requirement are:

- *determining route and/or method of approach*;
- *determining how to navigate the streets;*
- *identifying hazards, constraints, and constrictions;* and
- *determining how to obscure the assault.*

Determine how to enter the building. This decision requirement is about deciding on an entry point that can be accessed relatively easily, provides a good starting point for the actual clearing that will occur once the unit has entered the building, and does not present a significant threat to the clearing unit. The entry may be from the roof, through a top story

window, through a ground level wall, through a door, and even through underground sewer pipes. Given the wide variety of entry point possibilities, the need for three-dimensional thought in MOUT environments becomes clearly apparent. The critical decisions within this decision requirement are:

- *determining the strengths and vulnerabilities of the building and its inhabitants*;
- *determining the point of entry (where to enter the building)*;
- *determining entry technique and equipment to be used (how to enter the building)*;
- *considering the tradeoff between a stealth versus a speedy entry*; and
- *if taking fire, assessing whether to enter the building or drop back and reassess the situation.*

Determine how to clear the building. This decision requirement involves the actual clearing of the building, room-by-room and floor by floor. Many challenges arise for the platoon leader during this stage of the operation. His job is to orchestrate the clearing, which entails split-second decisions to direct his clearing teams, limited yet critical communication with the clearing and support (outside the building) teams, construction of situation awareness inside and around the building, and judgments of the welfare and morale of the platoon. The critical decisions and judgments within this decision requirement are:

- *assessing the situation within the building*;
- *determining the flow of the clearing*;
- *determining how to employ personnel and teams*;
- *determining how and where to proceed*;
- *communicating directions and information*;
- *determining how and when to evacuate casualties*;
- *determining whether to request reinforcements or call for fire*;
- *determining the mental and physical state of the soldiers*;
- *determining when the clearing is completed*; and
- *determining whether rooms in the building are manned by the enemy.*

Determine how to maintain and extend security. During the process of the actual clearing it is imperative that the clearing unit secure areas of the building that have already been cleared. The purpose of this decision requirement is to ensure that "clean" areas remain clean, that the enemy cannot enter and clear the building behind your unit, thereby regaining control and posing a significant threat to the clearing unit. The technique frequently used by platoon leaders to maintain security entails tasking one clearing team (generally four soldiers) to clear two-three rooms (depending on the building and the circumstances of the mission) and then remain in or near the rooms to keep them secure. A second clearing team will leapfrog the first and take responsibility for clearing the next set of rooms, securing them, and so on. This technique not only enables good security, but also maximizes the effectiveness of the clearing unit; when mental and physical exhaustion sets in from clearing a few rooms, the team is given a crucial yet less demanding task.

The critical decision faced by the platoon leader during this phase of the operation is *determining where to place security elements.*

Determine how to evacuate the building. This decision requirement was added to the DRTs after the validation interviews. It involves extracting the clearing element from the building once the clearing is complete. An extraction point in the target building must be chosen, and the platoon must relocate itself from the building to another building or secure location. The extraction point and route is always planned in advance of the mission, however, the platoon leader must be prepared to adjust or completely change the plan in response to what is encountered during the mission. Extraction points could be on the roof (if evacuating via helicopter), through doors or windows, or through breach points.

The critical decisions and judgments related to evacuating the building are:

- *choose an extraction point;*
- *determine how to conduct the evacuation;*
- *determine how to handle noncombatants;*
- *determine where to locate oneself during evacuation;* and
- *ensure subordinate vigilance.*

One important objective in *choosing an extraction point* is to set the platoon up for the next operation. The extraction point should enable the platoon to position themselves to plan for the next operation or to begin the next operation, depending on the circumstances. The extraction point should also be selected based on the safety it offers the platoon. The platoon leader should factor in cover and concealment opportunities within the city, especially if the platoon will have to cover a significant distance outside the cover of buildings on their way to the next location. (Note that this references the *navigate streets* decision within the *Approach the building* decision requirement.) The platoon leader must also consider the situation inside the building: locations of doors and windows, location of noncombatants in the building (if applicable), and the general building layout.

The decision regarding *how to conduct the evacuation* is a challenging one. The platoon must maintain control and domination of the building while gradually decreasing its combat power in the building. At this time, risk of fratricide increases. The platoon's movement out of the building can draw the attention of other platoons operating in the vicinity. They may mistake the platoon for hostiles, or simply react automatically out of self-defense (despite the pre-brief that explained the other platoons' missions). The high threat levels in MOUT environments are known to cause itchy trigger fingers, especially with less experienced soldiers. In addition, friendlies rarely control all the structures in an area, so by evacuating a secure building, the platoon moves back into "hostile territory."

Given the dangers involved in evacuation, it is critical that the platoon leader enable mutual support. Often the first group sent out of the building will set up an overwatch position for the rest of the platoon. Also, the platoon leader must give soldiers clear limits of movement and concise instructions in order to keep the extraction controlled and thereby minimize the risk.

Noncombatants who were found during the clearing add a degree of complexity to the extraction. While clearing, the noncombatants were most likely cuffed and/or guarded in a

holding area. If they are not kept bound, they become a potential threat to the last team leaving the building. In some cases the platoon leader makes the decision as to *how to handle the noncombatants* during the evacuation. (In many cases, higher headquarters will make this decision ahead of time.) The decision will be made based on the number of noncombatants in the building – are there enough to cause problems for the platoon? – whether they have exhibited hostility, and how civilians in the region have responded in the past to U.S. forces. The level of intensity of the conflict also comes into play. Generally speaking, the higher the intensity, the greater the threat posed by noncombatants. There is also a chance that the enemy has slipped in with the civilians. In some situations the platoon will sort through the noncombatants prior to evacuating to ensure that no hostiles are amongst them. In that case, the platoon would likely uncuff the civilians. Under other circumstances, the platoon leader may decide to leave them bound, primarily to ensure their safety. Bound, they are not a threat and therefore platoon members are unlikely to shoot at them for any reason. If they are unbound, there is a chance that a soldier could interpret a movement or act as hostile, and fire in self-defense.

Another concern during the evacuation is *ensuring vigilance of subordinates*. There is a tendency for soldiers to let down their guard once the clearing is complete. They take on a "going home" mentality. The platoon leader must remind the platoon to stay sharp; the extraction can be tricky and risky.

Task-Independent Decision Requirements

The task-independent decision requirements represent judgments and assessments that should be operative throughout a building-clearing operation and that should shape decision making within each stage of the operation. For this reason, there is significant overlap between the data in the task-independent and task-focused decision requirements. Still, we discuss the task-independent decision requirements separately in order to highlight their criticality. In this section we briefly describe the four decision requirements identified in the earlier study, and we present in greater detail the additional decision requirement (*Understand and Apply Rules of Engagement*) identified in the validation interviews. The complete set of task-independent DRTs are presented in Appendix B.

Maintain the enemy's perspective. According to SMEs, this is one of the most critical yet most difficult decision requirements. Throughout mission execution a good platoon leader will continuously put himself in the enemy's position and think like the enemy in order to guide his own decision making. The critical decisions and judgments within this requirement are:

- *identifying the most likely enemy course of action*;
- *identifying the most likely enemy location*;
- *identifying how the enemy can exploit friendly vulnerabilities*; and
- *anticipating enemy deception techniques*.

These judgments will influence every decision that the platoon leader makes during the course of the mission. They will serve as additional cues to shape the decision making.

This decision requirement is more complicated than it often appears on the surface. Soldiers at all experience levels stress that it is important to think like the enemy. However, only those soldiers with extensive practice and experience can actually do it. The requirement is to actually put oneself in the enemy's mind set and plan from that perspective. What are his enemy's (i.e., the friendlies') vulnerabilities? How can he best exploit his strengths against those vulnerabilities? What are the key leverage points (e.g., buildings with good vantage points, intersections, well-constructed buildings) in the environment? These questions mirror the aspects of OCOKA (observation; cover and concealment; obstacles; key terrain; and avenues of approach) that Rangers use to guide their consideration of the enemy's perspective. The goal of this decision requirement is to internalize the enemy's objectives and most promising strategies for achieving those objectives, so that actions can be taken to deny the enemy his objectives.

Lead subordinates. This decision requirement is about managing a distributed team in order to sustain a continuous flow of operation. The platoon leader will lose the ability to maintain his situation awareness and orchestrate the operation if he loses control of his subordinates. Furthermore, control must be maintained to prevent subordinates from being forced to make decisions for which they are not responsible. This decision requirement is a difficult one because of the distributed nature of the team, the frequently chaotic environment in which it works, and the fact that subordinates do have the physical ability and procedural knowledge to conduct the clearing without the direction of the platoon leader. The critical decisions and judgments within the decision requirement are:

- *clearly communicating and directing subordinates*;
- *maintaining control of subordinates;* and
- *judging the combat effectiveness of individuals.*

Maintain the big picture and situation awareness. This decision requirement has to do with keeping track of the events and status within and surrounding your mission. The platoon leader's situation awareness will continually be updated as he takes in additional pieces of information. This information will come from his own visual inputs, communications with his clearing and support units, communications with his company commander and/or adjacent platoon leaders, and auditory cues from the environment itself including gunfire, running footsteps, and the like. He will use his situation awareness at all stages of the mission to make decisions. In addition, he will use his situation awareness to set expectancies for what he should or should not encounter, and to project into the future. The critical decisions and judgments within this requirement are:

- *assessing mission progress against the plan and objectives*;
- *assessing the big picture situation*;
- *maintaining awareness of the civilians in the area*;
- *maintaining awareness of sectors of fire for all friendly units;* and
- *setting expectancies.*

Project into the future. Throughout the mission the platoon leader must think ahead to the next steps in the operation. He must consider how current actions are achieving the

mission objectives and therefore what subsequent actions must take place to further the accomplishment of the objectives. This entails mentally simulating how current actions will change the situation, and being prepared to make decisions regarding next steps within that new context. In addition, he must mentally simulate the results that might be achieved through the projected next steps to determine whether those are favorable results, and adjust his directions to his unit accordingly. Within this decision requirement, the critical decisions and judgments are:

- *determining where to proceed next*;
- *determining the personnel necessary for mission accomplishment*; and
- *determining where to locate oneself to best direct and support the unit.*

It is crucial that these decisions occur well ahead of real-time events, otherwise they cannot be implemented in time to have the desired effects.

Understand and apply Rules of Engagement (ROE). This decision requirement was added during the current effort. It reflects the challenge of working within ROE that can be ambiguous and sometimes contradictory. The two critical decisions under this decision requirement are:

- *Interpret ROE*
- *Apply ROE*

Interpreting ROE is difficult because often the rules are written by politicians or lawyers who are not in a position to understand the application of the rules on a battlefield. The result can be ROE that seem clear at the outset, but once unexpected circumstances arise on the battlefield, soldiers are at a loss for how to interpret and apply the ROE. SMEs therefore recommend that upon receiving ROE, platoon leaders ask as many "what-if" questions as possible to glean a better understanding of the boundaries and restrictions, and ask for guidance on how ROE should be interpreted under each situation.

Applying ROE is a decision that goes hand in hand with interpreting ROE. It is challenging for several reasons. Units typically train under non-restrictive ROE, however, especially in low- to mid-intensity conflicts, ROE can be significantly more restrictive. Platoon leaders may need to be more deliberate when making decisions under unfamiliar ROE restrictions, although time pressure makes deliberation impractical. Restrictive ROE also place heavy limits on what the platoon can do to accomplish a mission. Platoon leaders must be prepared to be creative and think 'out of the box' to produce solutions that are effective yet within the range of acceptable action. Furthermore, there can be a conflict between the safety and welfare of the platoon, and the ROE. Platoon leaders are in the difficult position of being entrusted with the lives of their soldiers, while being required to understand how their actions on the battlefield will affect the larger political climate. To make things worse, ROE can even change during the course of a platoon's mission, resulting in confusion and the need to re-think portions of the plan to ensure that they comply with ROE.

Through efforts to make sense of the situation as it unfolds, platoon leaders will be able to make more appropriate decisions in compliance with ROE. A good situation awareness is critical to judging whether particular criteria within the ROE have been met (e.g., whether a hostile act has taken place), and subsequently determining what range of options are available to the platoon. Incidentally, a good situation awareness also enables the platoon leader to justify his actions in the future if need be.

User Requirements Analysis

Method

The intended *trainer* audience for the DST was instructors at the Infantry Officer's Basic Course (IOBC) at Fort Benning, GA. These instructors provide initial infantry schooling to lieutenants who have just entered the Army. All infantry officers attend IOBC prior to any other assignment. The primary goal of the user requirements analysis was to capture the characteristics, objectives, and constraints of the IOBC instructors. We also sought information as to the training cycle of Army lieutenants, and the role played by IOBC in the larger picture. With this information we were better able to determine the types of instructional materials most appropriate for the domain, in order to design the DST program and the IMPACT multimedia train-the-trainer tool.

The user requirements analysis was accomplished through a series of interviews with current IOBC instructors. We conducted 1-2 hour semi-structured interviews with 4 Captains, 3 Staff Sergeants, and 1 Sergeant First Class. We used the first two interviews to capture general information pertaining to the IOBC curriculum, structure, and process. In all eight interviews we asked instructors a series of questions around the following topics:

- Personal background and military experience;
- Knowledge and experience in MOUT;
- Experience as an IOBC instructor and as an instructor at other schools or units (if applicable);
- Teaching style and educational philosophy;
- Challenges faced teaching at IOBC;
- Use of the support mechanisms put in place by IOBC for the instructors;
- Reactions to the MOUT DST program we proposed.

The interview data for each instructor were then documented by sorting the data into eleven categories:

1. Training experience, including instruction on how to instruct and time at IOBC.

2. Comments related to training decision making.

3. Comments related to training leadership skills.

4. Comments related to training teamwork/collaboration.

5. Comments on MOUT training (at IOBC and other places, if applicable).

6. How he instructs....
   a. How he prepares for giving instruction (may be more applicable for Captains).
   b. Description of instructor materials available to him, or that he uses.
   c. Discussion of how he flexes materials and\or instructional approach to his teaching style or to his view of what is most important to teach.
   d. What he teaches that is <u>not</u> in the manual or stated curricula.
   e. Hardest things about teaching; what students struggle with.

7. Educational philosophy – perspective on best teaching strategies, what he tries to offer his students, or anything that drives the way he approaches his teaching. Also, qualities of a good instructor.

8. Indications of DST fitting <u>or not</u> fitting into IOBC – e.g., what he says about downtime, whether he uses scenarios now, and so forth.

9. What a student should walk away from IOBC having learned.

10. Reactions to our DST materials.

11. Other comments.

We compiled the data from each interview to develop a profile of the IOBC curriculum, students, and instructors. This profile contained only information directly relevant to the design of the DST program. The profile and the interview notes were referenced periodically during development of the SA Appreciation exercise (see Section IV) and of IMPACT.

IOBC Profile

<u>The Curriculum</u>

Each IOBC class consists of 5 platoons of students, comprising a company. A maximum of 40 students make up a platoon, which is also referred to as a cadre. Three instructors are assigned to each cadre: a Captain, an Staff Sergeant (often from mechanized infantry), and an Sergeant First Class (often from light infantry, and preferably a Ranger). Civilians, typically retired military, also provide a portion of the instruction. The Captain is ultimately responsible for the training of the lieutenants.

The IOBC motto and general educational philosophy is "crawl, walk, run." First, teach the students to crawl by telling them how to perform a skill. Then, they walk by practicing the skill. Lastly, running entails performing the skill in the context of an exercise.

The curriculum spans 16 weeks, with MOUT instruction accounting for less than 1 of the weeks. Specifically, the MOUT module includes: 4-5 hours of classroom time devoted to high level doctrinal issues (such as building construction and the difference between precision MOUT and surgical MOUT); 8 hours of field walk-throughs pertaining to procedures such as entering a room, clearing a hallway, and clearing a stairwell; and 8 hours of evaluation time during which the students actually perform the drills and procedures. Of the nine battle drills taught at IOBC, only one is related to MOUT. IOBC instructors rely heavily and almost exclusively on Field Manual (FM) 7-8 – which does not cover MOUT – to support the structure of the course. (FM 90-10-1 with Change 1 is the MOUT "bible.")

As to where the DST could fit into the IOBC curriculum, the current schedule of teaching requirements is fairly tight. There is little downtime during which the DMGs could be played. Students are sometimes given homework assignments to be completed over a weekend, but rarely overnight assignments because of time restrictions. Instructors are encouraged to have "hip-pocket training" on hand to use during downtime. Downtime might occur during the course of a field exercise, or at the end of classroom time slots. Instructors are not required to use allocated classroom time in its entirety. If the lesson concludes early, the rest of the period can be used at the discretion of the instructor.

Students do not have regular access to computers at this time. Instructors have access, but use computers only to compile grades and evaluations for each student. However, IOBC does employ the computer simulation, JANUS, once during the course. Each platoon writes an operations order and inputs into JANUS the plan they intend to execute. The system mimics the enemy, and students fight a simulated battle. This exercise occurs in Week 10 and is a large scale simulation exercise. They allocate about 4 hours to the exercise, including an hour After Action Review.

The Students

Students entering IOBC come from Officer Candidate School (OCS), the U.S. Military Academy at West Point, or a ROTC program. The students from OCS are prior enlisted, typically with about 8 years of Army experience. They are the most knowledgeable with regard to tactics, techniques, and procedures (TTP). The next most experienced and knowledgeable students are those who come from a military academy. They generally have 3-4 weeks of TTP-related training each summer. The prior enlisted students are the only ones who enter IOBC having been exposed to the MOUT environment.

IOBC has a low attrition rate. After attending IOBC, most lieutenants enter either Airborne School or Ranger School. Typically lieutenants will finish both of these schools prior to being assigned to a unit. There are exceptions. There are also lieutenants who receive additional schooling prior to a unit assignment.

Few IOBC graduates will be sent directly to assignments with the possibility of conducting MOUT operations. The MOUT module at IOBC is merely an introduction to the basics, and lieutenants will almost always receive additional MOUT training in their units prior to being confronted with a MOUT mission.

The Instructors

IOBC instructors are Captains, Staff Sergeants, and Sergeants First Class. The Captains are responsible for planning the 16 weeks, evaluating and mentoring students (although NCOs conduct a great deal of informal mentoring), and delivering the bulk of the classroom training. The NCOs conduct the field training with students. They are the "hands-on, face-to-face" instructors who are with students continuously throughout the course.

There is significant variation in the degree of experience instructors have upon entering IOBC. Some have taught at several other schools, while others may take their first instructional assignment at IOBC. All incoming instructors are "required" to attend a two-week Instructor Training Course (ITC). However, not all instructors go through ITC, and some do not attend until after their first rotation (i.e., 16-week course) is complete. ITC teaches instructors general oral presentation skills, how to write learning objectives, test administration, and how to address task conditions and standards. Instructors also deliver a 12-minute "class" during ITC and receive feedback from the other instructors. Instructors generally move on from IOBC after three years.

Implications of the CTA for Decision Skills Training Design

The results of the MOUT SME CTA and the user requirements analysis became the basis for the two Decision Skills Training products: the IMPACT multimedia tool, described immediately below, and an SA Appreciation exercise, described in Section IV. Both were specifically designed for Captains at IOBC, who are responsible for the bulk of classroom training. However, the NCO instructors are not precluded from employing the learning tools. In fact, the Decision Skills Training in IMPACT is well-suited for either classroom instruction or for use during downtime in the field.

IMPACT

The IMPACT multimedia train-the-trainer CD-ROM is the primary Decision Skills Training application resulting from this effort. The purpose of the tool is to train instructors to facilitate Decision Making Game (DMG) scenarios, using a Decision Making Critique to debrief the sessions. It also includes guidance for developing DMGs, and incorporates a library of 16 MOUT DMGs, which were created using the findings from the CTA conducted with MOUT SMEs. (For more information about how the DMGs were developed, see Section III.)

IMPACT contains 6 modules:

Mock Decision Making Game Seminar. It is our belief that instructors will be better facilitators of DMGs if they have participated in a game as students. The mock DMG seminar places the instructor in the student's position with an interactive DMG session.

Introduction. The introduction briefly describes the type of decision making addressed by IMPACT – recognitional (e.g., Klein, 1989; Klein, 1997), as opposed to

deliberate. It explains that the training is intended to boost decision-making skills through practice and experience with context-rich, albeit low fidelity, decision scenarios.

Facilitating DMGs. This module breaks down the DMG seminar into a series of steps, and explains how to facilitate each step. It also includes a discussion of positive and negative facilitation behaviors. Video clips are incorporated throughout to exhibit each of the steps and to model various facilitation styles.

Decision Making Critique. This is a critical module in IMPACT. The Decision Making Critique is a debrief method focusing on the how and why behind the decisions and assessments of the students. This module teaches instructors to utilize the Decision Making Critique, again breaking it down into steps. Video clips are used to show how to use each question and what types of student responses the instructor should try to elicit. Facilitation tips are also included.

Creating DMGs. This module explains the key components of a DMG and provides guidelines for developing each section of a game. The user can also choose to develop a DMG while working through the module. If this option is selected, the user will input scenario development notes as prompted. The end result is a printable worksheet that can be used as a framework for creating a complete DMG.

DMG Library. This module contains 16 MOUT DMGs developed based on the CTA findings. Basic, intermediate, and advanced level games are included. Each DMG includes the actual scenario and facilitator notes. The facilitator notes present teaching points to aid in selecting an appropriate DMG for the student group. They also include potential questions that students may ask about the scenario and recommended answers, and contingencies that the instructor can incorporate into the scenario as desired.

III. SCENARIO (DECISION MAKING GAME) DEVELOPMENT

A key portion of this project involved the development of a library of MOUT Decision Making Games (DMGs) for inclusion in the IMPACT tool. In the process of developing these DMGs, two additional research objectives were met. First, we refined a methodology for translating CTA findings (in the form of DRTs) to relevant training requirements and to scenarios in the form of DMGs. Second, we developed dimensions that allowed us to classify DMGs according to difficulty level.

This section describes the DMG development portion of the project, and is divided into the following sections:

- Background on DMGs
- The process for translating DRTs to DMGs
- The DMG complexity dimensions and how they impact DMG difficulty level
- Summary of the DMG library developed for this project, including the links between the CTA findings and both the teaching points and DMG content.

Background on DMGs

DMGs are low-fidelity, paper-and-pencil simulations of incidents that might occur in battlefield environments. A DMG presents a dilemma with high levels of uncertainty. Each participant has a limited amount of time to consider how he would react, which adds time pressure to the exercise. DMGs are intended to provide low-cost experiential training, and to allow practice in rapid decision making. They also provide a context for teaching and practicing the other exercises. DMG originator, John Schmitt, describes how a DMG is played in the following text:

> Playing a [DMG] is very simple. Putting yourself in the role of the commander, you read (or have described to you) the situation; within an established time limit you decide what plan to adopt and communicate that plan in the form of the orders you would issue to you unit if the situation were for real. You provide an overlay of your plan. Then, and this is an important part of the process, you explain the plan as a means of analyzing why you did what you did (1994, p. 3).

DMGs can provide several benefits to those engaged in a DMG seminar. The learning objectives for participating in DMGs are to:

- improve one's ability to make decisions quickly and effectively;
- begin to make better sense of new situations, see patterns, and spot opportunities and options that were not seen before;
- become more comfortable with a variety of different situations;
- develop more advanced and ambitious tactics; and
- become more familiar with weapons capabilities, employment techniques, and other technical details.

DMGs can be used by trainers to: allow their trainees to practice rapid decision making; get their trainees to more deeply reflect upon the reasoning behind their decisions; allow trainees to rehearse decision-making elements of a field exercise prior to that exercise; and reinforce lessons that the trainer covered in a lecture. DMGs can be tailored to specific decision areas in the DMG design process.

Perhaps the most important benefit of DMGs is that they can provide participants with practice in battlefield decision making in a safe, cost-effective manner. While they can never fully simulate the stresses of real military conflict scenarios, DMGs can expose the participants to a wide range of challenging battlefield decisions, *if they are developed properly*.

While a DMG can be developed by simply creating a situation and environment, and then requiring some action, a more focused approach to development can result in a higher quality DMG. By starting the development process by focusing on specific challenging decisions that an envisioned participant can be expected to face, a DMG can be created that forces the participant to deal with those decisions. In this way, DMGs can be tailored to

specific training demands, known difficult cognitive challenges, and/or particular events in upcoming exercises. The instructor can also then develop DMGs to reinforce lessons that he presents in a classroom setting. As discussed in Section II, this decision-centered approach to DMG development was a key part of this effort.

Translating DRTs to DMGs

In the course of this effort, Klein Associates developed a series of DMGs tailored to the specific challenging decisions that Army platoon leaders face in MOUT environments. These challenging decisions were identified, elaborated, and represented in the initial research effort and enhanced in the early stages of the current project. The process for developing the DRTs is found in Section II. The actual DRTs can be found in Appendixes A and B.

In order to create DMGs tailored to the Army platoon leader MOUT-specific decision requirements, we developed and refined a general process for developing decision-centered DMGs. The MOUT DRTs contain platoon leader judgments and decisions that make MOUT building clearing operations challenging. The tables are a result of extensive, in-depth interviews with several Army MOUT experts with operational experience. In this section we will present the development process by walking the reader through the development of one DMG – *Wrap It Up* – using the high-level MOUT decision requirements of *Securing the Perimeter* and *Approaching the Building*. The DRTs in Appendix A present these two decision requirements.

Step 1: Identify decision-focus area(s) and learning objectives for DMG

Assuming that we want to develop a DMG that addresses the cognitive aspects associated with securing the perimeter and then approaching a building that is to be cleared, we choose *Securing the Perimeter* and *Approaching the Building* as the high-level decision-focus points for this scenario. Within both of these high-level focus areas are several individual decisions that must be made. A portion of these decisions, which are represented in the left-hand columns, will guide the likely learning objectives for this scenario. The challenging decisions involved in *Securing the Perimeter* are:

- determine how to seal off the area;
- determine where to place security assets;
- determine which assets and people to employ;
- determine where to concentrate fires;
- synchronize fire and the shifting of fire; and
- if multiple buildings are to be cleared, determine which to clear first.

The challenging decisions involved in *Approaching the Building* are:

- determine route and/or method of approach;
- determine how to navigate the streets;

- identify hazards, constraints, and constrictions; and
- determine how to obscure the assault.

Prior to developing this DMG, we decided to emphasize learning points around moving, protecting, and coordinating assets. Therefore, we chose to use the decision requirements of *determine which assets and people to employee, determine where to concentrate fires, determine how to navigate the streets*, and *determine how to obscure the assault* as key decisions for the DMG.

Step 2: Ensure that specific decisions will have to be encountered in DMG

As the DMG develops, it should be leading to a climax where the platoon leader is forced to deal with at least some of these decisions. To accomplish this in the DMG *Wrap It Up*, we have one of the squad leaders report to the platoon leader that they are taking fire from a building 20 meters ahead. We place the platoon in streets, and force the platoon leader to determine how they will deal with the enemy element in that building. Some of the platoon has taken cover, but none are at the building. It must be approached.

It is important to note that the initial teaching points that are selected are typically not the only ones that eventually are reinforced in the DMG. By conducting each DMG with Army personnel, we discovered that several additional teaching points emerged from the DMG seminars. In the case of *Wrap it Up*, additional teaching points that emerged centered around the tradeoffs of completing the original platoon mission versus responding to unexpected calls for support from higher units, and the general assessment of enemy strength and intent.

For each decision, the DRT incorporates features that can make that decision difficult, along with the cues and other factors that are used in making that decision. While the individual decisions within the table can be used as focus points for the DMG, the accompanying information (i.e., Why Difficult?, Cues, and Factors) can be used to develop a relevant background and scenario of the DMG.

Step 3: Integrate Cues into Scenario to provide meaningful decision making context

The Scenario portion of the DMG tells the main story in the game. It is the heart of the DMG, and describes the situation being encountered. It should address, at a minimum, the following six questions:

- Who am I?
- What is my mission?
- What are my resources (soldiers, weapons, communications, etc.)?
- Where are my squads, company commander, and fellow platoons?
- What is my current environment (described in text, map, picture, etc.)?
- What is the situation and/or problem?

The Cues column from the DRT can provide invaluable information to answer these questions with meaningful information that is relevant to the decision requirements. These critical cues are essential elements when constructing the Scenario portion of the DMG. They are the perceptual elements of the environment that influence the challenging decisions. While they cannot be represented with high fidelity in a pencil-and-paper DMG, mention of some of the cues can help the participant paint a more detailed mental picture of the situation. The cues add content to the scenario that platoon leaders should consider when making their decisions. Looking at the Cues column of the DRTs for *Securing* and *Approaching*, we incorporated several cues that could influence the decisions. For example, we inserted information on nearby structures that can be used for cover or concealment (used in determining how to navigate the street), street sizes and layouts (used in determining route/method of approach), presumed and evident enemy weapons and locations (used when assessing which assets and people to employee). These cues can be incorporated in maps and diagrams (e.g., building layouts and street sizes), or in the actual text of the scenario (examples are "...when you hear gunfire, AK-47 you believe...", "He radios in to you: 'Lieutenant, we are taking enemy fire from the storefront 20 meters to the northeast.... From the rate of fire I'd say there are about five or six weapons trained on us.'"). It is unwise and unrealistic to incorporate all the potential cues for a decision into a scenario. We purposely leave some cues out in order to increase the inherent uncertainty of the DMG, and to leave it up to the participants to think ahead and ask relevant questions after the DMG scenario is initially presented to them.

Step 4: Use the Why Difficult? column to make the decisions more challenging

The Why Difficult? column in a DRT is invaluable in creating a DMG that is challenging. When making a DMG, a common mistake is to create a situation with one obvious right answer. There is little learning that will occur with DMGs developed in this manner. The Why Difficult? column can prevent the one-right-answer mistake from happening. This column provides information on what makes the selected decision or focus difficult. It identifies some elements about the environment, situation, or general climate that, if present, could make this decision even more difficult.

In this step, we reviewed the Why Difficult? column for each decision that is expected to be encountered, and identified complexities to add to the Scenario. For *Wrap It Up*, we start with the decision of *determine route and/or method of approach.* The Why Difficult column identifies that this decision can be especially difficult when open spaces are involved and threats are hidden. We therefore incorporated very little clutter in the streets, a large open space that must be crossed to reach the enemy building, and a report of an additional possible enemy ("...one of my guys thought he just saw something move in the building directly across the street.").

The report of an additional possible enemy also makes the decision of *which assets and people to employ* more challenging. The Why Difficult? column for this decision tells us that, if the platoon leader gets information that increases the uncertainty regarding what he will encounter during the mission, it will be inherently more difficult to determine the usage of assets and people.

Wrap It Up was designed as a Basic level DMG, so we did not add a great number of difficulties. If we were interested in further increasing the difficulty, we might have added additional items from the tables, such as limiting the amount of ammunition available to the platoon.

Step 5: Use the Factors column to support the development of a Background

The Background of a DMG should provide detail on the following issues:

- Who is or has been feuding?
- What is the political and/or cultural climate?
- What is the current status of the area?
- What are the recent trends in activity and attitudes?
- Why is the platoon in this location?
- How long has the platoon been deployed?
- What are the friendly and enemy big pictures?

Factors can be used to provide the context for these background issues to an extent that allows the participants to immerse in the DMG situation. These factors are different from cues in that they are not typically immediate or perceptual. They can be considered general knowledge, such as economics of an area, general attitude of civilians toward the military, or typical tactics employed by the enemy. They provide supplemental information that not only helps to create a history for the DMG, but also creates critical context for making decisions. Much of this context is found in the Background, but it can also influence parts of the Scenario and ROE as well.

For the decision of *determining an approach route*, the DRTs indicate that level of ambient lighting (day vs. night), information from recon (intelligence reports), and overall mission are all critical factors when making this assessment. Therefore, we specifically included this information in either the Background or Scenario. For example, we provided an intelligence report on past enemy activity ("In the past four weeks, the enemy forces have been mainly reactive and attacking only sporadically. They have been operating in small groups of 4-8 soldiers…").

Step 6: Develop ROE, taking Factors into account

ROE are consistently challenging in the chaotic MOUT environment. Within very short periods of time, a soldier's mission can transform from humanitarian relief to peacekeeping to all-out war. Given the transient nature of MOUT, ROE rapidly become outdated or irrelevant. They can also be so vague that they cannot be easily interpreted. Nonetheless, they are often listed in the DRTs as factors that influence MOUT decisions. For this reason we developed (for *Wrap It Up* and other DMGs) the following standard set of ROE that are a representative sample of what might be encountered in a MOUT environment:

Nothing in these ROE limits your right to take appropriate action to defend yourself and your unit.

- In this high-intensity conflict, you have the right to use force to take appropriate action to defend yourself and your unit, and to achieve your mission.
- Hostile fire may be returned effectively and promptly to stop a hostile act.
- U.S. forces can use any force deemed necessary under the circumstances and proportional to the threat.
- Detention of civilians is authorized for security reasons, self-defense, or to support achievement of the mission.

Some ROE are subject to interpretation, such as "U.N. forces can use any force deemed necessary under the circumstances and proportional to the threat." It is up to the soldiers to use their judgment in interpreting the ROE, and applying them to their particular situations. This adds to the uncertainty and complexity in decision making that is encountered during the DMG. Since we decided to keep *Wrap It Up* at the Basic level, we limited the number of rules, and made them somewhat flexible. When developing DMGs at higher levels of difficulty, or where the operative decisions are impacted by ROE (i.e., ROE is one factor in the DRT), the ROE can be modified accordingly. As a general rule of thumb, incorporate ambiguous or prohibitive ROE to increase the challenge for the participants. Limit ROE to a maximum of 6-10 statements for the purposes of a classroom exercise. To emphasize the learning objective of *interpreting ROE*, provide the same DMG twice, changing only the ROE, and discuss how actions would differ as a result.

Step 7: Set the Requirement, checking the Why Difficult? column

The Requirement dictates how much time participants have to come up with an answer, and what form the answer should take. The form might be verbal orders, sketches on a map, written orders, or a list of considerations. We set the requirement so that participants feel a significant amount of time pressure, but not so much that they cannot produce a reasonable order. For platoon-level exercises, a 2-minute time requirement usually works. To increase realism and provide practice in communication, we require participants to write down and then verbally issue their orders. To prevent participants from producing vague responses, we require them to sketch out their actions on the map or diagram. The Requirement statement is typically one or two sentences.

Often, the Why Difficult? column will provide additional information that suggest modifications to the DMG Requirement statement. For example, if a decision is made more difficult because a platoon leader is typically out of communication with his squad leaders, part of the Requirement may be to develop a plan to convey your orders to the squad leaders.

Step 8: Integrate Cues and Factors into Map/Diagram, using Why Difficult? to modify

The visual representation of the situation is generally a map or diagram of the area of operations. These visual aids are critical elements of the DMGs. They provide the visual context that cannot be presented within a textual description. Pictures or photographs need to

be designed to show the critical cues that are important when making the decisions associated with this scenario. Given this requirement, it is easy to understand the benefits of high fidelity and realism here. Sketched pictures are better for helping the participants envision the situation and recognize critical cues than is text. Maps are better than sketched pictures. Photographs are better than maps (or can be supplemental). Video is better than photographs because it allows multiple perspectives and can provide visual cues.

For this effort, we developed representations using software drawing programs. We were sure to include relevant terrain features, and locations and sizes of friendly and enemy forces *if known*. If forces are questionable or unknown, they can be represented by a question mark. Also include a scale of distance. Designate where the participant would be located in the scenario. Other prominent features that are mentioned in the scenario should be designated as well. For the DRTs involved in *Wrap It Up*, we integrated such cues and factors as locations of obstacles on streets, sizes of streets, building sizes and relative locations, and suspected enemy locations. To increase the difficulty of the DMG, we could have looked for uncertainties in the Why Difficult? column and represented them by including less detail on the map.

Step 9: Name the DMG

Once we developed the framework for the DMG, we named it. We selected a name, *Wrap It Up*, that allowed us to remember the content. The name may refer to the general situation, attributes of the physical environment, the dilemma, or some other prominent feature.

Step 10: Evaluate and modify the DMG

During this effort we developed a methodology for evaluating the quality and difficulty level of DMGs. We identified a series of questions that should all be answered "yes" for the DMG to likely be successful (Schmitt, 1996).

- Does the DMG tell a story?
- Does the DMG go from general to specific?
- Is there a good level of time pressure?
- Does the DMG contain uncertainty?
- Are there multiple acceptable courses of action?
- Does the DMG force a tough decision?

Does the DMG tell a story? The most important quality of a DMG is that it is interesting. The DMG should tell an action story that grips participants. Developers of DMGs have a tendency to get caught up in the nuts and bolts of the DMG. It is therefore a good idea to ask others if they think the DMG tells a good story. Also ask them for specific ideas on how to make it even more engaging.

Does the DMG go from general to specific? A good DMG usually starts out with general characteristics of the environment, enemy, and friendly forces. As it

progresses, and especially as it reaches the echelon of the participant, it should get into specifics.

Is there a good level of time pressure? A DMG should put participants in a crunch. They should feel as if they are truly pressured. They have little time to sit and wait. They must make some sort of decision. If "sit and wait" is an acceptable answer to the DMG, then there is not enough time pressure. Add chaos or enemy action to increase the pressure. Conversely, if there is only time for a knee-jerk response to the dilemma, it is unrealistic for participants to think out a detailed response. For example, if the DMG places a platoon leader out in the open being directly fired upon by an enemy soldier 50 meters away, the obvious response is to drop and return fire. This is too much time pressure to create a situation where complex decision making can be practiced.

Does DMG contain uncertainty? The right level of uncertainty is critical in a DMG. If everything is known – exact enemy and friendly locations, sizes, capabilities, resources, intents, and every square meter of terrain – this creates an unrealistic *and* simple DMG that will produce little variation in responses. The real battlefield is fraught with uncertainty. A good amount of uncertainty enhances a DMG and allows for multiple interpretations of the situation. Different assumptions are made and different courses of action are taken, leading to a DMG seminar filled with learning. The DMG should not tell participants everything about the situation; it should leave some unknowns. However, a DMG should not be designed with so much uncertainty that no decision can be made at all. To test the level of uncertainty, ask colleagues to participate in the DMG and assess whether they contain too much or too little uncertainty.

Are there multiple acceptable courses of action? The most common error in creating a DMG, especially when it is based on one's own personal experiences, is to create it with a specific "right answer" in mind. This virtually guarantees an unsuccessful DMG – a leading DMG that has only one acceptable answer. As you review your DMG, ask yourself whether you had one answer in mind when developing it. If so, change the characteristics of the game to make it more complex. Also, have colleagues evaluate the DMG to see whether they can think of more than one acceptable answer. A good DMG will leave a participant thinking, "What a mess I am in!"

Does DMG force a tough decision? Just as there should be multiple *acceptable* courses of action, there should also be no *perfect* course of action. The participant should feel like he has been placed on the hot seat where he must do something, but he is not at all clear what to do. DMGs should not be "no-brainers." A good DMG forces a participant to make a tough decision. At the end of a DMG session, participants should come out with lessons learned, but not a shared vision of one right answer.

We employed the above quality checklist for each of the 16 DMGs developed in this effort. We also used an additional, more rigorous quality test for our DMGs. We conducted DMG validation sessions with IOBC Blackbirds. (Blackbirds are recent graduates of IOBC who for various reasons have not yet moved to their next assignment.) For each DMG, one Klein Associates representative facilitated a seminar with 4-6 Blackbirds. Two Klein Associates observers assessed the quality of the seminar as it was being conducted. They answered questions such as whether the participants seemed engaged, whether they seemed to experience time pressure, what courses of action were generated, what types of questions participants asked, what issues arose in the debrief, and so forth.

Further, we elicited feedback from the IOBC Blackbirds on both the quality of the DMG learning experience and how to improve them. Participants completed a feedback form consisting of the following eight questions:

- How much time pressure did you feel you were under in this scenario?
- How challenging were the decisions you had to make?
- What would you change to make the scenario more challenging?
- How interesting was the scenario (was it exciting, did it grab your attention)?
- How helpful was the visual aid in understanding the scenario?
- Would you change the visual aid or add anything to it? If so, please describe.
- What did you like least about the scenario?
- What did you like most about the scenario?

Once the feedback forms were completed, an informal group discussion ensued. The Klein Associates representatives asked specific questions pertaining to the participants' feedback in order to clarify and expand on their comments and suggestions.

Observations by our representatives in concert with feedback from the Blackbirds were used to improve upon each scenario. Most improvements involved clarifying the wording in the DMG text or increasing the realism of the scenario. In a few cases, the events in the DMG Scenario were altered to increase or decrease the difficulty level.

The validation sessions also enabled us to prepare facilitator notes for each DMG. The facilitator notes consist of four components. First, the Executive Summary paragraph provides a brief description of the DMG. Second, a set of 4-6 Teaching Points indicate what types of issues should be discussed and what types of lessons will result from playing the DMG. The teaching points are based on the original decision-focus areas identified for the DMG as well as the issues that arose during the Blackbird session. Third, a list of Potential Participant Questions provides clarification questions that participants might ask about the scenario, as well as recommendations for how to answer those questions (to increase or decrease level of difficulty). Finally, the facilitator notes include a set of Potential Contingencies that can be added to the DMG at the facilitator's discretion. The facilitator notes for each DMG are available in IMPACT's DMG Library module.

Dimensions of Complexity

One objective of the DMG development process was to create games at varying levels of difficulty–basic, intermediate, and advanced. We therefore identified dimensions of DMG complexity as a standardized tool for *developing* DMGs at a certain level of difficulty, and *assessing* the difficulty level of a particular game. For each DMG created in this effort, the initial development step was to plan its level of difficulty. The Dimensions of Complexity table was then used throughout the development process to ensure the content of the game matched the desired level of difficulty. In some cases we modified the difficulty level of a DMG based on feedback received from the IOBC Blackbird sessions or from our consultant. The dimensions of complexity also informed these modifications.

We began defining the dimensions of complexity by gathering subjective assessments of the difficulty of a wide range of individual DMGs. We grouped the DMGs into categories, and then performed a thematic analysis, identifying individual characteristics of each DMG in each level. We identified 10 difficulty dimensions that seemed to distinguish the more challenging DMGs from the less challenging ones. We then identified attributes of each dimension that tended to make the DMGs more or less difficult. These dimensions and their attributes are presented in Table 1.

Table 1.

Dimensions of DMG Complexity

	Basic DMG	**Advanced DMG**
Level of Uncertainty	• Communications are clear. • Little or no ambiguity in scenario description or background. • Nature of situation is known. • Players in the situation are known. • Mission is clear. • Higher intent is clear. • Superiors are readily available.	• Mission statement seems to lose appropriateness. • Higher intent is vague or missing. • Superiors are unavailable. • Nature of situation is unknown. • Players in the situation are unknown. • Capabilities of other players are unknown. • Communications are lost.

	Basic DMG	Advanced DMG
Subtlety of cues	• Cues are clearly presented. • Cues form a clear, easily-recognizable picture. • No irrelevant cues are presented. • Few cues needed to form accurate representation of situation. • Little inferencing needed to interpret cues.	• High number of cues presented. • Cues lead to multiple interpretations of situation . • Cues are fuzzy. • Cues not experienced first-hand. • Multiple cues needed to form representation of situation. • Significant inferencing needed to interpret cues.
Organizations Involved	• Within unit.	• Interaction required with other units, other services, other agencies and organizations.
Number and severity of complicating events	• No unexpected events. • Equipment functions properly (comms, vehicles, etc.). • No casualties. • Team performs as trained. • Weather doesn't preclude normal operations. • Simplistic terrain. • Little time pressure (in situation; but in practice, time limit still enforced).	• Unexpected events. • Equipment malfunctions or is damaged. • Casualties. • Inexperienced team members. • Weather adversely affects operations. • Complicated terrain. • High time pressure (situation is developing rapidly).
Resources available	• Unlimited supplies. • Unit has access to optimal transport configuration for situation. • Unit is at full strength and well-trained. • Unit morale/readiness is high. • Radios are fully functional.	• Limited supplies, given the current situation. • Implied need to conserve supplies, given uncertainty of future events. • Transport capabilities not ideal for situation. • Unit at or near lowest acceptable operational strength. • Multiple members of team are inexperienced. • Unit morale low/fatigue high. • Radios are intermittently functional.

	Basic DMG	Advanced DMG
Situational demands	• Non-emergency situation; action not immediately required. • Few civilians present.	• Emergency situation; immediate action required. • Civilians present and in dire need of immediate assistance.
Operational constraints	• ROE is unrestrictive. • ROE is simple/straightforward. • Freedom to initiate any action without coordination/permission from other agency.	• ROE is restrictive. • ROE is ambiguous. • ROE becomes obsolete in course of mission. • Requirement to clear actions prior to implementation.
Civilian presence	• No civilians present.	• Civilians in midst of operations. • Difficult to distinguish civilians from hostiles.
Complexity of Mission	• Single task.	• Multiple simultaneous and/or sequential, linked tasks.

The Dimensions of Complexity table is meant to provide general guidelines for developing various levels of DMG difficulty. Basic DMGs are defined as scenarios in which the *majority* of attributes match the "basic DMG" column. Likewise, advanced DMGs contain mostly attributes of the "advanced DMG" column. In both cases, however, some attributes may be more closely aligned with the opposite column, or the attribute may fall somewhere in between the two columns. Intermediate DMGs are defined as scenarios that contain an even mix of basic and advanced attributes, or scenarios that contain mostly attributes falling in between the basic and advanced columns. Take, for example, the "Organizations Involved" dimension. Assuming that the DMG participant is playing the role of a platoon leader, a basic DMG may present a dilemma in which the platoon leader's actions affect only his platoon (e.g., determining where to place security elements around a building). In an advanced DMG, the platoon leader's actions may well have repercussions for higher headquarters as well as political implications (e.g., how to handle a hostile element in a peacekeeping mission, when the media is present). In an intermediate DMG, the actions of the platoon leader might impact the company (e.g., deciding between dealing with a local enemy force or proceeding to link up with the rest of the company). In the case, the DMG is more complex than basic level (within unit) and less complex than advanced level (interaction required with other units, other services, other agencies and organizations).

The Dimensions of Complexity table can also be used to access difficulty level and modify accordingly. If a DMG is found to be too simple for the intended audience, then the learning that takes place will be limited. To modify the DMG, the developer can choose a

dimension in the table and alter factors in the Scenario and/or Background to make the DMG more difficult. For example, the first dimension is Uncertainty Level. To increase the level of uncertainty and subsequently the difficulty level in the DMG, the developer could have communications fail at a critical moment, make the higher intent less clear, or change the environment so that the Mission Statement becomes irrelevant. Alternately, if the DMG is too complicated, a reverse process can be used where elements of uncertainty are replaced with clear, certain information. For example, the company commander could be made available over the radio for advice and guidance.

DMG Library: Linkages to Findings

In the section *Translating DRTs to DMGs* above, we discussed how one DMG, *Wrap It Up*, was created from the DRTs. In the tables in Appendix C, we summarize each DMG in the library and relate the content to the DRT information and teaching points.

IV. SITUATION AWARENESS APPRECIATION EXERCISE

The SA Appreciation Exercise is a paper-and-pencil learning tool developed to address needs identified during the CTA. Situation Awareness, or Understanding the Big Picture, is critical to MOUT operations. The purpose of the SA Appreciation Exercise is to help platoon leaders understand the importance of SA and its role in conducting the mission. Specifically, the learning objectives of the exercise are to:

- illustrate that SA can change over time as new information is gathered;
- illustrate that different people can experience the same situation and have different interpretations; and
- demonstrate that SA affects actions and mission outcomes.

These objectives tend to be intuitive when they are introduced. However, recognizing these points in the chaos of a MOUT mission and understanding their significance may not be as obvious. For example, consider the first objective – SA changes over time as new information is gathered. Although this is a logical statement, we heard from experts that novice platoon leaders tend to "stick with the plan" even when the situation changes. The novices may explain away data that does not fit their initial interpretation. The SA Appreciation Exercise explores these objectives in the context of an ambiguous and chaotic MOUT mission so platoon leaders can see how new information alters their interpretation and how sticking to their initial interpretation could be dangerous.

The second objective – different people can have different interpretations of the same situation – is important because a leader should not automatically assume that subordinates have the same assessment. As a result the subordinates may not have the same expectations or may not fully understand orders. The third objective is to tie everything back to actions and mission outcomes. The point of developing an accurate SA is that your actions are dependent on your assessment of the situation. A leader may respond differently if he believes the enemy is a two-man team than if he believes he is up against an entire squad. These actions will ultimately affect the mission outcome.

The SA Appreciation Exercise consists of a table-top scenario and guidelines for facilitating the scenario. Both the scenario and the facilitation were designed to address the learning objectives. The scenario is filled with uncertainty and ambiguity. It is written from the perspective of a platoon leader tasked with ensuring there is no enemy in the area and clearing buildings if necessary. The platoon is fired upon by one enemy soldier who runs into a nearby building. The situation quickly escalates as the platoon enters the building. The scenario is paused at two points and the participants are asked to answer four questions relating to their assessment of the situation. These questions are:

1. What is current threat size, location and intent?

2. What would you do at this point:
   a. Continue the building-clearing mission.
   b. Evacuate the building and call for reinforcements.
   c. Have squads hold positions while you gather info and talk to Platoon Sgt.
   d. Evacuate the building and determine another entry/clearing strategy.
   e. Call your company CO and ask for guidance.
   f. Other. What?

3. What is your greatest concern at this moment?

4. What do you think the situation will look like in the next five minutes?

The facilitation takes place at the end of the scenario. It focuses on the answers to questions #1 (SA) and #2 (course of action based on that SA). The facilitator attempts to draw the connection between the SA at different points in time by different people to action attempted and eventual outcomes. The entire exercise can be found in Appendix D. The next section describes the process of developing the exercise.

Exercise Development

The SA Appreciation Exercise was developed in several iterative steps. In each step, emphasis was placed on ensuring the exercise addressed the learning objectives. Each step consisted of a cycle of exercise development, a run-through of the exercise, and revision. The four major steps are described below.

In the first step, two different Klein Associates teams developed an SA Appreciation Exercise independently. The two teams were tasked with developing a scenario-based exercise that addressed the general goal of helping platoon leaders understand the importance of SA. One of the important outcomes of this step was a refinement of the goals to reflect the learning objectives described above. The team members agreed that these were the major points that participants should take away from the exercise. The two teams developed slightly different exercises. One exercise (Version 1.1) contained decision points in which the exercise was paused and the participants answered questions about their SA. The other exercise (Version 1.2) emphasized the facilitation at the conclusion of the scenario. The strengths of each version were combined to create a tool that contained a scenario, stopping

points, questions to be answered at the stopping points, and a facilitation process to be used at the conclusion of the scenario. This exercise became Version 2.0.

The second step was to run through the SA Appreciation Exercise Version 2.0 to determine strengths and weaknesses. This was done with a group of four Klein Associates researchers. The researchers played the roles of platoon leaders and participated in the exercise. One of the findings was that the facilitation section was too long. This was streamlined in the revision so that only key points were addressed and fewer participants answered each question. The scenario was also modified to include more ambiguous cues. One of the problems with the scenario was that each piece of information in the story had meaning. Several cues unrelated to the story development were subsequently incorporated as distractions. The sound of breaking glass is one example. This cue is not important to the story in that it is not tied to an enemy action. The participants, however, do not know this and may be distracted into thinking the cue has importance. The output of this step was a revised version of the exercise, SA Appreciation Exercise Version 3.0.

Version 3.0 was then tested with a second group of Klein Associates researchers in the third step. Three individuals played the roles of platoon leaders and participated in the exercise. The goal was to determine whether the revisions to the story and the facilitation were effective. Feedback from our senior military consultant was also solicited at this point. One of the major findings was that an aspect of the story was inconsistent with typical enemy behavior. Some of the cues suggested that the enemy was luring the U.S. troops into an ambush while other cues suggested that the enemy was caught unaware and simply defending themselves. One of the inconsistencies was removed while purposefully retaining ambiguity about enemy intent. In an effort to further streamline the facilitation, the number of stopping points was reduced from three to two stopping points. At the conclusion of this demonstration there was not agreement about the facilitation. Therefore, two versions were developed. The versions differed in both the questions asked at each stopping point and the questions and discussion covered in the facilitation.

Versions 4.1 and 4.2 were tested with Blackbirds at IOBC. Half the Blackbirds (five people) participated in Version 4.1 and the other half participated in Version 4.2. The answers, discussion, and feedback generated from each version were recorded and used to make the final revision. The major finding was that questions about the participants' SA and their subsequent courses of action were the most fruitful questions. The facilitation was revised to more heavily emphasize these questions and draw the link between SA and actions. The final version can be seen in Appendix D.

Discussion

Based on the demonstration with the IOBC Blackbirds, the SA Appreciation Exercise appears to be an effective tool for addressing the stated learning objectives. It is a forum to help platoon leaders understand the importance of SA, how SA develops in a MOUT operation, and how SA affects actions and outcomes. One of the strengths of the tool is that it demonstrates these objectives in the context and chaos of a MOUT mission. This helps participants visualize the importance of SA in context. Another strength is that it helps

demonstrate the link between SA and actions and outcomes. The exercise goes beyond simply stating there is a link; it demonstrates the connections through the participants' answers at the various stopping points. Exposure to different people's interpretations of the same events is a powerful experience.

However, despite this observation, the SA Appreciation Exercise has not had a true validation. There is no evidence that the tool does in fact increase participants' appreciation of good SA on the battlefield. Some of the questions that should be answered in a validation study are:

- are participants in the exercise more likely to communicate their assessment and intent to subordinates?
- are participants more flexible in adjusting their assessments in an incident than those who have not participated in the exercise?
- are courses of action in subsequent exercises different from those generated by individuals who have not participated in the SA Appreciation Exercise?

Answering these questions would be an important part of validating the usefulness of the exercise for achieving the learning objectives.

V. CONCLUSIONS

This project resulted in several significant accomplishments. First, the CTA of the building clearing operation identified decisions and challenges unique to MOUT environments. The skill and operational experience of the SMEs who were interviewed enabled us to capture critical aspects of expertise related to MOUT missions. To our knowledge, this is the first and only effort to elicit and document these cognitive demands. As a result, we were able to develop decision-centered products to support and train MOUT decision making.

The key product is the Decision Skills Training. The two components of the Decision Skills Training program are the IMPACT multimedia train-the-trainer CD-ROM, and the SA Appreciation Exercise. The central feature of IMPACT is the DMG scenario. The CD-ROM includes a library of DMGs and supporting modules that teach instructors how to facilitate, debrief, and create their own DMGs. The SA Appreciation Exercise uses a scenario similar to a DMG to generate discussion and insights as to how SA shifts over time, the fact that different individuals can interpret the same situation differently, and the effect of SA on decisions and actions.

To develop these Decision Skills Training products it became necessary to create a series of DMG scenarios that leverage the knowledge acquired from the MOUT SMEs. Therefore another substantial outcome of this effort was a process for translating the CTA findings into learning objectives, and using the DRT data to create DMGs that address key decisions, issues, and challenges in MOUT. In addition to refining a development process, we also identified dimensions of DMG complexity and descriptors of low and high complexity along each dimension. Since student audiences possess varying levels of MOUT

knowledge and experience, it was imperative to create DMGs representing distinct levels of difficulty.

Another outcome of the effort was the *MOUT: Decision Making in Action* guide, a document describing the decision challenges of a building clearing operation for an audience of instructors and soldiers. In the handbook, we present high-value information culled from the DRTs and translate it into a user-friendly format for operational personnel. (The DRTs are representations of CTA findings intended primarily for use by researchers and designers.) The goal was to provide an initial view of decision-making issues pertaining to building clearing missions, and provoke further consideration of the intricacies and challenges of MOUT.

Although not documented in this report, another outcome of the project was an evaluation study of IMPACT and the MOUT Decision Skills Training program. The study was conducted at the U.S. Military Academy at West Point. It compared the decision performance and other subjective ratings (e.g., quality of the learning experience) of cadets who received Decision Skills Training through IMPACT-trained facilitators, versus cadets who received generic decision game training through non-IMPACT-trained facilitators. The findings indicate that IMPACT is a very usable training tool. While we were unable to find significant differences in decision-making performance between the two groups of cadets, the IMPACT-trained cadets rated their learning experience as more positive than did the non-IMPACT-trained cadets. The documentation of the study, *Evaluating an Approach to MOUT Decision Skills Training*, can be obtained through the Army Research Institute or by contacting the authors of this report.

The products developed in this effort represent a major step in the right direction. But they are only the first step. MOUT environments present a wealth of new challenges for decision makers at all levels of command and control. And while training in procedures is essential for all soldiers in MOUT environments, the procedures are only one piece of the training puzzle. As Army MOUT missions continue to grow in number, complexity, and intensity, training must focus more on critical thinking and decision-making skills.

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APPENDIX A

TASK-FOCUSED DECISION REQUIREMENTS

Determine how to secure the perimeter				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Determine how to seal off the area.		• Proximity to other buildings. • Opportunities for cover and concealment. • Enemy activity in area. • Civilian activity in area.	• Enemy capabilities to engage. • Intensity level of the conflict. • Civilians' feelings toward enemy vs. toward us. • Proximity to other buildings. • Size of the area. • ROE.	• The goal is to prevent people from entering or exiting the area. • If it's a high-intensity conflict, the unit will probably be trying to clear more than one building; therefore, they will need to secure a larger area. • Depending on ROE and extent of civilian presence, may have to corral civilians and put them in safe area prior to the clearing portion of mission. • If other buildings are close, probably have to clear and secure them first.
Determine where to place security assets. Security elements provide observation as well as security.	• PL cannot be sure about the makeup of interior walls. • PL might give away his attack plan if the support by fire is too close to the building being assaulted. • Good intelligence is rarely available (it's difficult to gather). • If support by fire position is too close to building, may waste weapons' ranges by not using them effectively. • Must think about where bullets will go if they miss target, or after they hit a target.	• Whether streets are singular. • Whether foot paths branch off the streets. • Enemy locations. • Whether structures can provide concealment, or interfere with firing. • Perceived best angle to support fire. • Anticipated layout of the building. • Windows in the building.	• Areas you want to cover. • Effective ranges of weapons. • Ability to conceal support element at various locations. • Angles of fire. • Enemy weapons.	• Mission success is largely dependent on the support by fire position; it will make or break you. • As a general rule, leave 2-3 window lengths between supporting fires and point of entry—don't want to injure entry team with ricocheting bullets, and you won't know the makeup of interior walls. • Give yourself leeway with regard to angles to make sure you avoid fratricide—if you have a doubt about whether firing position will avoid friendlies, then change it. • Want security teams, as a group, to view as many sides of the building as possible.

Determine how to secure the perimeter (Cont.)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Determine which assets and people to employ.	• PL cannot always accurately predict what his platoon will encounter during the mission.	• Presumed enemy locations. • Enemy weapons, evident or anticipated.	• Mission objectives and purpose. • Enemy's past use of weapons. • Friendly ability to counteract enemy weapons. • Assets available. • Individual's strengths and training with different weapons. • ROE (e.g., may need to keep damage to buildings at a minimum).	• PL must match weapons and specific people (based on their strengths) to his purpose. • Put your best shooters on their best weapons.
Determine where to concentrate fires – Choose priority targets. While the clearing team is in the building, the security element will provide external support; this is a decision regarding where each gunner from the security element should fire.	• The gunners will need to shift their fire as the situation progresses: as the clearing team moves through the building and the enemy takes action.	• Fortifications in and around the building: - materials and equipment stacked behind windows - chicken wire on windows - glass broken out of windows - gun ports in the walls.	• Mission. • Night vs. day. • Whether you've got NVGs: - in daytime you can see units move through building; if have NVGs, you can play it the same way at night. • ROE.	• The goal is to fire enough to keep enemies' heads down. • Fire into areas that are fortified because that is where the enemy usually is. • Prefer 0° angle of fire if possible (want to shoot as closely to straight on as possible).

Determine how to secure the perimeter (Cont.)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Synchronize fire and the shifting of fire, reposition security elements. This is not a tricky decision, but needs to be thought about in the planning process and then adapted in the actual situation. In becomes difficult to make these types of decisions on the spot within the actual situation.	• MOUT requires a higher expenditure of ammunition, however, the goal is to conserve ammunition in case a great need arises later. • Potential to move faster than your security element, putting team at risk because the security element cannot cover them.	• Cleared areas of building. • Anticipated movement through building. • Outside elements' line of sight/fire on different portion of building.	• Backbriefs with other PLs + higher command. • ROE.	

Determine how to secure the perimeter (Cont.)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
If multiple buildings are to be cleared, determine which to clear first.		• Number of floors / Height of building. • Openings in the buildings. • Terrain around buildings: - altitude of ground - concealment opportunities around buildings (stone fences, hedges, stone walls). • Sides of building visible by security elements. • Whether building looks occupied: - curtains pulled? - furniture? - wall hangings? • Grazing and killing zones. • Degree of fortification of building: - glass out of windows - sandbags (somewhat bunkered) - roof shingles out of place - curtains pulled back - backdrop of room darkened lights taken out. *Cont...*		• Choose least defended building to clear first. • The taller the building, the more desirable due to its use as a lookout. • Building on higher ground is more desirable, for observation. • Look for concealment opportunities around buildings—more concealment is more desirable. If no glass exists in the windows, enemy did or does still occupy the building (no glass indicates shooting from windows).
If multiple buildings are to		• Construction of [illegible]		

Determine how to secure the perimeter (Cont.)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
be cleared, determine which to clear first. (Cont...)		building—better built is more desirable (provides cover). • Friendlies' weapons. • Number of people (friendly). • Anticipated ease of entry. • Number of enemy presumed inside.		

Determine how to approach the building				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Determine route and/or method of approach.	• Difficult to determine potential enemy lines of fire. • To be effective, PL must be able to think three-dimensionally, and extend his field of vision through walls, buildings, the ground, etc. • Open spaces are very dangerous. • Troops are very vulnerable. • Threats are often hidden. • Less-experienced PLs confuse the difference between cover and concealment; the enemy may not be able to see the unit, but may still be able to engage it.	• Foot traffic. • Street size. • Layout of streets. • Buildings, their height, location, and window placement. • Open spaces. • Hazards and constrictions identified. • Presence of woodline. • Fortifications in area: - traces of sandbags - fence/wire - materials and equipment stacked in rooms - freshly dug area. • Involvement of civilians. • Cover and concealment opportunities. • Comms from security/observation units: - activity - characteristics of building.	• How populated area is. • Economics of area. • Type of area (res, com, ind). • Size of area encompassed by mission. • Equipment available (e.g., helos). • Need for surprise. • Mission. • Night vs. day. • Information from leader recon. • ROE.	• The mission will need adjusting 90% of the time. • PL must react to the specific situation: do not try to maintain an obsolete plan, and do not try to go by the book. • May decide to sneak into building; may decide to do a direct approach, in which case supporting fire is critical. • Anticipate enemy locations in order to minimize risk to the platoon. • Generally want to cut the power for a night operation. • If possible, avoid doing a frontal assault since the enemy will expect it. • If you must do a frontal assault, obscure it. • Take the shortest unconcealed distance to the building. • Helodrop can add element of surprise. • If near a woodline, approach from that area. • ROE often dictate that you may not damage the building, injure civilians, or incur casualties. • Try to approach from an area that offers cover and concealment up to as close to the building as possible. • Throw ruses, smoke, or set up mock firing position to draw enemy fire and identify their position. *Cont...*

Determine how to approach the building (Cont.)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Determine route and/or method of approach. (Cont...)				• Enemy likely to put snipers or artillery observers in high building. • Avoid beaten zone always, and grazing zones as much as possible.
Determine how to navigate streets.	• It is not intuitive to stay away from walls, even though it is safer.	• Obstacles. • Structures that can be used for cover or concealment. • Location of buildings.	• Personnel roles. • Personnel strengths.	• Do not place leader up front in moving line. • Move as quickly as possible. • Do not rub up against a concrete wall: bullets will ricochet 6-8 inches off walls and travel right along them. • Direct 2 elements to move on either side of the street so they can protect each other's flank.
Identify hazards, constraints, and constrictions. Identify hazards, constraints, and constrictions in order to adjust the plan to fit the actual situation. Sometimes PL will need to change route of approach to avoid hazards (e.g., choose different route to avoid barricade or an area in which platoon will be channelized). Sometimes PL will need to develop countermeasures to neutralize hazards (e.g., overwatch unit placed in high spot OR friendly snipers to neutralize enemy snipers).		• Potential booby-traps: - freshly dug dirt - wire around building - obstacles that channelize your troops - other abnormalities. • Potential sniper locations (tall buildings, etc.). • Plausible location of enemy. • Layout of roads. • Location of security element. • Civilian actions. • Local populace avoiding an area.	• History of enemy actions. • Information from leader recon.	• The overall goal is to maintain the safety of the unit. • Avoid intersections: they are killing zones. • Every obstacle can be a benefit when used to cover and conceal. • One significant threat is the sniper. • If the mission spans a large area (e.g., more than one building), PL may want to use a helo as an overwatch.

Determine how to approach the building (Cont.)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Determine how to obscure the assault.	• Command and control becomes difficult because vision is obscured also. • Challenging to time and synchronize the approach. • Smoke is not always available. • Smoke may not rise depending on temperature and humidity.	• Natural cover and concealment opportunities. • Layout of roads. • Wind direction. • Wind speed. • Temperature. • Humidity.	• Type of mission.	• Use smoke, distraction (e.g., a feint attack elsewhere and land on roof), or stealth. • If hostage mission, probably use stealth. • If snatch mission, speed is key, so use method besides stealth.

Determine how to enter the building				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Determine the strengths and vulnerabilities of the building and its inhabitants.	• Often forced to take the most vulnerable route. • The PL does not have very much time to reconnoiter.	• Fortification of building: - freshly upturned dirt - broken out windows - wire behind windows - gun ports in walls - sandbags - anything stacked in a room - obstacles that channelize your troops - gaps in walls. • Actions of local populace (e.g., avoiding an area). • Location of doors. • Location of windows. • Characteristics of rooftop. • Characteristics of surrounding buildings.	• Location of building. • Enemy weapons. • Number of enemy. • Known enemy actions. • Known fortification of building. • Buildings around that building.	• Doors are "fatal funnels": stay away from them. • Entrance is expected via doors and windows, so the enemy will probably have them more heavily fortified. • Look for things that have changed, differences: - things out of the ordinary - furniture in windows. • Gaps in walls indicate bunker or reinforced position. • Local people avoiding the area may indicate an ambush. • People avoiding the front door indicate that the door may be booby-trapped.

Determine how to enter the building (Cont.)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Determine point of entry (where to enter the building).	• The average person only thinks one step at a time, however, this decision requires the PL to think ahead. • High likelihood of booby traps around the building. • Doors are easiest to enter, but are kill zones. • Soldiers are vulnerable entering a window; must climb in and step down, often while shooting; may have to build a step to get to the window at night, have no depth perception with NVGs, which makes the climb more difficult. • If platoon is in a time crunch, it must do the breach immediately. • Buildings with more challenging layout may require dual entry – makes control of team more difficult; may need more people.	• Terrain. • Whether and from where the platoon is taking fire. • Locations where enemy cannot observe the platoon (i.e., concealment opportunities). • Locations where enemy cannot engage the platoon (i.e., cover opportunities). • Location of windows. • Dispersion of people around building or desired point of entry. • Construction of building. • Fortification of roof. • Comms from security/ observation teams. • Direction/location of enemy fire.	• Size of building (large building = gas/power lines in walls). • Number of floors. • Type of mission. • Proximity to other buildings. • Available equipment (helicopters, breach materials, etc.). • ROE.	• Goals are to gain foothold, have element of surprise, catch enemy off guard. • Avoid door entry if possible (booby trapped, barricaded, watched closely). • Enter building as high as possible: top-down clearing is preferred. • When entering a window, do some enemy disorientation to buy time and get in. • If you do go in via doors and windows be prepared for enemy defenses. • Do not do what's logical or expected by the enemy. • Look for second floor entries. • Consider sewer entries. • Use an indirect approach. • Grappling hooks are not very useful: very few people can climb a rope much less do it with 60 pounds of gear. • Going in the back is more surprising than going through the front. • Use creative thinking to bypass obstacles. • It is easier to blow a hole in the roof than in the side of a building. • An easy route tells you there is a surprise waiting for you. Plan multiple entry points and prioritize them; if #1 is not feasible, everyone knows to go to #2. *Cont...*

Determine how to enter the building (Cont.)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Determine point of entry (where to enter the building). (Cont.)				• Enter breach in multiple places simultaneously for surprise. • Breach multiple places, then file in through the successful breaches. • If taking fire, there is stronger urgency to take building. • Goal is immediate domination of several points.
Determine entry technique and equipment to be used (how to enter the building).	• Outside walls are thick, and difficult to penetrate. • Do not want to leave troops in open and vulnerable position for very long. • PL is limited by available assets. • Shotguns, ramming equipment, and explosives that blow off the hinges require direct contact with the door and leave the soldier vulnerable to enemy fire. • Shotguns cannot be aimed cleanly—to open a door will require 3-4 shots. • There is a limit to the amount of breaching resources platoon can carry; a soldier can only carry 2 weapons. • PL must worry about civilian injury and limit collateral damage.	• Entry point (door, win-dow, roof, wall breach). • Status of door: unlocked vs. locked. • Construction of building walls (tables exist which explain how much explosive to use based on thickness of wall, construction type, reinforcement of the wall, etc.): - thatch - wood - concrete - concrete and steel. • Type and size of building. • Type of door: - if steel encased, use flex linear explosives with 2-sided tape - if heavy oak, use a crowbar, flex-linear explosives, or a shotgun breach - if flimsy wood, use a ballistic breach.	• Type of mission (stealth vs. speed); need for quiet entry, or whether noise is acceptable. • Intensity level of conflict. • Planned. • Resource availability. • Weapons capability. • Night vs. day. • Type and size of building. • ROE.	• The goal is speed, to ensure the safety of troops; also, catch enemy off guard. • Do not establish a pattern (or stick with a pattern). • Use deception if possible (e.g., can throw rocks at door to simulate sound of grenades so that enemy will get down). • Air can provide a nice breach. • In larger buildings you need to be aware of potential gas or power lines in the walls; cannot use explosives to breach. • An office building will have flimsy doors. • An apartment building will have heavy security doors on the outside of the building. • Type of grenades PL takes will depend on the type of walls in the structure. • If low intensity conflict and door is open, use flash-bang or concussion grenade upon entry. • Sometimes the platoon will have to allow the enemy to see it. *Cont...*

Determine how to enter the building (Cont.)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Determine entry technique and equipment to be used (how to enter the building). (Cont...)				• Enter the building thinking you will be shot at, so even if you are not shot at, you have the same amount of adrenaline and energy. • Speed is especially advantageous at night since you will generally wake people—speed enhances surprise.
Consider trade-off between stealth and speed.	• As soon as you start the entry you have given up stealth.		• Night vs. day. • Type of mission.	• Can be stealthier at night. • Stealth is only stealth up to the breach; from then on, it's a very violent and rapid operation. • Hostage retrieval: stealth more appropriate; snatch: speed more appropriate. • Once you open fire, you tell the enemy where you are so that they can prepare for you.
If taking fire, assess whether to enter building or drop back and reassess situation.		• Urgency of immediate situation to get a foothold. • From how many areas fire is coming. • What portion of the platoon is in front of you, in the building or close to the building. • Whether portion of unit is pinned down in front of you. • Reports from outside security units regarding enemy positions. • Nature of enemy fire—sniper vs. troops moving in.	• Urgency of mission.	• If taking fire from multiple areas, drop back. • If fire from troops as opposed to a sniper, higher threat, so drop back. • If portion of platoon is in front of you—already in the building or close to the building—continue entry. • If portion of platoon is pinned down in front of you, continue entry (need to support those who are pinned down).

Determine how to clear the building				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Assess the situation within the building. Assessment of current situation inside building allows PL to maintain his SA, form expectancies about how the remainder of the mission will go, and make decisions regarding how and where to proceed next. His assessment may prompt a decision to abort, call for reinforcements, or continue as planned or with adjustments to the plan. Also note that PL's overall assessment includes the status of the security element outside the building. PL's assessment will need to be communicated back to higher command from time to time. This decision could also fall under the task-independent decision requirement to *"Maintain the big picture and situation awareness."* *Cont...*	• PL makes decision based on communications from troops within building. • Communications will be minimized to prevent giving information to the enemy. • Radios generally do not work well in buildings. • Occasionally PL will receive two very similar reports and must judge whether they are the same report or two different reports. • Not all cues and factors are absolutes: the enemy could dress a hostage in their uniform, or the enemy could wear civilian clothes. • May not know building is an enemy stronghold until you enter it. • Rarely get enough information from clearing units to have a good picture of the building or floor.	• Signs of enemy: - type of clothing - weapon present - fortifications - medical supplies - ammunition - maps - documentation - equipment in rooms. • Signs of civilians: - type of clothing - no weapon present. • Number and location of enemy (e.g., "2 men at 3 o'clock"). • Room more built up than it would normally be. • Casualty reports. • Cause of casualties. • Immediate obstacles. • Layout of floors. • Number of rooms. • Number of hallways ("hallway in front"; "another door to my front"). • Rooms that have been secured. • Squad location; how far they are into building. • Friendly equipment status and ammo count. *Cont...*	• Night vs. day. • Mission. • Basic deduction. • Location of fire support element. • Known enemy uniform. • Known enemy nationality. • Photographs of enemy.	• Assess mission progress against plan. • Watch for unit to become too thinned out. • If two or three friendly non-combatants go down, PL may need to think about switching personnel. • If time is critical, PL may have to call for reinforcements. • Determine whether anything of interest is in the building: are our suspicions confirmed, or are we in the wrong place? • If a non-combatant goes down, be more alert and listen more closely to what happens in the next rooms. • Threat levels can be assessed using these indicators: - person holding a detonator is a high threat - person holding an automatic weapon is a medium to high threat - person with a shotgun is a medium to low threat - person holding a revolver is a low threat.

Determine how to clear the building (Cont.)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
We place it under the building clearing decision requirement to emphasize the numerous pieces of information that impact assessment within a building.		• Whether teams have found what the platoon is interested in. • Reports from units outside building (e.g., enemy exiting building). • Platoon's progress (how close you are to accomplishing the mission). • Extent of threat: - how weapons are held - body language - reaction to your actions. • How many soldiers are guarding people. • Time that the soldiers have been in the building. • Expressions on faces of troops.		

Determine how to clear the building (Cont.)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Determine flow of the clearing. The initial plan will describe how the clearing should flow, but the plan may need adjustments given the actual situation once the unit gets to the building. Somalia example: they cleared from the top down to 2nd floor at the same time as they cleared the bottom floor. This prevented people from exiting the building.	• It is not always possible to clear top-down, although that is the preferred flow. • Good intelligence is rarely available (difficult to gather ahead of time). • Some building layouts are more challenging and will require dual entry and clearing directions—makes control of unit movement more critical due to fratricide risks.	• Whether the platoon is taking fire, and from where. • Ground threats surrounding building. • Enemy's line of sight (outside building). • Cover and concealment opportunities around building. • Size of hallways. • Stairways slow things down. • Known and/or expected layout of building: - interconnected rooms - underground entrances and/or tunnels - service entrances - stairwells - elevators. • Evidence of soldiers living in building. • Signs of recent evacuation.	• Helicopter landing zones. • Number of floors. • Fortification of roof. • Equipment available. • Intel reports of ground threats. • Threats to helicopter assaults. • Intel reports. • Direction you can come from. • Commander's intent. • Mission. • ROE.	• Prefer to begin clearing at highest level possible and continue top-down: - momentum is greater going down - grenades can be thrown down stairwells, not up - fewer security elements are required for "clean" upper floors as opposed to lower floors (enemy cannot enter top behind you) - fatigue will be reduced by clearing down - enemy will stay and fight if given no escape route; top-down clearing gives enemy a place to go, whereas bottom-up clearing does not. • If the team must start clearing in the middle of the building, clear downward and secure, then clear the rest of the way up. • Clear rooms in succession, never bypass a threat. • If taking fire, or if building layout requires, PL may need to adjust the approach and clear the building by blowing holes through the wall of rooms to get to the next room. • Bullets can travel down wall, so move down the center of hallways. • In a stairway, use a 5-man stack aiming up (or down) to the next *landing.* *Cont...*

Determine how to clear the building (Cont.)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Determine flow of the clearing. (Cont...)				• Continue to move until a threat forces the team to stop, and then adjust accordingly. • Choose the direction that will enable team to maintain only secure areas behind it. • Speed is essential. • Long wide hallways (6 feet wide or greater) may afford simultaneous room clearing with two fire teams abreast. • If rooms manned by enemy, generally do a deliberate clearing—room by room.
Determine how to employ personnel and teams. PL must decide how many people to allocate to different tasks (security, clearing, etc.), and whether to split elements or keep them together. *Cont...*	• PL will have no idea how the building is laid out until he gets into it. • The decision is based in large part on communications from squad and FT leaders inside building. • Stress will fatigue people faster than the exertions they have to expend. • In MOUT environments, battles are in close quarters. • The mission may be different from the training. • MOUT is personnel intensive. *Cont...*	• Fatigue and stress: - the fear in soldiers' eyes. • Location of enemy in building. • Enemy weapons. • Personnel vigilance. • Status of friendly equipment. • Supplies. • Number of enemy. • Layout of building. • Immediate obstacles: - concertina wire strung through halls - booby traps (charges, wires, etc., at critical structure points). *Cont...*	• Mission. • Expected enemy weapons. • Size of building. • Knowledge of which soldier tends to freeze up (some people will freeze up and do nothing; some will freeze up and do what they are told, but nothing else). • Knowledge of which soldiers are married.	• Generally leapfrog another team after 1st team has cleared 3-4 rooms, then have 1st team maintain security (see *"Maintain and Extend Security"*). • NEVER let two units approach each other from opposite directions, fratricide potential. • More people are required for a larger building because people must be left behind for security as the clearing progresses. • PL should not enter building until team has a foothold (~2 rooms). • Squads can only do one task at a time; the only time PL should separate a squad is if he is relatively sure there is no threat. • When forces are split forces, they are more likely to shoot each other. *Cont...*

Determine how to clear the building (Cont.)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
PL must know the current status of the mission, the characteristics of the building, and how his team is doing in order to make this decision. Due to the nature of the building clearing mission (physically and mentally exhausting), teams will generally have both room clearing and security roles. Security is a relatively easy role, so it is a good follower to the room clearing role, which expends so much energy.	• Must also determine how to employ oneself: must determine how you, as PL, can best support your units; where do you need to be located? • If using leapfrogging method, PL will eventually have his "3rd string" as a lead element, and he must assess whether they can handle it. • Larger building, or more complex building, will require more people and sometimes dual clearing teams/directions; have to assess whether you have enough people.	• Location of friendly units inside building. • Whether building has been looted, rummaged, or burned.		• If no threat, may split forces to facilitate momentum. • Personnel adrenaline will go up and down as they prepare to clear a room and then find that no one is in the room; it is difficult to maintain vigilance and an adrenaline high if the first rooms they go to clear are empty. • Fatigue causes itchy trigger fingers. • #1 priority is to accomplish the mission. • When soldiers see a buddy die, their morale decreases and their feeling of invincibility disappears.
Determine how and where to proceed. This includes the decision regarding whether to abort or continue the mission, and when to exit the building and move to the extraction point.	• The average person only thinks one step at a time, however, this decision requires the PL to think ahead. • Uncertainty is inherent. • Unfamiliarity with floor plan. • Floor plan not always linear. • Resource depletion (can't carry enough grenades to use in all the rooms). *Cont....*	• Degree of fortification of building and rooms (see *"Assess situation"* cues). • Noise from other floors of building. • Presence of civilians. • Civilian reaction (e.g., presence of mob). • Presence of weapons within mob. • Whether the platoon is 'committed' to the mission. *Cont...*	• Existence of feasible contingency plan. • Mission objectives. • Original plan. • Commander's intent. • ROE.	• If platoon is halfway through the building, it is better to continue the clearing. • If enemy is not exiting building, PL can judge that they will stay and fight. • Do not do it 'by the book' if the situation calls for ingenuity; for example, if team is taking fire down hallways, blow holes through the walls of the rooms to get from one to the next. *Cont...*

Determine how to clear the building (Cont.)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Determine how and where to proceed. (Cont...)	• The decision is based largely on information from voice communi-cations from teams inside the building. • Must weigh mission accomplishment against the casualties being taken; judge relative importance of mission vs. worth of troops. • The element outside the building may only be seeing a portion of the outside of the building. • Inherent tendency to want to maintain the plan, even when it becomes obsolete. • Tend to become over-extended, thinned out. • Tendency to overesti-mate own capabilities and underestimate enemy capabilities. • Multiple hallways and stairwells require additional security elements; and present a greater likelihood of fratricide if clearing is not properly controlled—may need to bring more people in, and have to ensure that platoon does not get thinned out.	• Number of friendly troops available. • Known layout of building. • Educated guess as to floor plan in subsequent areas of building. • Casualty report. • Enemy weapons. • Number of enemy. • Reports of enemy exiting building (from security outside). • Signs of recent evacuation. • Location of doors off hallway—opposite or offset. • Shape of hallways—T-, L-, door at the end.		• If time is critical, PL may have to take some risks and leave some areas unsecured or uncleared. • If doors opposed each other, must clear those rooms simultaneously. • If enemy and civilians are in one room, and enemy force is substantial (numbers and weapons), may try to negotiate with enemy. • If platoon becomes overextended, they will not be able to maintain security in cleared areas. • Never pass an open door or window. • Speed is to your advantage, especially at night—heightened surprise when occupants wake up. • DO NOT use speed if all enemy are known to be on floor other than where you enter—use stealth/ quiet penetration until you get to them. • If enemy is killing civilians while you are doing deliberate clearing, switch to penetration (if benefit outweighs risk).

Determine how to clear the building (Cont.)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Communicate directions and information. PL must communicate to both his platoon and to higher command.	• May be unable to use radios to communicate with those outside the building. • It is easy to get disoriented in the building, especially in old buildings in Europe. • Radios often go down in buildings, they require line of sight. • Soldiers can outrun their comms.	• Compass directions. • Floor number. • Call signs of people to the left, right, front, and rear.	• Pre-established checkpoints such as stairways. • Trained communications (meanings of words and phrases).	• Platoon leader must know the location of his troops at all times. • Using 'left' or 'right' is dependent on position in the building; PL can also use compass directions, floor number or reference points. • Always inform the teams in building of other teams or people about to enter building. • May have to take the RTO (radio telephone operator) to a window to be able to communicate with the company commander. • Always make sure you have the call signs to the people to the left and right of you in case you have to talk to them directly. • Avoid any surprises. • Use relay from inside to outside or inside to inside. • Plan relay sites, runners and messengers ahead of time to deal with comms/radios going down. • Ensure that soldiers do not outrun their comms—place limits on their movements.
Determine how and when to evacuate casualties.	• Need to prioritize between mission accomplishment and welfare of injured troops. • When a fire team takes two casualties, it becomes a problem for the fire team. • When in a fire fight, a soldier cannot stop to give first aid.	• Type of casualties. • Assessment of situation (see *"Assess the situation within the building"*). • Medic's recommendation.	• Evacuation assets available. • Relative importance of mission.	• Try to pass the injured back to the squads in the rear until they reach to the medical area.

Determine how to clear the building (Cont.)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Determine whether to require reinforcements or call for fire. When taking heavy casualties, PL may want to call in mortars, more troops, etc., to support the platoon so they are able to complete the mission.	• Difficult to judge the line between needing and not needing support to accomplish the mission. • Difficult for PL to remember what resources, especially non-organic, he has available to him (e.g., helicopter, armor, artillery, etc.). • Tendency to overestimate own capabilities and underestimate enemy capabilities.	• Number of hallways. • Number of stairwells. • Location of stairwells. • Number of rooms. • Resistance encountered. • Number of people from your unit available to perform additional tasks. • Size of building. • Layout of building. • Casualty report. • Obstacles and booby traps.	• Reinforcements and resources/assets available. • Assessment of platoon's abilities and tolerance.	• If PL must do a simultaneous entry of more than 6 rooms, he will need to require reinforcements. • If platoon has massive casualties, PL should inform the company commander that they are combat ineffective, and the company commander will decide whether to send in more people or pull back. • Larger buildings, and buildings with many rooms and hallways and stairwells will require additional personnel to maintain security during the clearing, especially if the clearing is not flowing top-down.
Determine the mental and physical state of the soldiers. See also the decision requirement to Lead subordinates.	• This requires real experience to recognize.	• The look in the soldiers' eyes. • Soldiers' uniforms torn, bloody, and smudged. • The weight of the load a soldier has to carry.	• Experience and maturity of soldiers. • Maximum cognitive load of individuals.	• Stress, excitement and fear wear people out, even if they are not carrying anything. • The 1000-year stare—hollow eyes staring into space—indicates the soldier will continue like a robot, not sharply. • There is a tradeoff between youth (physically capable) and experience (wisdom).
Determine when the clearing is completed. Need to tell platoon when to exit the building and start for the extraction point.	• When the mission has been successful, this is not a difficult decision, but when the PL has to decide to stop the mission due to loss of personnel or inability to meet the objectives, this is a more difficult judgment.	• Number of rooms cleared. • Number of rooms in the building. • Number of enemy remaining. • Number of your people remaining. *Cont...*	• Mission objectives.	• When zero enemy remain, the clearing is completed. • When mission objective has been accomplished, the clearing is completed. • When the PL runs out of combat effective people, the clearing is essentially done. *Cont...*

Determine how to clear the building (Cont.)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Determine when the clearing is completed. (Cont...)		• Overall assessment of the situation in the building (see *"Assess the situation within the building"*).		• If it is a snatch mission, the mission is complete once the snatch is made.
Determine whether rooms in building are manned by enemy.		• Whether you chased enemy into building. • Whether anyone entered building lately (security team provides this information). • Type of building (e.g., barracks will be manned).	• Intel.	

Determine how to maintain and extend security				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Determine where to place security elements.	• Requires many people. • Requires three-dimensional thought regarding where enemy might come from.	• Number of hallways. • Location of hallways. • Characteristics of rooms. • Number of stairwells. • Location of stairwells. • Current locations of other friendlies within building—chance of fratricide. • Flow of the clearing (top-down vs. bottom-up).	• Intel reports.	• The goal is to ensure that enemy does not have access to your clean areas and cannot sneak in behind the clearing team. • Typically place security elements in rooms that have just been cleared; one strategy is to have the team that secured 3-4 rooms maintain security in those rooms before the platoon moves to the next sector of the building. • Never place a security unit where it will be approached by a clearing unit. • Always keep one team "one turn back". • Security is generally not needed on upper floors that are cleared. • Never bypass a threat. • If the room has a window that an enemy could enter, it needs to be secured. • Secure all elevator shafts. • The perimeter security should cover fire escapes. • Look for locations that offer good vantage points of key areas. • Enable security elements to direct additional friendly traffic that enters building. • Listen on the radio for additional rooms, stairs, trap doors, etc. that were unexpected. • The narrow hallways and penetrable walls in a house may cause PL to alter the clearing flow or process.

Determine how to evacuate the building (Extract platoon)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Determine how to handle noncombatants During the actual clearing you will generally cuff and/or guard any noncombatants found in the building. Often, higher headquarters will make this decision for you.	• Must assess how noncombatants will act if left unguarded and uncuffed. • Must determine whether situation warrants violation of instructions from higher headquarters, and whether you can justify violating orders. • Enemies/terrorists can slide themselves in with the noncombatants.	• Personal hostility of noncombatants; have you had to physically restrain them in some way? • Number of noncombatants.	• ROE. • Directives from higher headquarters. • History of noncombatant actions. • Factional element.	• If noncombatants not left bound, they become a potential threat to the last team leaving the building. • Sometimes PL decides to leave them bound for their own good, so that platoon is not forced to shoot at them. • May have to escalate (or de-escalate) violence on the continuum, depending on noncombatant's response to you. • Try to gather all noncombatants into one room during the clearing, so that only one guard is required; as soon as the guard leaves, PL should be pulling the last few people out of the building (so that noncombatants are not moving around during the evacuation). • Depending on situation and your mission, sort through noncombatants to ensure no enemy personnel have hidden themselves amongst them.

Determine how to evacuate the building (Extract platoon) (Cont.)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Determine how to conduct the evacuation.	• Risk of fratricide: movement draws attention of other friendlies; they may interpret ROE more freely than your platoon; they have itchy trigger fingers due to high threat of MOUT. • Must maintain control and domination of building while decreasing your combat power. • Difficult to keep track of locations of all the different groups. • If original plan becomes infeasible, cannot rely on radios to pass new plan. • You generally do not control the buildings around you. • Enemy (or friendlies) fire on you from concealed buildings. • Platoon's own casualties slow them down. • Resources are at their lowest levels. • Tendency to lose comms.	• State of enemy forces that were in the target building: - whether they evacuated - where they went. • Layout of streets.	• Location of other friendly forces. • Planned movements of other friendly forces. • Planned flow and movement of all forces. • Other cleared/secure buildings.	• The streets are the most dangerous area; if you do not control other buildings as you move into the streets, then there is greatest risk of fratricide. • Greatest vulnerability when getting into vehicles from the building. • Often send first group out of building into overwatch position for rest of platoon's exit. • Develop contingency plan for going back into the building, if necessary. • Enable mutual support throughout evacuation. • Plan the evacuation before the operation, with contingencies. • If evacuation could not be planned beforehand, use face-to-face comms within building to disseminate the on-line plan. • Designate casualty collection points. • To keep it controlled, give people clear limits of movement and concise instructions.

Determine how to evacuate the building (Extract platoon) (Cont.)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Choose an extraction point.		• Building layout. • Location of doors. • Location of windows. • Location of noncombatants. • Location of security element outside building.	• Planned extraction points. • Next operation. • Intel reports. • Cover and concealment opportunities in city. • Route required to reach extraction point.	• The extraction point should enable planning for the next operation, and serve as a good starting point for the next operation.
Determine where to locate oneself during evacuation.	• Difficult to determine where PL will have the best SA. • Tendency to want to be in more than one place.	• Known and anticipated enemy locations outside building.	• Evacuation plan. • Location of platoon sergeant.	• Locate in a place where you will have the best SA. • Locate in a place where you feel most comfortable that you can direct the extraction. • Do NOT run back and forth between 2 or 3 locations.
Ensure subordinate vigilance.	• Tendency for subordinates to take on 'goin' home mentality as soon as building has been cleared; the mission is NOT yet completed, and risks remain.	• Subordinates stop using cover. • Subordinates stop being watchful. • Subordinates become talkative. • Subordinates' body language: - not tense - not wary - not alert. • Subordinates not calling in SITREPS, POSREPS, and SALUTES.		

APPENDIX B

TASK-INDEPENDENT DECISION REQUIREMENTS

Maintain the enemy's perspective (Think like the enemy)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Identify the most likely enemy course of action.	• Inherent uncertainty. • Requires much experience/expertise to truly think like the enemy. • Tendency to underestimate enemy and overestimate own forces. • Must think outside the box to outsmart the enemy.	• Signs of fortification (see prior DRTs).	• Expected enemy objectives. • Leverage points within the city and around the building. • Information from civilians.	• If the enemy is very tenacious, expect it to be hard fought. • Think three-dimensionally: not only forward/ backward, left/right, and up/down, but extend those dimensions past visual range into the next room or next floor of the building.

Maintain the enemy's perspective (Think like the enemy)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Identify the most likely enemy location.	• Inherent uncertainty. • Enemy location is dynamic. • "Enemy lines" do not exist, making their locations unclear and difficult to assess.	• Windows knocked out. • Gun ports in sides of building. • Wire over windows (so grenades cannot be thrown in). • Shots fired and scrambling noises.	• Buildings that control intersections. • Buildings that control long stretches of streets. • Highest buildings. • Level of intensity of conflict. • Information from civilians.	• Enemy is likely to put snipers or arty observers in high buildings (e.g., church towers). • In high intensity conflict, enemy is more likely to try to control buildings with good vantage points on intersections and long stretches of roads. • Enemy might mine tops of buildings to deter helicopter assault; this is less likely in lower intensity conflicts. • Throw ruses or smoke, or use mock firing position to draw enemy fire and show you his location.

Maintain the enemy's perspective (Think like the enemy)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Identify how enemy can exploit friendly vulnerabilities.	• Must assess one's own vulnerabilities, although the tendency is to overestimate one's strength and readiness.	• Number and location of hallways. • Number and location of stairwells. • Building layout. • Number of friendlies in building. • Number of enemy.	• Friendly weapons capabilities. • Enemy weapons capabilities. • Training and preparation. • Mission plan.	• Enemy often booby traps areas where they think you might enter a building, e.g., doors and windows. • Refrain from establishing patterns the enemy could learn: –blow off door hinges (bang), throw grenades (bang), go in with controlled shooting (shoot, shoot). If the enemy learns this pattern, they will hide until the second bang, then come up shooting. • Enemy will try to sneak behind you, into your "clean" area. • PL should use his assessment to determine how to protect his platoon.

Maintain the enemy's perspective (Think like the enemy)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Anticipate enemy deception techniques. PL must actively search for cues that suggest deceptive techniques by the enemy. When the cues are noticed, expectancies can be formed and actions can be taken to avoid potential hazards.	• Deception is inherently hard to recognize. • This judgment is more difficult when the PL has little experience with that particular enemy.	• Wires on the ground. • Suspicious person dressed in civilian clothes. • Sniper drawing you toward him. • Areas you would attack if you were the enemy.	• Items deemed important by friendlies. • Past enemy practices and techniques.	• Enemy may booby trap items that they know you will be looking for (e.g., a box of radios). • Enemy may dress as a civilian. • Sniper may attempt to draw platoon into an ambush. • Wires laying on the ground may indicate a booby trap, or the enemy's tendency to use booby traps.

Lead subordinates				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Clearly communicate with and direct subordinates.	• Radio communication is difficult within the building. • Units are spread out in building. • Need to minimize communications to maintain element of surprise. • Must account for both clearing unit inside building and security element outside building. • Once the clearing has begun, it is difficult for PL to think of anything but the clearing (it is difficult for him to keep up communications).	• Physical layout of building. • Enemy locations in building. • Obstacles and threats. • Current situation.	• Hand signals and other non-verbal communications that are trained. • Mission plan. • Standard communication codes.	• Tell subordinates to report what they see with no interpretations: –"there is a stairway up ahead," –"there is a T intersection and a stairwell," –"I hear footsteps above me traveling from my right to my left." • If subordinates know the objective, they will more readily accomplish it. • PL must tell subordinates his critical information requirements for the mission. • Use standard codes for identifying and communicating locations. • The more trust the PL draws, the more audacious and aggressive his decisions and directions can be.

Lead subordinates				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Maintain control of subordinates. The PL must ensure that subordinates will not get ahead of themselves and the rest of the platoon.	• Tendency for subordinates to clear the building without direction from PL, because they are so well-trained that they could accomplish the clearing on their own. • Subordinates can forget to communicate back to PL. • Soldiers have the tendency to let their guard down when no sign of the enemy exists. • Can be mismatch between PL training and subordinates' training, causing operational conflicts.	• Frequency of communications. • Subordinates' actions. - where are they now, and is that where they are supposed to be? • Personnel vigilance. • Situation within building (see "*Assess the situation within the building*").	• Known team capabilities.	• Do not want subordinates making decisions they are not responsible for. • PL must ensure that subordinates remain vigilant. • The longer PL works with his team, the better aware he is of the team's capabilities. • The longer PL works with team, the more they will trust him because he has a better feel for their capabilities and decides accordingly. • Place clear limits on subordinate movement and activity. • Articulate phase lines and sectors of fire for the team.
Judge the combat effectiveness of individuals.	• PL must judge not only the physical state of his unit but also the mental state, which is generally not visually apparent.	• Current situation. • Relative difficulty of the mission thus far. • The look on a person's face. • Injuries. • Ammunition remaining. • Weapon status.	• Individual personalities. • Past experiences with individuals. • Training. • Known capabilities of subordinates.	• The goal is to maintain the safety of the unit. • PL must be honest with himself: he cannot tell higher command that his unit can do the mission if they are not trained or ready for it. • Bottom-up clearing is more fatiguing than top-down. • Switch out the lead element if they get too fatigued.

Maintain the big picture and situation awareness				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Assess mission progress against mission plan and objectives.	• PL must paint a picture of the situation using primarily voice communications from other people. • It is possible to "fall in love with the plan" and not realize it is no longer useful as is. • It is difficult to think of the big picture while focusing on the task at hand.	• Situation assessment (see "*Assess the situation within the building*"). • Number of rooms cleared. • Enemy resistance. • Civilian involvement. • Number of friendly casualties.	• Mission plan. • Mission objectives.	• Be prepared to adjust the plan.

Maintain the big picture and situation awareness				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Assess the big picture situation. This decision task is mainly about keeping track of what is going on around and within your mission: what is the status of the troops? What is the enemy up to? What are the civilians up to? How are adjacent friendly units doing? Together, these form the PL's overall SA. His SA is used as a factor in every decision he will make. It is also used to set expectancies and project ahead into future.	• If PL is too close into the building he cannot see the big picture. • Enemy lines and friendly lines do not exist in MOUT; they are interspersed.	• Reports from overwatch or security unit. • Reports from clearing teams. • Civilian activity.	• Locals' status and attitudes; whether they like friendlies; whether they will try to clear the building behind you. • Other platoons' missions.	• The PL's actions will change drastically if civilians are seen as a threat vs. being on the friendlies' side. Example: unit will lock & load in an otherwise non-threatening situation if civilians have a history of acting against them. • Situations that require close and quick coordination between PLs include: – when one platoon is limit of advance – if they are both going to retrograde and need to determine who will cover while the other moves back – if soldiers were lost and linked up with another platoon, the lost soldier's platoon needs to know.
Maintain awareness of civilians in the area.	• There will <u>always</u> be uncertainty as to how many civilians are present.	• Civilian's foot traffic. • Known type of building.	• Type of area (e.g., residential district vs. industrial district). • Expected building type.	

Maintain the big picture and situation awareness				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Maintain awareness of sectors of fire for all friendly units.	• Can get disoriented in unfamiliar city. • Difficult to think outside of your mission when you are close in to your target building.	• Communications during mission regarding adjustments to plans.	• Company's mission. • Commander's intent. • Other platoons' plans (from pre-operation briefings).	
Set expectancies.	• Enemy is generally unpredictable. • This skill develops after a great deal of experience.	• Layout of building floors. • Locations of halls and stairwells. • Enemy equipment, ammunition, documents, etc. found in rooms. • Enemy/civilian level of resistance. • Whether building has been looted, rummaged, or burned. • Absence of glass in windows. • Indicators of building inhabitants. – pulled curtains – lights/absence of lights – darkened backdrops.	• Platoon's mission. • Other PLs' missions. • Level of intensity of conflict. • Whether local population likes or dislikes you.	• Will have to mentally simulate what to expect around each corner. • Take into account previous actions of the enemy to predict what he might do next.

Project into the future				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Determine where to proceed next.	• Rely primarily on verbal communications to form picture of current situation. • Less experienced PL's (or low confidence ones) tend not to react to the situation like they should. Instead they stick to the plan or go by their training.	• Number of hallways. • Location of hallways. • Number of stairwells. • Location of stairwells. • Number of friendly casualties. • Number of enemies. • Enemy weapons. • Other characteristics of enemy (e.g., uniforms). • Unit morale and level of fatigue. • Layout of building. • Relative importance of certain areas of the building. • Noise from enemy. • Guesstimate of floor plan on next floor.	• Friendly capability compared to enemy capability. • Mission plan. • Mission objectives.	• Assume the worst with regard to the enemy. • Do not just follow the plan, or fire and forget; be thinking ahead as to what to do next. • Determine how building could make you vulnerable, then cover those vulnerabilities.
Determine the personnel and unit size necessary for mission accomplishment.	• Inherent uncertainty as to what the platoon will encounter.	• Known building size. • Flow of clearing. • Number of rooms, hallways, and stairwells. • Enemy resistance. • Civilian involvement.	• Mission objectives. • Mission plan.	• A squad plus (~12 men) is a minimum; platoon is generally a maximum. • Fewer people are required for top-down clearing (do not need to secure upper floors after they are cleared). • The larger the building, the more personnel required. • Too many people can actually be detrimental to the mission.

Project into the future (Cont.)				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Determine where to locate oneself to best support unit. This decision is important in situations like the following: two squads are sucked into a fire fight in two different locations. Each of them calls for support from the PL. Where do you go? Which one do you go to help?	• PL must prioritize, and sometimes it's not clear from verbal communications which location is more critical.	• Voice communications/reports from squads. • Urgency in voice. • Casualty reports.	• Mission objectives. • Abilities of each unit and squad leader.	

Understand and apply ROE				
Critical Decision	**Why Difficult?**	**Cues**	**Factors**	**Strategies/Aspects of Expertise**
Interpret ROE.	• ROE written by "lawyers" and used by soldiers; ROE are often ambiguous.		• Mission pre-brief. • Guidance from company commander.	• Ask many questions when ROE are delivered, what-if'ing the situation to better determine the meaning behind the ROE.
Apply ROE. PL and his team must apply ROE to pre-planning and on-line planning for how to clear the building.	• Restrictive ROE place heavy limits on how PL can accomplish mission. • Conflict between the safety and welfare of the unit, and the ROE. • ROE change from mission to mission, and sometimes during the course of a mission. • Often train with non-restrictive ROE, but fight with restrictive ROE. • Media presence can complicate the decision.	• Enemy actions. • Noncombatant actions. • Overall assessment of the situation (see *"Maintain the big picture and situation awareness").*	• What-if'ing prior to the mission. • Stated ROE. • Ability to justify actions on battlefield.	• Must be cognizant of how platoon's actions can affect political landscape (applicable to low- or mid-intensity combat). • May need to use even less force if media is present (applicable to low- or mid-intensity combat).

APPENDIX C

DECISION MAKING GAMES: SUMMARIES AND LINKAGES TO THE DECISION REQUIREMENTS TABLES

DMG 1: TWO INTERSECTIONS - A

This operation is an all out war scenario in which U.N. forces are assisting an allied country in removing an organized invasion force from a neighboring country. The scenario involves a pre-dawn mission to enter and clear the two-story courthouse. Initial reconnaissance has spotted an enemy platoon set up on the east side of the town, and a sniper positioned in a tower with line of sight to the area around the courthouse. Upon approaching the courthouse the platoon spots a single enemy soldier patrolling on the west side of the town in the vicinity of the courthouse.

BASIC

Decision Requirements Addressed in the DMG	Critical Decisions Faced by Participants	Primary Cues & Factors Incorporated as Context to Influence the Decision	Teaching/Discussion Points Resulting from Decision Requirement
• Determine how to secure the perimeter. • Maintain the enemy's perspective. • Determine how to approach the building.	• Determine how to seal off the area. • Determine where to place security assets. • Identify the most likely enemy location. • Identify the most likely enemy course of action. • Determine route and/or method of approach. • Identify hazards, constraints, and constrictions. • Determine how to obscure the approach. • Determine how to navigate streets.	• Opportunities for cover and concealment. • Perceived best angle to support fire. • Street size. • Locations/characteristics of buildings. • Hazards and constrictions identified. • Cover/concealment structures • Weather. • Enemy activity in the area. • Windows knocked out. Buildings that control intersections. • Highest buildings. • Leverage points within the city. • Level of intensity of conflict.	• Use of support by fire position in street crossing. • Imagining likely enemy locations. • Street crossing in area where enemy is likely to have line of sight. • Determining whether to split forces.

DMG 2: TWO INTERSECTIONS - B

This operation is an all out war scenario in which U.N. forces are assisting an allied country in removing an organized invasion force from a neighboring country. The scenario involves a daylight operation to clear a museum from current positions in the courthouse next door. Known enemy forces include two squads and a sniper positioned in nearby buildings, and patrols roaming throughout the area. As one of the friendly squads moves toward the museum, shots are fired from across the street and forward elements from an enemy unit of unknown size are spotted moving into the town from the north.

BASIC

Decision Requirements Addressed in the DMG	Critical Decisions Faced by Participants	Primary Cues & Factors Incorporated as Context to Influence the Decision	Teaching/Discussion Points Resulting from Decision Requirement
• Determine how to approach the building. • Determine how to enter the building. • Lead subordinates.	• Determine how to navigate streets. • Identify hazards, constraints, and constrictions. • Determine strengths and vulnerabilities of the building and its inhabitants. • Determine point of entry. • Determine entry technique, and equipment to be used. • Consider tradeoff between stealth and speed. • Maintain control of subordinates.	• Actions of neighboring platoon. • Reports of enemy strength. • Platoon visuals on enemy locations. • Perceived awareness of enemy. • Observed enemy security levels. • Building construction and openings. • Approaching enemy reinforcements. • Sounds/reports of machine gun fire. • Building and street sizes and locations.	• How to regroup forces in the midst of a firefight. • How to place units to maintain control while support each other. • How to act in accordance with commander`s intent when mission may need adjustments. • Whether to give up security when ordered, if under fire. • How to cover unknown enemy threats from multiple locations.

DMG 3: TWO INTERSECTIONS - C

This operation is an all out war scenario in which U.N. forces are assisting an allied country in removing an organized invasion force from a neighboring country. The scenario involves a daylight mission to clear an old chapel occupied by enemy units approximated at 2-3 fire teams. At the last minute, the company commander communicates to the platoon leader that ROE has changed and now restricts damage to religious sites unless absolutely necessary.

BASIC

Decision Requirements Addressed in the DMG	Critical Decisions Faced by Participants	Primary Cues & Factors Incorporated as Context to Influence the Decision	Teaching/Discussion Points Resulting from Decision Requirement
• Interpret and apply ROE. • Determine how to approach the building. • Determine how to enter the building. • Determine how to clear the building.	• Determine how to navigate streets. • Identify hazards, constraints, and constrictions. • Determine strengths/ vulnerabilities of building and inhabitants. • Determine entry technique/equipment. • Determine how to employ personnel and teams.	• ROE limiting use of force on religious places. • Last known sniper location. • Lack of visual ID on other E forces. • FRAGO from company commander. • Building locations. • Available resources (smoke, breaching explosives). • Platoon strength.	• Clearing a building of enemy units. • Interpreting ambiguous ROE. • Forcing enemy out of cultural/ religious site under restrictive ROE. • Determining approaches in daylight operations.

DMG 4: THE CLEAROUT SALE

This game is an all out war situation in which U.N. forces have halted the advance of invading forces and are now pushing the remaining enemy battalion back toward their national boundary. The scenario entails clearing a grocery store believed to be occupied by as many as 5-6 enemy soldiers. The grocery store is a one-story building with only one main entrance – a large glass double-door entry. The platoon is currently operating at 60% with no anti-tank weapons or javelins.

BASIC

Decision Requirements Addressed in the DMG	Critical Decisions Faced by Participants	Primary Cues & Factors Incorporated as Context to Influence the Decision	Teaching/Discussion Points Resulting from Decision Requirement
• Maintain big picture & SA. • Maintain enemy perspective. • Determine how to secure the perimeter. • Determine how to approach the building. • Determine how to enter the building.	• Maintain awareness of sectors of fire for all friendly units. • Identify the most likely enemy location. • Determine how to seal off the area. • Determine where to place security assets. • Identify hazards, constraints, and constrictions. • Determine point of entry. • Determine entry technique and equipment to be used. • Determine how to employ personnel and teams.	• Vehicles on the street. • Street and building sizes and locations. • Building separations. • Intel reports of estimated enemy sizes. • Sketch of grocery. • Partially broken glass door in front of building. • Resource limitations - Platoon strength level, lack of anti-tank and javelin weapons. • Time of day. • Company commander time requirement for clearing. • Roof characteristics – Flat with standard ducts and graveled tar surface.	• Noticing key urban terrain in order to anticipate enemy actions. • Assessing tradeoffs regarding breach/ entry points. • Assessing different routes of approach.

DMG 5: SURPRISED BY AN UNEXPECTANT ENEMY

This game is an all out war situation in which U.N. forces have halted the advance of invading forces and are now pushing the remaining enemy battalion back toward their national boundary. The scenario takes place in a deserted village made up of one-story buildings. The platoon is in a large warehouse, checking supplies and communicating with the rest of the company, when 8 enemy soldiers are spotted milling around outside a building down the street. Two of them then cross the street and enter another building. The platoon's mission is to destroy or capture all enemy forces.

BASIC

Decision Requirements Addressed in the DMG	Critical Decisions Faced by Participants	Primary Cues & Factors Incorporated as Context to Influence the Decision	Teaching/Discussion Points Resulting from Decision Requirement
• Determine how to secure the perimeter. • Determine how to approach the building. • Maintain the big picture. • Maintain enemy perspective.	• Determine how to seal off area. • Determine which assets and people to employ. • Determine how to obscure the assault. • Identify most likely enemy course of action. • Assess mission progress against mission plan and objectives. • Assess the big picture situation.	• Higher-level mission via Commander's Intent. • Darkness via night, overcast skies. • Intel reports of expected enemy strengths in town. • Squad leader reports of enemy numbers and weapons. • Appearance of building vacancies. • Street widths. • Building heights.	• How to select a route of approach, considering placement of windows and doors on non-secure buildings. • Determining relative importance of fighting the enemy versus risk to platoon. • Using the element of surprise. • Imagining enemy intent.

DMG 6: WRAP IT UP

The overall situation is an all out war in which U.N. forces are pushing enemy forces out of the Middle-Eastern country they have invaded. In this scenario, the platoon is reloading supplies in a deserted town where no enemy have been encountered. In the midst of the supply reload, the company commander orders the platoon leader to move to his position, 2 km north, to assist him in a firefight. However, comms go out mid-sentence and the severity of the engagement is unclear to the platoon leader. Then, the squad conducting the reload begins to take fire from enemy elements across the street.

BASIC

Decision Requirements Addressed in the DMG	Critical Decisions Faced by Participants	Primary Cues & Factors Incorporated as Context to Influence the Decision	Teaching/Discussion Points Resulting from Decision Requirement
• Lead subordinates. • Determine how to secure the perimeter. • Determine how to approach the building.	• Judge the combat effectiveness of individuals. • Maintain control of subordinates. • Determine which assets and people to employ. • Determine where to concentrate fires. • Determine how to obscure the approach. • Determine how to navigate the streets.	• General over-relaxed attitude of platoon – jovial, guard is let down. • Presumed and evident enemy locations and weapons. • Street sizes and layouts. • Building sizes and layouts. • Reported enemy strength and locations based on rates of fire. • Visibility – dark night.	• Judging enemy strength and intent. • Balancing resources. • How to coordinate the machine gun elements when the platoon has already been engaged. • Street crossing in area where enemy is likely to have line of sight.

DMG 7: NIGHTMARE ON ELM STREET

This scenario places the platoon leader in a humanitarian and peacekeeping effort to provide relief but also to police a ravaged, war-torn country. The platoon is conducting an on-foot patrol in an area that they are very familiar with. Suddenly, the platoon leader discovers that the local town drunk has shot his wife and a couple neighbors and is holding his children hostage. He starts making threats of shooting more people, and then grazes the platoon sergeant in the shoulder.

INTERMEDIATE

Decision Requirements Addressed in the DMG	Critical Decisions Faced by Participants	Primary Cues & Factors Incorporated as Context to Influence the Decision	Teaching/Discussion Points Resulting from Decision Requirement
• Maintain Big Picture & SA. • Maintain Perspective. • Interpret and apply ROE. • Secure the Perimeter. • Approach the Building.	• Identify the most likely enemy course of action. • Maintain awareness of civilians in the area. • Set expectancies. • Determine how to seal off the area. • Determine route and/or method of approach.	• Building construction – plywood, one-story. • Common building interior layout – 4 rooms. • Typical occupancy of town buildings. • Layout of town block. • Current state of town police force. • Civilian attitudes toward forces. • History of civilian violence and drinking. • Standard ROE. • Semi-automatic gunfire. • Urgency from company commander. • Anxious reactions of civilian crowd. • Statements/actions of volatile civilian.	• Diffusing escalating civilian situations before they get out of hand. • Estimating level of threat. • Operating within peacekeeping ROE when a friendly casualty occurs. • Building clearing when child civilians are involved.

DMG 8: CAUGHT IN THE INTERSECTION

The platoon in this DMG is conducting a motorized clearing operation through a war-ravaged village. The rest of the company is encountering unexpected resistance and radios for assistance. The platoon leader is suddenly faced with loss of communications with one of the squads, fire from an unknown enemy, and a disabled vehicle in the intersection, separating the squads. Meanwhile, the company's situation seems to be worsening, leaving the platoon leader to determine how to manage both his own situation and the needs of the company.

INTERMEDIATE

Decision Requirements Addressed in the DMG	Critical Decisions Faced by Participants	Primary Cues & Factors Incorporated as Context to Influence the Decision	Teaching/Discussion Points Resulting from Decision Requirement
• Maintain enemy perspective. • Lead Subordinates. • Maintain Big Picture & SA. • Determine how to clear the building.	• Identify how enemy can exploit friendly vulnerabilities. • Anticipate enemy deception techniques. • Clearly communicate with and direct subordinates. • Assess mission progress against mission plan and objectives. • Assess the big picture situation. • Determine how and where to proceed. • Determine how and when to evacuate casualties.	• Enemy force typical sizes, weapons, tactics. • Intel reports suggesting town will be empty. • Call from company commander to provide immediate reinforcement. • Building characteristics – varied states of decay, 1-3 stories. • Rate of small arms fire – suggests 5-10 enemy. • Rocket grenade launch. • Squad leader report of casualties. • Lack of radio communications. • Report of movement in another building.	• Understanding leverage points and vulnerabilities in urban settings. • Dealing with multiple immediate goals and limited resources. • Balancing needs of platoon with rest of company. • Dealing with communications losses and physical seperation in urban settings. • Assessing enemy intent.

DMG 9: A DEADLY APPROACH

The U.N. has been deployed on a humanitarian relief operation to a country plagued by factional fighting and terrorist activities. The scenario involves a nighttime operation to clear and occupy the town hall in order to support the distribution of food and medical supplies the next morning. As the platoon approaches the town hall, the platoon leader notices that the two-story warehouse he planned to use as an overwatch position has potentially been compromised. He also notices two men with rifles and duffle bags hurrying across the street. At the same time, the platoon sergeant reports commotion to the east and a bad feeling about the situation.

INTERMEDIATE

Decision Requirements Addressed in the DMG	Critical Decisions Faced by Participants	Primary Cues & Factors Incorporated as Context to Influence the Decision	Teaching/Discussion Points Resulting from Decision Requirement
• Maintain enemy perspective. • Maintain big picture & SA. • Interpreting and applying ROE. • Determine how to secure the perimeter. • Determine how to approach the building.	• Identify the most likely enemy location. • Assess the big picture situation. • Maintain awareness of civilians in the area. • Determine which assets and people to employee. • Determine where to concentrate fires. • Determine how to navigate the streets. • Determine where to place security elements.	• Historical enemy weapons, tactics, sizes – aimed at religious sites. • Standard ROE. • Road widths 12-14 feet. • Variation of building construction. • Time of night/moon lighting. • Intel reports of enemy occupations. • Warehouse location/status. • Status of warehouse door and lock. • Weapons and perceived cautious nature of enemy. • Direction of enemy movement. • Platoon Sgt. Report of commotion from ~20 people.	• How do you infer hostile intent. • Applying ROE to an ambiguous situation. • Judging critical urban terrain. • Navigating the streets and placing security elements in an urban environment.

DMG 10: ENEMY FROM THE WEST

In this scenario the platoon has taken up defensive positions at an intersection in a war-torn, urban environment to provide security for medical relief efforts. Enemy vehicles suddenly appear at the intersection, but from an unexpected direction. At the same time, other enemy forces begin engaging a nearby squad. This DMG is a reversal of Caught in the Intersection, where the enemy forces are positioned as the friendlies were and vice versa. The purpose of the reversal is to help the participant better envision enemy actions and intent. It works best when the participants are not informed about this reversal, but rather, discover it on their own.

INTERMEDIATE

Decision Requirements Addressed in the DMG	Critical Decisions Faced by Participants	Primary Cues & Factors Incorporated as Context to Influence the Decision	Teaching/Discussion Points Resulting from Decision Requirement
• Lead Subordinates. • Maintain Big Picture & SA. • Secure the Perimeter.	• Clearly communicate with and direct subordinates. • Maintain control of subordinates. • Assess the big picture situation. • Maintain awareness of sectors of fire for all friendly units. • Set expectancies. • Determine where to concentrate fires. • Determine how to seal off area.	• Village characteristics – war-ravaged brick and wood buildings, 1-3 stories. • Civilian numbers and intent - ~1000 friendly, stay inside. • Squad distribution. • Sound of exchange of weapons fire. • Report from squad leader on perceived engagement of neighboring platoon. • Radio report that company commander has been hit. • Disappearance of 1st platoon. • Report of visual ID/sounds of enemy vehicles approaching. • Rate of speed of approach of enemy vehicles.	• The importance and difficulty of maintaining communications and conveying intent in urban environments. • How to take the enemy perspective. • Dealing with the loss of communications with higher command. • Compensating when the rest of the company is unable to achieve their mission. • Improvising when friendly status is unknown.

DMG 11: A CLEARING OPERATION

The platoon in this DMG is conducting an on-foot, advance security patrol as part of a larger clearing operation through a supposedly deserted, war-torn village. No enemy activity is expected, but a soldier is hit by sniper fire. By the time the platoon leader reaches the scene, other soldiers have pulled the injured man behind some barrels, and smoke has been dispersed, but the smoke is clearing, and the soldiers are pinned down. To complicate things, it appears as though there is a secondary threat coming from another direction.

INTERMEDIATE

Decision Requirements Addressed in the DMG	Critical Decisions Faced by Participants	Primary Cues & Factors Incorporated as Context to Influence the Decision	Teaching/Discussion Points Resulting from Decision Requirement
• Maintain Enemy Perspective. • Lead Subordinates. • Determine how to Secure the Perimeter.	• Identify the most likely enemy locations. • Identify how enemy can exploit friendly vulnerabilities. • Maintain control of subordinates. • Determine how to seal off the area. • Determine where to place security assets. • Determine how and when to evacuate casualties.	• Historical enemy weapons, tactics. • Location of rest of company. • Dispersements of platoon. • Rate of sniper fire. • Smoke in intersection. • Nonavailability of resources. • Sizes/locations of buildings in intersection. • Actions/Status of platoon members on scene.	• How to effectively use elements of cover and conceal. • Assessing enemy intent. • Understanding issues involved in dealing with a wounded soldier. • How urban terrain can be leveraged by both friendly and enemy forces.

ADVANCED

DMG 12: A HOT TIME IN SLACKIA – A

In this DMG, the platoon leader is tasked with securing an intersection in a war-torn village, for an upcoming Red Cross relief effort. As the platoon approaches the intersection to begin this peacekeeping task, the leader notices uneasiness among the civilians, along with some slung weapons on a few of the male civilians. Suddenly, the platoon gets caught in the middle of what appears to be a gunfight at the intersection between opposing factions. At least three men have entered a store in the intersection and begin firing at civilians. One of the platoon members is hit, apparently unintentionally.

Decision Requirements Addressed in the DMG	Critical Decisions Faced by Participants	Primary Cues & Factors Incorporated as Context to Influence the Decision	Teaching/Discussion Points Resulting from Decision Requirement
• Project into the future. • Determine how to secure the perimeter. • Determine how to approach the building.	• Determine where to proceed next. • Determine how to seal off the area. • Determine where to place security assets. • Determine which assets and people to employee. • Determine route and/or method of approach. • Identify hazards, constraints, and constrictions. • Determine how and when to evacuate casualties.	• Increasing hostility toward peacekeeping forces by civilians. • Typical weapons and tactics of armed factions. • Number of civilians in intersection. • Size/construction of buildings – 1-3 stories, reinforced concrete. • General condition of building openings – broken windows, blocked by furniture, covered with wire mesh. • Narrow streets and yards. • Perceived uneasiness of civilians – quiet, guarded looks. • Upcoming food relief mission. • Echoing gunfire from multiple positions. • Report from civilian of 3 armed hostiles firing at civilians.	• Interpreting situations where multiple threats are involved. • Securing an intersection under adverse circumstances. • Dealing with civilians when intent is unclear. • Leveraging urban terrain to approach and secure a dangerous intersection. • Establishing fields of fire in urban terrain.

ADVANCED

DMG 13: A HOT TIME IN SLACKIA – B

This DMG can be conducted as follow-on to *A Hot Time in Slackia – Part A*, or as a stand-alone DMG. In this DMG, the platoon leader is tasked with securing an intersection in a war-torn village, for an upcoming Red Cross relief effort. A small group of armed civilians has holed up in a bank and have shot out into the intersection with assault weapons, hitting several civilians. Now, the platoon leader discovers that the armed civilians have hostages in the bank, and gunfire is heard inside. The civilians outside are starting to throw rocks at the platoon, and one is filming the platoon with a camcorder. The platoon leader has been ordered to secure the situation.

Decision Requirements Addressed in the DMG	Critical Decisions Faced by Participants	Primary Cues & Factors Incorporated as Context to Influence the Decision	Teaching/Discussion Points Resulting from Decision Requirement
• Maintain big picture & SA. • Project into the future. • Interpreting and applying ROE. • Determine how to approach the building. • Determine how to enter the building.	• Determine route/ method of approach. • Determine how to navigate the streets. • Determine how to obscure the assault. • Determine the strengths and vulnerabilities of the building and its inhabitants. • Consider tradeoff between stealth and speed. • Asses the big picture situation. • Maintain awareness of civilians in the area. • Set expectancies. • Determine where to proceed next.	• Mission and ROE. • History of civilian attitudes toward peacekeeping forces. • Sketch of internal layout of building. • Inability of company commander to assist. • Civilians believed to be in neighboring buildings. • Rising anger level of civilian crowd – yelling, throwing rocks. • Gunfire and shouts within building. • Civilian with camcorder.	• Interpreting a situation where multiple threats are involved. • Acting within established ROE or abandoning them in an escalating situation. • Dealing with civilians whose intentions against you are escalating. • Dealing with hostages in an urban building-clearing situation. • Determining how to approach a building when the hostiles inside are aware of your presence.

ADVANCED

DMG 14: A HOT TIME IN SLACKIA – C

This DMG can be conducted as follow-on to *A Hot Time in Slackia – Part B*, or as a stand-alone DMG. In this DMG, the platoon has just breeched a two-story bank that is holding hostiles and hostages. The platoon is in the process of securing an intersection in a war-torn village, for an upcoming Red Cross relief effort. From directly outside the main door of the bank, the platoon leader begins receiving sit reps from his squad leaders. Someone fires on the security element from inside the building; the internal squads are taking fire as well. Comms are lost when suddenly, 1st squad leader flies out of the window directly above the platoon leader.

Decision Requirements Addressed in the DMG	Critical Decisions Faced by Participants	Primary Cues & Factors Incorporated as Context to Influence the Decision	Teaching/Discussion Points Resulting from Decision Requirement
• Determine how to clear the building. • Maintain big picture and SA. • Lead subordinates. • Project into the future.	• Assess the situation within the building. • Determine flow of the clearing. • Determine whether to request reinforcements or call for fire. • Maintain awareness of civilians in area. • Determine where to proceed next. • Determine personnel and unit size necessary for mission accomplishment. • Maintain control of subordinates. • Clearly communicate with and direct subordinates.	• Width of hallways in building. • Screaming (likely hostages). • Squad leader reports of building interior. • Observed number of hostiles. • Wall material and thickness. • Status of communications with squad leaders. • Sounds of gunfire. • Sounds of fighting. • Reported enemy sightings. • Reported enemy footsteps. • 1st squad leader emerging from window.	• How do you maintain the big picture with limited communications and visual information. • Determining when to change current course of action. • Regaining situation awareness in an urban environment. • The importance of maintain communications with the platoon. • Issues around building clearing when hostiles with hostages are involved.

ADVANCED

DMG 15: EL DIA DEL GUAPO

In this scenario, the platoon is deployed as part of a U.N. humanitarian and peacekeeping effort to provide relief to a war-ravaged country of impoverished citizens. It is conducting an on-foot patrol on the eve of an anniversary known for coordinated outbreaks of violence. Tensions around the country are high, and the platoon witnesses several civilians unloading heavy crates into a warehouse and guarding them with weapons. Rumors are circulating that later that night there will be an outbreak of violence.

Decision Requirements Addressed in the DMG	Critical Decisions Faced by Participants	Primary Cues & Factors Incorporated as Context to Influence the Decision	Teaching/Discussion Points Resulting from Decision Requirement
• Maintain enemy perspective. • Maintain big picture and SA. • Interpreting and applying ROE. • Determine how to secure the perimeter. • Determine how to approach the building.	• Identify the most likely enemy course of action. • Maintain awareness of civilians in area. • Assess the big picture situation. • Determine how to seal off area. • Determine where to place security assets. • Determine route and/or method of approach.	• Current date (coincides with violent anniversary). • Emptiness of streets. • Civilian locations and weapons. • Recognition of civilians as town troublemakers. • Standard ROE. • Children in building. • Reports from company commander. • Informal intel reports of planned violence. • Civilian actions. • Time of day.	• How to diffuse an escalating situation before it gets out of hand. • Stopping armed civilians with unclear intent. • Operating within established ROE when your role is peacekeeper. • Determining appropriate level of action when clearing a building with civilians. • Interpreting civilian intent while envisioning progression of events.

ADVANCED

DMG 16: TROUBLE ON THE BRIDGE

This DMG has the platoon leader conducting a mounted security patrol through a small village as part of a U.N. peacekeeping force. The civilian intents are mixed. Most are peaceful, but a few are troublemaking thugs, looking to capitalize on the chaos. During the patrol, some of the thugs begin torturing other civilians, even killing one. Other civilians are angered at this and they respond. The situation rapidly escalates. A media crew is capturing the entire incident on film, including the platoon leader, who must now deal with the situation.

Decision Requirements Addressed in the DMG	Critical Decisions Faced by Participants	Primary Cues & Factors Incorporated as Context to Influence the Decision	Teaching/Discussion Points Resulting from Decision Requirement
• Lead Subordinates. • Maintain Big Picture & SA. • Project into the future. • Interpreting and applying ROE. • Secure the perimeter.	• Clearly communicate with and direct subordinates. • Assess mission progress against mission plan and objectives. • Maintain awareness of civilians in the area. • Maintain awareness of sectors of fire for all friendly units. • Set expectancies. • Determine where to proceed next. • Determine how to seal off the area. • Determine where to concentrate fires.	• Typical enemy weapons, sizes, tactics. • Historical civilian attitude toward forces. • Mission of peacekeeping forces. • Friendly weapons, sizes – attached MG squad. • Distance between forces and enemy. • Standard ROE. • Current enemy assets – MG on truck, AK-47s. • Enemy actions – beating civilians, firing at UN helo, throwing civilian off bridge. • Nervous reactions of civilians. • Location of civilian group. • CNN camera. • Dispersed locations of forces.	• Interpreting ROE in complex, escalating situations. • Dealing with civilians with varying intentions. • Dealing with media in MOUT environments. • Using non-lethals. • Communicating with a distributed platoon in MOUT.

APPENDIX D

SITUATION AWARENESS APPRECIATION EXERCISE

Situation Awareness Appreciation Exercise

Introduction to Participants

The purpose of this exercise is to think about situation awareness – SA. SA means simply, what you believe is happening in a situation based on the information you have available to you, and based on your experience in similar situations. We want to use this exercise to talk about how SA develops and how it impacts your actions.

In this exercise you will be put in the position of a platoon leader in a MOUT situation. We will describe to you a specific scenario that you are experiencing. You may want to take notes on the events. We will break twice during the scenario and have you record answers to a few questions. Please do this independently, without talking. After the second break, we will stop the scenario and move on to discuss your answers and talk about situation awareness.

Scenario:

Political/Enemy Situation:

An Army battalion has been deployed as part of a U.N. peacekeeping force in the capital of the revolution-torn, Third World country of Checkistan. There are two major, armed factions fighting for control of this high-desert country. Violent clashes with Soviet-made weapons– typically AK-47s and RPGs and truck-mounted machine guns are not uncommon.

Climate:

The battalion's broad mission is as it has been for the three months that it has been deployed in Checkistan: to maintain order and provide a security presence. Over the past three months, the factions and civilians have grown more and more hostile toward the peacekeeping forces. Occasionally during patrols or required building clearings, your platoon has been harassed by sniper fire or attacks by small (2-3 soldier) units. The enemy would typically hit and run on the peacekeeping forces, trying to escape before any real counter-action could be taken.

Rules of Engagement:

Nothing in these ROE limits your right to take appropriate action to defend yourself and you unit.

a. You have the right to use force to defend yourself against attacks or threats of attack.

b. Hostile fire may be returned effectively and promptly only to promote the safety of peacekeeping forces.

c. U.S. forces should use the minimum force necessary under the circumstances and proportional to the threat.

d. You may not seize property of others to accomplish your mission.

e. Detention of civilians is authorized for security reasons or self-defense.

f. Placing fire on religious or cultural centers or towards schools or hospital is forbidden.

Situation:

Your company has been providing security to a small village in Checkistan for the past week. Most of the population of the town has fled, leaving behind very few possessions. Those civilians that remain are in need of medical relief. A Red Cross relief mission has been planned. Your platoon has received orders from your company CO to secure the intersection of 1st and Main for the Red Cross relief effort due to arrive and set up there in 2 hours. In this particular area of town, the buildings seem to have been completely deserted and looted. Typically, there has been nothing in these barren buildings, not even furniture.

As your platoon approaches the intersection on foot, your soldiers are fired upon by what appears to be a solitary armed man who immediately runs into the building on the northwest corner of the intersection. No one in your platoon is injured. You realize that if this threat remains in that building, they will prevent the intersection from being secure for the relief effort. You decide that you need to clear that building immediately.

The building is roughly 40 x 60 feet from what you can tell. It is two stories high, and the windows on the first story all seem to be boarded up. There are several cleared windows without glass on the second story. You estimate that there are roughly eight rooms per story and probably a single staircase somewhere in the building.

After surveying the building, you issue the following orders to your platoon:

"We need to clear that corner building of all enemy presence. The Red Cross relief effort will be here in less than 2 hours, and we can't have any threats firing upon their station. This is what we need to do:

- 1st squad: Secure the perimeter of this building. Make sure that you have eyes-on all around and that no one gets in or out without you knowing.
- 2nd squad: You will enter the building first. Clear as you go.
- 3rd squad: You will enter behind 2nd squad and assist in the clearing of the building. It's not a small building, so both squads are necessary.

UNFOLDING SITUATION

1st squad, accompanied by your platoon sergeant, secures the perimeter and the rest of the platoon then approaches the building without incident. 1st squad is currently maintaining security around the perimeter. 2nd squad has entered the building and 3rd squad has just entered behind them.

You are now directly outside the building by the doorway. You suddenly hear a brief exchange of gunfire and information starts coming in:

SL2: "We got one bad guy in the first room to the right. He fired, but we took him out without any hits on us. We're moving on."

SL1: "Sir one of my men just saw a gun in the southeast corner window on the second story. He thought it looked bigger than a '47. We also just picked up on some gunfire coming from inside the building. Sir, some civilians out here are trying to tell us to get away from here. They look pretty upset, but we can't understand them.

SL3: "2nd squad has just cleared the room to the right. No one there. It's secure for you enter. We're moving on behind second squad."

Time-out #1

Participants record answers to these questions. Give them two minutes to answer the questions. Inform them of this time limit to keep their answers concise.

5. What is current threat size, location and intent?
6. What would you do at this point:
    a. Continue the building-clearing mission.
    b. Evacuate the building and call for reinforcements.
    c. Have squads hold positions while you gather info and talk to Platoon Sgt.

d. Evacuate the building and determine another entry/clearing strategy.
e. Call your company CO and ask for guidance.
f. Other. What?

7. What is your greatest concern at this moment?
8. What do you think the situation will look like in the next 5 minutes?

Continue with the scenario...

As you enter the building, you look into the room on the right. You see a dead man next to a table with some official-looking documents lying around him. The room on the left is empty, except for two rows of about 10 cots. Directly ahead is a wall, with a hallway splitting left and right. The squad member guarding the room tells you that 2nd squad has gone left and 3rd squad has gone right.

1st squad reports in: "Sir, we have an unarmed man on the roof. Wait, he just jumped back into the room that had the big gun."

You decide to continue the mission as planned. [Company CO gave you the go-ahead to continue the clearing.] You think you hear a door slamming upstairs, and somewhere in the building the sound of breaking glass echoes through the hallways. Next, you hear both squads clearing rooms to the left and right, but no firing. In a moment of rare silence you again hear the sound of breaking glass from somewhere on the first story, followed by what you think are footsteps directly above you on the second story.

Suddenly, gunfire erupts from somewhere in the building, ahead and to the left as far as you can tell. You hear return gunfire, as well as yelling of what sounds like frantic orders from one of your squad leaders.

3rd squad reports: "Hearing fire ahead and to the left of our position! Could be 2nd squad. All clear in the building to the right!"

2nd squad leader call in: "We're taking fire from the stairs! They're heading up. We're following the..." Suddenly an explosion blasts from where you believe 2nd squad to be. You assume from the magnitude of the blast that at least a couple of your platoon members are likely to be seriously hurt.

It's hard to tell what just happened, especially since smoke from the blast is filling the hallways. You now hear a heavy exchange ahead and to your left, though smoke prevents you from seeing anything.

You hear an exchange of gunfire from the right rear corner of the building.

Time-out #2

Again, give the participants 2 minutes to answer the questions to keep them concise:

1. What is current threat size, location and intent?
2. What would you do at this point:
    a. Continue the building-clearing mission.
    b. Evacuate the building and call for reinforcements.
    c. Have squads hold positions while you gather info and talk to Platoon Sgt.
    d. Evacuate the building and determine another entry/clearing strategy.
    e. Call your company CO and ask for guidance.
    f. Other. What?
3. What is your greatest concern at this moment?
4. What do you think the situation will look like in the next 5 minutes?

FACILITATION

Part 1: SA differences

The learning objectives of this section is to show differences in SA:

- assessments change over time as more information is obtained, and
- different people can see and experience the same situation and have difference assessments.

Choose one student to present his answers to question 1 (SA). Record his or her answer for both Time 1 and Time 2 on the board. Ask if any of the students have a different assessment of the situation. Record a second student's answers to question 1 at Time 1 and Time 2 on the board. You may want to use a table format (see below). Be sure to leave room for answers to other questions.

	Time 1	Time 2
Person A	Answer to question 1	Answer to question 1
Person B	Answer to question 1	Answer to question 1

Take a moment to look at the responses and figure out what is interesting and where the answers differ. Lead a discussion that points out the change in SA over time and the differences between the two peoples' interpretation. You may want to start off with an open-ended questions such as "*What do you notice about these answers?*" or "*What do you notice about the differences in these answers?*" Ask Person A or B about what they were noticing at different points, "*What about the situation made you think x, y, z?*" or "*What happened in the story to make your assessment change?*" If there are differences between Time 1 and 2 ask what the person was noticing at each point. If there are differences between Person A and B at one of the times, ask what each person was noticing at each time. The point is to have the class understand what information in the story led to the specific assessments. Sample answers: the big gun indicated that there may be more enemy than expected, the civilians factored into my assessment, or the presence of cots made me think this was a headquarters of some sort.

Tip

Remember that you are not evaluating the answer; you are just trying to uncover the thinking behind the answer.

Point out that assessments can change as more information is gathered. Ask the participant why this matters and how it could impact the mission. You could ask, "*Assessments often change as more information is gathered, so what? How will this affect your mission?*" One of the ways it can affect the mission is that people may have a tendency to stick with their assessment and explain away information that does not fit their assessment.

Point out that different people may experience the same situation and have different assessments. Again, ask the participants why this matters – what affect does it have on the mission. One effect is that a commander may assume that subordinates are interpreting the situation in the same way when this is not the case. As a result, the subordinate may act in a way that is unexpected. This shows the importance of a commander clearly communicating his assessment and intent.

What to do if the assessments are not different: One thing you can do is ask other people in the class if their assessments changed over time. If this does not yield any differences state that in many situations new information can change assessment. Ask the participants if they have experienced these types of situations. Ask, "Why does different people having the different interpretations matter – how could this affect the mission?"

Part 2: Impact of assessment on COA

The purpose of this section is to demonstrate that assessments affect actions and actions affect outcomes. Therefore assessments are critical to mission success.

Record the answers of Person A and Person B for question 2. Look at the answers to determine differences in the COAs. Ask the participants what they notice about the COAs. If the COAs are all alike, ask if anyone else had a different COA. Use this opportunity to reiterate the

point that different assessments can lead to different COAs and that these COAs ultimately affect mission outcomes.

If there is time, discuss answers to questions 3 and 4. You do not need to record these answers on the board, just discuss them. Options for probing include:

- How did different assessment affect how different participants predicted the situation would look like in 5 minutes? What does this tell you about the impact of Situation Assessment?
- Ask participants about their greatest concerns. How did this affect their actions or what they were looking and listening for?

Section 3: Wrap-up

The purpose of this section is to ensure the learning objectives are met.

Ask the participants what they learned from the exercise. Make sure the three points were covered:

- Situation assessment can change over time as more information is gathered
- Different people may interpret the same situation differently
- Situation assessment affects actions and outcomes

Ask the participants how their actions will be different as result of this exercise.