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Evaluating an Approach to MOUT Decision Skills Training

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14. ABSTRACT *(Maximum 200 words)*:

An experimental training program was developed to improve the battlefield decision skills of platoon leaders during Military Operations in Urban Terrain (MOUT). The program was implemented in the form of a multimedia, train-the-trainer CD-ROM titled "IMproving Performance through Applied Cognitive Training" (IMPACT). This report describes an evaluation of the usability of IMPACT, including an exploration of methodological issues associated with evaluating the effectiveness of training programs to improve decision-making skills. The evaluation was conducted at the U.S. Military Academy with cadets and U.S. Army captains participating as students and instructors, respectively. Participants were randomly assigned to either IMPACT or traditional after-action review (AAR) conditions. Instructors conducted two training sessions with cadets using either IMPACT or traditional AAR methods. Cadets then participated in a final session where they were tested on their MOUT decision-making skill and knowledge. Although we found few statistically significant differences between cadets in the two conditions, instructors reported IMPACT to be a valuable and highly usable training tool. Furthermore, we were able to develop an objective test to measure decision quality, as well as a process that resulted in reliable ratings of decision quality from subject matter experts.

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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 that become necessary when military forces enter urban environments.

Earlier this year 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). We then 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. Recently, we published a comprehensive report documenting the conceptual foundation of both the warfighting guide and IMPACT training program (ARI Research Report 1776).

The present report is the last of four research products developed by Klein Associates under a Small Business Innovation Research (SBIR) contract aimed at training platoon leaders to make more accurate and timely decisions during urban operations. It documents the conduct and findings of a usability and training effectiveness evaluation of the IMPACT program using cadets and tactical instructors at the U.S. Military Academy. Results were encouraging. Specifically, IMPACT training was found to be as effective as more traditional after-action review methods of instruction, with an even higher level of apparent usability. Major findings from the IMPACT development and evaluation process were presented to a wide variety of personnel within the U.S. Army Training and Doctrine Command (TRADOC-DCST) through briefings conducted at Fort Monroe, Virginia in April 2001 and at Fort Leavenworth, Kansas in August 2001.

ZITA M. SIMUTIS
Technical Director

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EVALUATING AN APPROACH TO MOUT DECISION SKILLS TRAINING

EXECUTIVE SUMMARY

Research Requirement:

A new instructional approach, Decision Skills Training (DST), has recently been developed to improve the performance of military decision makers by boosting their domain expertise. Traditional approaches to decision training have attempted to teach generic, analytic strategies that have not proven effective in field settings. DST, which has as its basis the Recognition-Primed Decision model (Klein, 1989; 1997) and the research literature on the development of expertise (e.g., Chi, Glaser, & Farr, 1988; Ericsson & Charness, 1994), has received positive reviews from instructors and students as well as encouraging anecdotal evidence as to its effectiveness.

In an effort to improve the decision-making performance of small unit leaders in Military Operations in Urban Terrain (MOUT), we first tailored a DST approach at the platoon level, and then developed a train-the-trainer multimedia CD-ROM – IMPACT – to provide instruction to facilitators wishing to deliver the MOUT DST training. This report describes a preliminary evaluation performed at the U.S. Military Academy (USMA) to evaluate the usability of the IMPACT train-the-trainer CD-ROM and to explore methodological issues associated with assessing decision quality.

Procedure:

Twelve U.S. Army captains and 65 cadets in their junior year at the USMA were recruited as participants. The captains facilitated the MOUT training; the cadets were their trainees. Half of the cadets were assigned to the experimental group and were facilitated by IMPACT-trained facilitators (the IMPACT group). The other half were assigned to the control group and were facilitated by captains who had not been exposed to IMPACT (the NO-IMPACT group). All cadets participated in a series of three 55-minute sessions. The first two sessions were training sessions facilitated by the captains. Facilitators from both the IMPACT and NO-IMPACT conditions were provided with two MOUT training scenarios called Decision Making Games (DMGs). One DMG was to be used per training session. The IMPACT-trained facilitators were instructed to use the techniques described in the IMPACT CD to facilitate and debrief the DMGs. The facilitators in the NO-IMPACT group were instructed to facilitate the DMGs and then use a standard After-Action Review technique to debrief the DMGs. Cadets completed a Session Evaluation Form at the end of each of the first two sessions. The third session was a test session attended only by cadets and led by a member of the research team. Cadets completed three response forms, which served as dependent measures: a DMG response form, a MOUT Knowledge Test, and a Cadet Post-Test Questionnaire. Facilitators were also asked to complete a Facilitator Post-Session Questionnaire.

Findings:

We set out to determine whether IMPACT is a usable train-the-trainer tool, and whether we could demonstrate a measurable difference in the decision making performance of individuals who participated in DMG sessions led by an IMPACT-trained facilitator versus individuals who participated in DMG sessions led by facilitators who had not had access to IMPACT. The results of the study are mixed. It appears that IMPACT is a very usable training tool, but this particular study was unable to demonstrate that it improves the decision-making performance of trainees. In addition, important methodological advances in assessing decision quality were made.

Captains in the IMPACT condition judged the instructional modules within IMPACT to be very useful. The average "usefulness" rating was a "4" on a 5-point scale where 5 was labeled "extremely useful" and 1 was labeled "not at all useful." All of the facilitators in the IMPACT conditions reported that they were likely to incorporate aspects of the IMPACT debrief technique into their future After-Action Reviews.

Cadet responses on the DMG response form were rated by independent SMEs who were blind to condition. An examination of the means for the two conditions did not indicate reliable differences in decision-making performance as a result of the IMPACT training. Likewise there were no significant differences in performance on the MOUT Knowledge Test. The Session Evaluation Forms, however, indicate that for three out of four training sessions facilitated by a captain, the cadets in the IMPACT group had more positive evaluations than the NO-IMPACT group. In addition, it is noteworthy that cadets in both groups responded quite favorably to the use of DMGs in training sessions.

A notable outcome of this study was the refinement of a process for operationalizing measures of decision-making quality. We have previously employed SMEs to rate the quality of participant responses, but have struggled to get reliable ratings from SMEs who often have somewhat different ideas about what constitutes "good" decision making. In this effort, we developed a process that produced high inter-rater reliabilities. In addition, we developed an objective measure of decision quality in MOUT settings in the form of a multiple-choice test.

Utilization of Findings:

While subjective measures indicated favorable reviews of the IMPACT CD and the IMPACT-facilitated sessions, we were not able to show significant enhancement in decision-making performance as a result of the IMPACT training. We believe the fact that cadets received only limited exposure to the training – two 55-minute sessions – is the primary reason for the lack of significant findings. DST is not meant to be a "quick fix" training intervention; it is intended as a long-term approach. Furthermore, the IMPACT facilitators were able to spend on average only 130 minutes using the CD and learning the approach. They were not provided practice nor feedback on their use of the DST techniques before facilitating the sessions with cadets. This is another critical inhibitor to finding performance effects. We are exploring possibilities for supplementing IMPACT with opportunities for instructors to practice the techniques and receive feedback on their implementation of the DST approach. We are also pursuing another evaluation study that resolves the limitations of the current study.

EVALUATING AN APPROACH TO MOUT DECISION SKILLS TRAINING

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INTRODUCTION

Klein and his colleagues (Klein, 1997; Pliske, McCloskey, & Klein, 2001) developed an instructional approach, called Decision Skills Training (DST), that improves decision-making performance by boosting the decision makers' domain expertise. Traditional training approaches for improving decision-making skills have attempted to teach generic strategies such as decision analysis in which the decision maker analyzes the costs and benefits of alternative courses of action. This type of decision training has not been proven effective in improving performance in field settings. One reason for the inadequacy of this analytical approach is that many decision-making situations do not involve choices between alternative courses of action. Previous research has shown that skilled decision makers spend more time sizing up the situation than comparing alternative courses of action. These decision makers are able to quickly generate an acceptable course of action based on their previous experiences. For example, Klein (1989; 1997) presented a Recognition-Primed Decision model, which describes how people use experience to make rapid decisions under conditions of time pressure and uncertainty that preclude the use of analytical strategies.

Klein Associates' DST approach is based on the Recognition-Primed Decision model as well as findings from a review of the research literature on the development of expertise (e.g., (Chi et al., 1988; Ericsson & Charness, 1994). We identified several strategies that experts use in order to learn more rapidly and effectively. These strategies include: engaging in deliberate practice, so that each opportunity for practice has a goal and evaluation criteria; compiling an extensive experience bank; obtaining feedback that is accurate and diagnostic; building mental models; developing metacognitive skills; and becoming more mindful of opportunities for learning.

We have developed DST programs for U.S. Marine Corps officers and enlisted personnel, U.S. Navy pilots, urban firefighters, and business executives. These programs were all delivered through train-the-trainer workshops facilitated by a live instructor; these are expensive and can only reach a limited number of participants. In this Phase II SBIR effort sponsored by the U.S. Army Research Institute for the Behavioral and Social Sciences, a DST program was developed for platoon leaders in Military Operations in Urban Terrain (MOUT) building clearing missions (Phillips, McCloskey, McDermott, Wiggins, Battaglia, & Klein, 2001). The primary product of the MOUT DST program was a multimedia train-the-trainer CD-ROM – IMPACT (IMproving Performance through Applied Cognitive Training) – that teaches Army instructors to implement the DST with lieutenants. IMPACT was designed to address the specific training requirements for platoon leaders in MOUT, and to do so in a way that unlike train-the-trainer workshops, could reach a larger instructor audience for less overall cost. This report describes a preliminary evaluation study of IMPACT conducted at the U.S. Military Academy (USMA) at West Point.

Tailoring a DST Approach for MOUT

Our DST programs typically involve a variety of learning tools that are used in conjunction with Decision Making Games (DMGs). DMGs are low-fidelity, paper-and-pencil,

simulations of incidents that might occur in a particular domain (Pliske, McCloskey, & Klein, 2001; Schmitt 1994). Trainees are given a dilemma in which a decision must be made, and are only given a few minutes to develop their course of action. The primary learning tool associated with the DMGs is the Decision Making Critique (DMC), which is a debriefing technique developed to supplement the standard After Action Reviews (AARs) conducted in military training settings. The DMC consists of a series of questions designed to focus the group discussion on critical decisions, the important cues involved in assessing the situation, and the types of uncertainties the decision maker encountered. The DMC focuses on the cognitive aspects of decision making rather than the *procedural* or *tactical* aspects that are more likely to be addressed in traditional AARs. The DMC utilizes the following questions to initiate discussion pertaining to decisions that were made in response to the DMG dilemma:

- What were the tough decisions?
- For each decision:
  - Why was it difficult?
  - Why did you choose that course of action?
  - What one piece of missing information would have helped you most?
  - What other actions did you consider? Why didn't you choose them?

At the close of the session, the DMC uses the following general discussion questions to summarize the lesson:

- What would you do differently if you were in this situation again?
- What was our unit's biggest strength? Our biggest weakness?
- What are some important lessons learned from this exercise?

A program of DST was developed for platoon leaders to improve their preparedness in MOUT environments. MOUT places leaders in highly demanding situations where they have to operate with a high degree of independence. Relatively junior officers face high risks and demanding situations with very little preparation for handling the decisions and judgments in the MOUT mission. Given the Army's expectation that more and more infantrymen will participate in MOUT, it has become necessary to initiate decision-centered training programs. The best candidates to receive the training are the least experienced—the lieutenants.

The DST program incorporated in IMPACT focuses on platoon leader decision making in MOUT building clearing operations. The first step in the development of this program was to conduct a Cognitive Task Analysis with MOUT subject-matter experts (SMEs). These data were analyzed to determine the most critical decision requirements in the domain (Phillips et al., 2001; Phillips, McDermott, Thordsen, McCloskey, & Klein, 1998)

- Securing the perimeter
- Approaching the building
- Entering the building
- Clearing the building
- Maintaining and extending security
- Evacuating the building

- Thinking like the enemy
- Maintaining the big picture and situation awareness
- Projecting into the future
- Leading subordinates
- Understanding and applying Rules of Engagement

Based on these requirements and their associated cognitive demands, IMPACT was tailored for Army instructors who train platoon leaders in MOUT.

Our past experience conducting DST workshops indicated that the DMC was a more effective learning tool if it was used by a skilled facilitator. Therefore, we have developed training for facilitation skills. We also learned that facilitators like to develop their own DMGs, so we have developed strategies for training them to create DMGs for particular problems faced by their students. IMPACT incorporates the following five modules:

1) An introduction to DST
2) How to facilitate Decision Making Games
3) How to employ the Decision Making Critique
4) How to create Decision Making Game scenarios
5) A library of Decision Making Games for platoon leaders in MOUT.

Study Overview

Conducting evaluations of interventions in real-world settings has proved to be a challenge to the Naturalistic Decision Making (NDM) community. Issues such as how to assess the impact of a specific intervention, how to find professionals who are willing and able to take time to participate in a study, which variables to control to increase the likelihood of demonstrating an effect without creating so much artificiality that the evaluation has little meaning in the real world, and developing appropriate measures to assess outcomes all present challenges. This paper describes an effort to better understand these methodological issues in the context of a preliminary evaluation of a multimedia CD-ROM based training program that teaches Army leaders how to develop their subordinates' decision-making skills.

The evaluation was designed around two questions. First, we wanted to know whether Army officers found IMPACT to be a usable tool. We were particularly interested in whether they would be able to use the DMC to facilitate DMG sessions based on the training they received from IMPACT alone (without participating in a DST workshop). Second, we wanted to know whether we could demonstrate a measurable difference in the decision-making performance of individuals who participated in DMG sessions led by an IMPACT-trained facilitator (the IMPACT groups) versus individuals who participated in DMG sessions led by facilitators who had not had access to IMPACT (the NO-IMPACT groups). If we had successfully implemented the essence of our DST program in IMPACT, then we should see improved decision-making performance from individuals who participated in DMG sessions led by facilitators who used IMPACT.

The study design is detailed in the following sections. However, we provide an overview here to aid in readability of the report. Cadets in their junior year at USMA West Point participated in a series of three 55-minute sessions on consecutive days. The first two days were training sessions in which students participated in facilitator-led DMG sessions. On the third day, Klein Associates personnel hosted a session in which students completed the dependent measures for the study (i.e., responded to a test DMG and filled out a set of questionnaires). Half of the students were assigned to the IMPACT group and participated in sessions led by IMPACT-trained facilitators for their training sessions. The other half of the students were in the NO-IMPACT group and participated in sessions led by facilitators who had not been exposed to IMPACT and who were instructed to use a standard AAR format for the training sessions.

METHOD

Participants

Facilitators

The facilitators were recruited from a pool of U.S. Army captains currently enrolled in the Tactical Officer Education Program (TOEP) at the USMA at West Point. All facilitators were males aged 30-33 years. They were informed by their commanding officer of the opportunity to participate in a study evaluating decision training for cadets. Sixteen officers expressed their willingness to participate by completing a background questionnaire that included basic demographic items and questions about their prior military experience and training. This information was used to match 12 of the volunteers into six pairs for subsequent random assignment to experimental conditions. The criteria for matching the instructors included the amount of formal instruction officers had on how to facilitate group feedback sessions, MOUT experience, prior years experience as an enlisted soldier, and whether they graduated from USMA. Officers were offered a complimentary copy of the IMPACT CD for their participation.

Cadets

Sixty-one male and 14 female cadets were recruited from junior-level students currently enrolled in the Military Leadership or Cognitive Psychology courses in the Department of Behavioral Sciences and Leadership at USMA. Data from eight males and two females were not included in subsequent analyses because they failed to complete all three experimental sessions. All students received course credit for their participation.

Materials

Facilitator Training Packets

All packets included a cover letter with general instructions, paper copies of the DMGs, and overhead transparencies of the corresponding battlefield scenarios. The DMGs used in this evaluation were previously rated for their difficulty level as described in Phillips et al. (2001).

Three intermediate[1] DMGs were selected for use in the evaluation study. "Nightmare on Elm Street" was used on Day 1, "Caught in the Intersection" on Day 2 and "A Deadly Approach" on Day 3. The DMGs can be found in Appendix A.

Facilitators in the IMPACT group received a beta copy of IMPACT. Facilitators were instructed to only look at three of the five modules on the CD: the Introduction, Facilitating DMGs, and the Decision Making Critique (DMC) because the other two components, Creating DMGs and the DMG Library were not fully functional.

Both groups of facilitators received instructions on "How to Conduct a Decision Making Game" that included step-by-step guidance for conducting the DMG sessions. Copies of the instructions for both groups are included in Appendix B. The guidance for facilitators in the IMPACT group instructed them to use the DMC while leading group discussion of the DMG and to have the cadets engage in a role-play as part of the discussion of the DMG. For the role-play, one cadet was to be selected from the class to play the role of the platoon leader and share his/her course of action by issuing orders to other classmates who would play the roles of the squad leaders.

The guidance for the facilitators in the NO-IMPACT group instructed them to use a standard AAR format while leading the group discussion. They were *not* told to have the cadets engage in a role-play as part of the discussion of the DMG. Facilitators in the NO-IMPACT group also received a handout called, "A Leader's Guide to After Action Reviews," which was based on information from the Center for Army Lessons Learned (CALL) website (http://call.army.mil/call/spc_prod/tc25-20/guide.htm).

Dependent Measures

There were four basic types of dependent measures used to examine group differences in the evaluation study: cadets' written responses to the DMGs, cadets' responses to a multiple-choice test assessing their knowledge of MOUT, cadets' responses to questionnaires that elicited their subjective evaluation of the decision training sessions, and the facilitators' responses to questionnaires that elicited their subjective evaluation of the decision training sessions. In addition, facilitators in the IMPACT group were also asked to provide feedback on the IMPACT CD.

Cadet DMG responses. Cadets were required to write down their responses to the DMGs on response forms during both the training sessions (Day 1 and Day 2) and the test session (Day 3). The DMG Response Form used on Days 1 and 2 was a one-page form that asked the cadets to record their proposed course of action in the form of orders to be given to their squad leaders and other units if applicable. The response form also asked the cadets to describe their assessment of the current situation. The cadets were given four minutes to complete this form. The DMG Response Form used on Day 3 was a two-page form that was completed in two stages. First the cadets were asked to complete the first page which asked them to record their proposed course of

[1] DMGs of intermediate difficulty were chosen in order to ensure that the scenarios were challenging enough to allow for variability between the groups based on their learning in the training sessions, but not so challenging that the cadets/facilitators with limited MOUT experience would be unable to effectively use the DMGs.

action in the form of orders to be given to their squad leaders and other units if applicable (as they had been asked to do on Days 1 and 2). The cadets were given three minutes to complete page one of the DMG Response Form. The second page required the cadets to describe their assessment of the situation, to explain what they were trying to accomplish with their plan and to describe their greatest concern given the situation described in the DMG scenario. Cadets were given an additional five minutes to complete the second page of the DMG response form. The expanded version of the DMG Response Form was used on Day 3 in order to elicit a more detailed rationale of the cadet's proposed course of action for subsequent evaluation by SMEs. Copies of both response forms are included in Appendix C.

The quality of cadets' responses to the DMG presented during the test session was rated by independent SMEs who were blind to condition. Two SMEs with extensive MOUT experience were selected to rate cadet responses to the DMG. The SME ratings were conducted after all the data had been collected. In a previous DST evaluation study (McCloskey, Pliske, Klein, Heaton, & Knight, 1997) we had difficulty establishing acceptable inter-rater reliability between the SMEs who evaluated the participants' DMGs responses. Based on the lessons learned from our previous effort, we developed the following procedure in order to ensure we had reliable estimates of the quality of the cadets' DMG responses.

In order to familiarize the SMEs with the DMG, they participated in a mock DMG session facilitated by a member of the Klein Associates' research team. After each SME had presented his COA, the facilitator led a discussion of the critical pieces of information included in the DMG scenario. The facilitator then reviewed the set of seven rating scales that the SMEs used to independently evaluate the cadets' DMG responses. The rating scales are shown in Table 1. Each was a 5-point Likert-type scale, where a rating of 5 indicated "strongly agree," a rating of 1 indicated "strongly disagree," and a rating of 3 indicated "neither agree nor disagree."

Table 1

Description of Scales Used by SMEs to Evaluate Cadets' (N = 65) Written Responses to the Test DMG and Inter-Rater Reliabilities

Scale description	Reliability
1. This plan is acceptable, given the situation.	.92
2. This plan is good, given the mission.	.93
3. This plan is very similar to the course of action I would have carried out in this situation.	.93
4. The orders issued provide the squad leaders with a clear idea of what they are supposed to accomplish.	.82
5. The assessment of the situation indicates the participant was paying attention to the most important information.	.84
6. The elaboration of the plan indicates that reasoning behind the proposed course of action was sound.	.89
7. The greatest concern reported by the participant is an important concern	.89

in this type of battle situation.	

The first three ratings scales elicit SME judgments about the overall goodness of the cadet's proposed COA. Because the DMG used in the test session has many different possible solutions, we wanted to first establish the acceptability of the plan and then have the SME make the more subjective evaluation of the "goodness" of the plan. We included the third scale to allow the SMEs the opportunity to indicate that a specific plan was very different from their own solution. We thought this scale would help remind the SMEs that a participant could propose an acceptable COA that was different from the COA the SME preferred. The fourth rating scale asked the SMEs to judge the clarity of the orders described by the cadet. The fifth rating scale assessed the quality of the cadet's situation assessment. The sixth scale was included to evaluate the quality of the rationale provided by the cadet for the particular COA he/she developed. The last scale asked the SME to evaluate whether the cadet's greatest worry was an important concern in this MOUT situation.

The SMEs reviewed a DMG response from a cadet who participated in the test session, but failed to show up for both training sessions and was therefore not included in the analyses. Our researcher facilitated the SMEs' discussion of how they would rate this particular response in order to ensure they were interpreting the scales correctly. The SMEs then proceeded to rate the DMG responses independently. After completing a set of six DMG response forms, our researcher facilitated a discussion between the SMEs in to order reach a consensus for any scale on to which they disagreed by two or more points on the rating scale. The SMEs continued to make their ratings independently until all of the cadets' DMG responses had been evaluated. At times, the SMEs helped each other decipher cadets' handwritten responses on the DMG response forms. The Klein Associates' researcher reviewed the SMEs' independent evaluations to identify cases where the ratings differed by two or more scale points. She had the SMEs discuss these DMGs and reach consensus. The SMEs had to discuss 9 of the 455 ratings (2%) on the DMG response forms in order to resolve discrepancies. As shown in Table 1, the inter-rater reliability for their final ratings using the seven scales was extremely high (.82 – .93). The average rating given by the two SMEs was used in subsequent analyses.

Cadet MOUT knowledge test. A MOUT Knowledge Test was developed with the help of the two SMEs with extensive MOUT experience. (These were not the same SMEs who rated cadet responses to the DMG.) It consisted of two brief MOUT scenarios followed by eight multiple-choice questions per scenario for a total of 16 questions. A scoring key for this test was developed based on answers provided by the two SMEs who rated cadet responses, and one SME who was involved in the development of the MOUT Knowledge Test. For nine items the three SMEs agreed that one response was correct. However, for seven items, there was a lack of consensus among the three SMEs, so multiple answers were counted as correct when scoring the cadets' responses. Specifically, a cadet's response was counted as being "correct" as long as at least one of the SMEs had selected that answer. A copy of the MOUT questionnaire that includes the scoring key is shown in Appendix D.

Cadet questionnaires. Cadets were asked to complete brief questionnaires, called Session Evaluation Forms, at the end of the Day 1 and Day 2 training sessions. They completed a similar

form (the Cadet Post-Test Questionnaire) as part of the test session on Day 3. They were asked to indicate the extent to which they agreed or disagreed with ten statements by circling a number on a 5-point scale where 1 was labeled "strongly disagree" and 5 was labeled "strongly agree." These statements assessed whether or not the participants believed the DMG sessions had improved their ability to make rapid decisions on the battlefield and their assessment of the effectiveness of the facilitator who led the DMG sessions. Copies of these questionnaires are included in Appendix E.

Facilitator questionnaires. Facilitators were asked to complete a brief questionnaire, called the Facilitator Post-Session Questionnaire, after they completed the Day 2 training session. Both groups of facilitators were asked to indicate the extent to which they agreed or disagreed with 11 statements by circling a number on a 5-point scale where 1 was labeled "strongly disagree" and 5 was labeled "strongly agree." These statements assessed whether or not the facilitators believed the DMG sessions had improved the cadets' ability to make rapid decisions on the battlefield and the facilitators' self-assessment of their effectiveness in leading the DMG sessions. Additional questions on the questionnaire elicited information about how much time the facilitators had spent in preparation for the training sessions, their suggestions for improving the DMGs used in the training sessions, and what types of additional information they would have liked to have had prior to the training sessions. In addition, facilitators in the IMPACT group were asked to evaluate the different IMPACT training modules and provide their subjective assessment of the IMPACT CD. Copies of these questionnaires are included in Appendix F.

Procedure

A matched-groups design was used to evaluate the effectiveness of IMPACT-trained facilitators. After matching the 12 facilitators based on their previous military experience and training, one facilitator from each of the 6 pairs was randomly assigned to the IMPACT or NO-IMPACT condition. Each facilitator was required to present a DMG and lead the discussion for the same group of 3-8 cadets on two consecutive days. There were a total of six IMPACT groups and six NO-IMPACT groups. Cadets were randomly assigned to participate in either an IMPACT or NO-IMPACT group.

Data collection took place over a two-week period. During each week, data from three IMPACT groups and three NO-IMPACT groups were collected. Data collection involved three 55-minute sessions for each group of cadets on three consecutive days. On Days 1 and 2, cadets met with their assigned facilitator, participated in a DMG, and completed the DMG Session Evaluation Form. On Day 3, the cadets met with a Klein Associates' researcher who administered a test DMG, the MOUT Knowledge Test, and the Cadet Post-Test Questionnaire.

Facilitators received an instructional packet five days prior to their first DMG session. Facilitators in the IMPACT group were sent a beta copy of the IMPACT CD and asked to spend 2-3 hours reviewing the information provided on the CD prior to their first DMG session. Facilitators in both groups were asked to review the DMG materials prior to their training sessions. For each week, prior to the Day 1 session, facilitators met as a group with Klein Associates' personnel to ask any last minute questions on logistics, procedures, and so forth.

Facilitators were given their room assignments and the names of the cadets who would be participating in their groups.

At the beginning of the Day 1 session, the facilitators gave a brief overview to the group of cadets on what they would be asked to do over the course of the evaluation study. In all other respects the same procedures were followed for Days 1 and 2. Facilitators passed out the DMG response forms for the cadets to record their answers to the DMG and stressed the importance of writing neatly. Facilitators then read the DMG scenario and allowed cadets to ask questions about the scenario. Facilitators were encouraged to answer questions that would clarify the scenario for the cadets. For example, if a cadet asked a question that suggested he/she had failed to hear some of the information provided in the scenario, then the facilitator should repeat that information. Facilitators were cautioned that if they chose to answer questions that involved supplementing the information specifically provided in the written scenario, their responses needed to be consistent with the information provided in the scenario.

The facilitators were instructed to give the cadets four minutes to record their courses of action on the response forms in the form of orders to be given to their squad leaders. The response form also asked the cadets to describe their assessment of the current situation. After the four-minute time period expired, an individual cadet was asked to present his/her course of action and the facilitator led the subsequent discussion. At the end of the session, the facilitators passed out Session Evaluation Forms. The cadets' responses on these forms were anonymous and the facilitator left the room while the cadets completed the evaluation. Facilitators were given the Facilitator Post-Session Questionnaire to complete after their Day 2 session.

On Day 3, the cadets met with Klein Associates' researchers who administered a set of assessment measures. One Klein Associates' researcher met with cadets in the IMPACT groups and another researcher met with the cadets in the NO-IMPACT groups. Different Klein Associates researchers ran the test sessions during weeks one and two. During the Day 3 test session, the researchers presented a DMG and gave participants three minutes to record their course of action on their response form. Cadets were then given five additional minutes to describe their assessment of the situation, to explain what they were trying to accomplish with their plan, and to describe their greatest concern given the situation described in the DMG scenario. No group discussion of the DMG took place during the Day 3 test session. After the cadets had completed the DMG response forms, the research team administered MOUT Knowledge Tests, followed by the Cadet Post-Test Questionnaire. Lastly, a very generic written debrief about the evaluation study was handed out and cadets were invited to attend an optional Decision Skills Training Night, where they were provided with a more detailed debrief about the evaluation study and participated in another DMG session led by an experienced facilitator. The Decision Skills Training Night took place following the completion of the data collection during week two in order to avoid potential "contamination" of the week two participants.[2]

[2] One cadet attended the Decision Skills Training Night. The other attendees were USMA faculty members and captains who had participated in the study as facilitators.

RESULTS

Cadet DMG Responses

Table 2 summarizes the SMEs' average ratings of the cadets' written responses to the test DMG administered on Day 3. An examination of the means for the two different conditions for the seven rating scales indicates that the DMG responses from cadets in both the IMPACT and NO-IMPACT conditions received similar ratings from the SMEs. The average rating for groups of cadets was around "3" on a 5-point scale where higher numbers indicate a more positive evaluation by the SMEs. A MANOVA using condition and testing week as between-subject factors showed no significant effects for condition, $F(7, 55) < 1$. Nor was there a significant effect due to testing week, $F(7, 55) = 1.61$, $p > .05$; or a significant interaction between week and condition, $F(7,55) < 1$.

Table 2

SMEs' Average Ratings of Cadet Responses to the Test DMG for IMPACT and NO-IMPACT Conditions

SME Rating Scale	Condition	M*	SD
1. This plan is acceptable, given the situation.	**IMPACT**	**3.03**	**1.39**
	NO-IMPACT	3.21	1.34
2. This plan is good, given the mission.	**IMPACT**	**2.76**	**1.33**
	NO-IMPACT	2.90	1.30
3. This plan is very similar to the course of action I would have carried out in this situation.	**IMPACT**	**2.25**	**1.42**
	NO-IMPACT	2.45	1.52
4. The orders issued provide the squad leaders with a clear idea of what they are supposed to accomplish.	**IMPACT**	**3.38**	**1.00**
	NO-IMPACT	3.39	.90
5. The assessment of the situation indicates the participant was paying attention to the most important information.	**IMPACT**	**3.25**	**1.12**
	NO-IMPACT	3.29	.91
6. The elaboration of the plan indicates that reasoning behind the proposed course of action was sound.	**IMPACT**	**3.13**	**1.26**
	NO-IMPACT	3.13	1.07
7. The greatest concern reported by the participant is an important concern in this type of battle situation.	**IMPACT**	**3.06**	**1.23**
	NO-IMPACT	3.35	.94

* SMEs used a 5-point rating scale where 1 indicated "strongly disagree" and 5 indicated "strongly agree."

Cadet MOUT Knowledge Test

The mean proportion of correct responses to the multiple-choice MOUT Knowledge Test was computed for each cadet in the IMPACT and NO-IMPACT conditions. Although the difference between the conditions was in the predicted direction with the cadets in the IMPACT groups having a higher mean proportion of correct responses ($M = .67$, $SD = .10$) than the NO-IMPACT cadets ($M = .64$, $SD = .11$), a two factor ANOVA indicated that this result is not statistically reliable [$F(1, 61) = 1.77$, $p > .05$]. The ANOVA also indicated there was no reliable difference between the mean proportion of correct responses for the different testing weeks, $F(1,61) < 1$; nor was there a significant interaction between testing week and condition, $F(1, 61) = 1.37$, $p > .05$.

Cadet Questionnaires

The means and standard deviations for cadets' responses on the DMG Session Evaluation Forms are shown in Table 3 for the IMPACT and NO-IMPACT conditions for each of the 10 rating scales. These data indicate that overall the cadets in both conditions rated the DMG sessions positively on these 5-point scales where high numbers indicate positive evaluations. In general, cadets in the IMPACT condition rated the DMG sessions somewhat more positively than the cadets in the NO-IMPACT condition, however this trend does not hold for both weeks and both training days.

In order to get a better understanding of these data, an average evaluation rating was computed for each cadet by summing his or her ratings on all of the scales except question number 8 which asked the cadets whether or not the MOUT scenario used in the DMG session was challenging. We had included item 8 on the DMG Session Evaluation Form to determine whether or not the cadets in the IMPACT groups differed from the cadets in the NO-IMPACT groups in terms of their level of sophistication about MOUT.

A mixed ANOVA with condition and group as between-subject factors and day as a within-subject factor indicated there is a significant main effect of day $F(1, 61) = 31.23$, $p < .05$, and a significant three-way interaction between condition, week, and day, $F(1, 61) = 5.68$, $p < .05$. There were no significant main effects of week, $F(1,61) = 2.28$, $p > .05$, or condition $F < 1$. Nor was there a significant interaction between week and day, $F(1,61) = 2.22$, $p > .05$, or week and condition, $F < 1$. An examination of the means indicated that cadets reported the DMG was more challenging given their current knowledge of MOUT on Day 2 ($M = 4.27$, $SD = 85$) than on Day 1 ($M = 3.66$, $SD = 1.13$). Furthermore, although the cadets in the IMPACT condition typically reported slightly higher numbers for this scale, on the first day of training during the second week of testing, cadets in the NO-IMPACT condition reported higher numbers ($M = 3.58$, $SD = 1.07$) as compared to cadets in the IMPACT condition ($M = 3.27$, $SD = 1.42$).

We had predicted that cadets in the IMPACT condition would have higher ratings than cadets in the NO-IMPACT condition for the other nine items on the DMG Session Evaluation Form. The summarized ratings were analyzed with a mixed ANOVA with condition and group as between-subject factors and day as a within-subject factor. This analysis indicates there is a

significant three-way interaction between condition, week, and day, $F(1, 61) = 6.20$, $p < .05$. There was also a significant main effect of day, $F(1, 61)=14.64$, $p < .05$, a significant main effect of week, $F(1,61) =2.51$, $p < .05$, and a significant interaction between week and day, $F(1,61) = 16.02$. The main effect of condition was not significant, $F(1,61) < 1$, nor was the interaction between week and condition significant, $F(1,61) < 1$.

Table 3

Cadet Responses to the DMG Session Evaluation Form for the IMPACT and NO-IMPACT Conditions

Rating Scale	Condition	M*	SD
1. Today's DMG session was a valuable learning experience for me.	**IMPACT**	**4.25**	**.64**
	NO-IMPACT	4.19	.70
2. Participation in today's DMG session should improve my ability to make rapid decisions on the battlefield.	**IMPACT**	**4.17**	**.65**
	NO-IMPACT	4.11	.75
3. I learned a great deal of new information about MOUT in today's DMG session.	**IMPACT**	**3.41**	**.89**
	NO-IMPACT	3.45	.84
4. The facilitator did an outstanding job of leading today's DMG session.	**IMPACT**	**4.48**	**.60**
	NO-IMPACT	4.26	.68
5. Today's DMG session provided participants with a valuable opportunity to practice their communications skills.	**IMPACT**	**4.15**	**.66**
	NO-IMPACT	3.90	.64
6. Today's DMG session provided participants with a valuable opportunity to practice their decision-making skills.	**IMPACT**	**4.54**	**.50**
	NO-IMPACT	4.21	.73
7. The facilitator helped me think about the many different factors involved in making rapid decisions in MOUT settings	**IMPACT**	**4.38**	**.58**
	NO-IMPACT	4.24	.72
8. The MOUT scenario described in the DMG was challenging given my current knowledge of MOUT.	**IMPACT**	**4.04**	**.92**
	NO-IMPACT	3.89	.86
9. The facilitator kept all of the students actively involved during the DMG session.	**IMPACT**	**4.48**	**.51**
	NO-IMPACT	4.35	.76
10. I would like to participate in more DMG sessions in the future.	**IMPACT**	**4.32**	**.76**
	NO-IMPACT	4.11	.87

*Cadets utilized a 5-point rating scale where 1 indicated "strongly disagree" and 5 indicated "strongly agree."

In general, cadets rated the Day 2 sessions (M = 4.25, SD = .56) higher than the Day 1 sessions (M = 4.09, SD = .45). The difference between the Day 1 and Day 2 sessions was greater during Week 1 than during Week 2. Overall, the ratings for the IMPACT conditions were higher than the NO-IMPACT condition, except on Day 2 during Week 1. These differences are summarized in Figure 1.

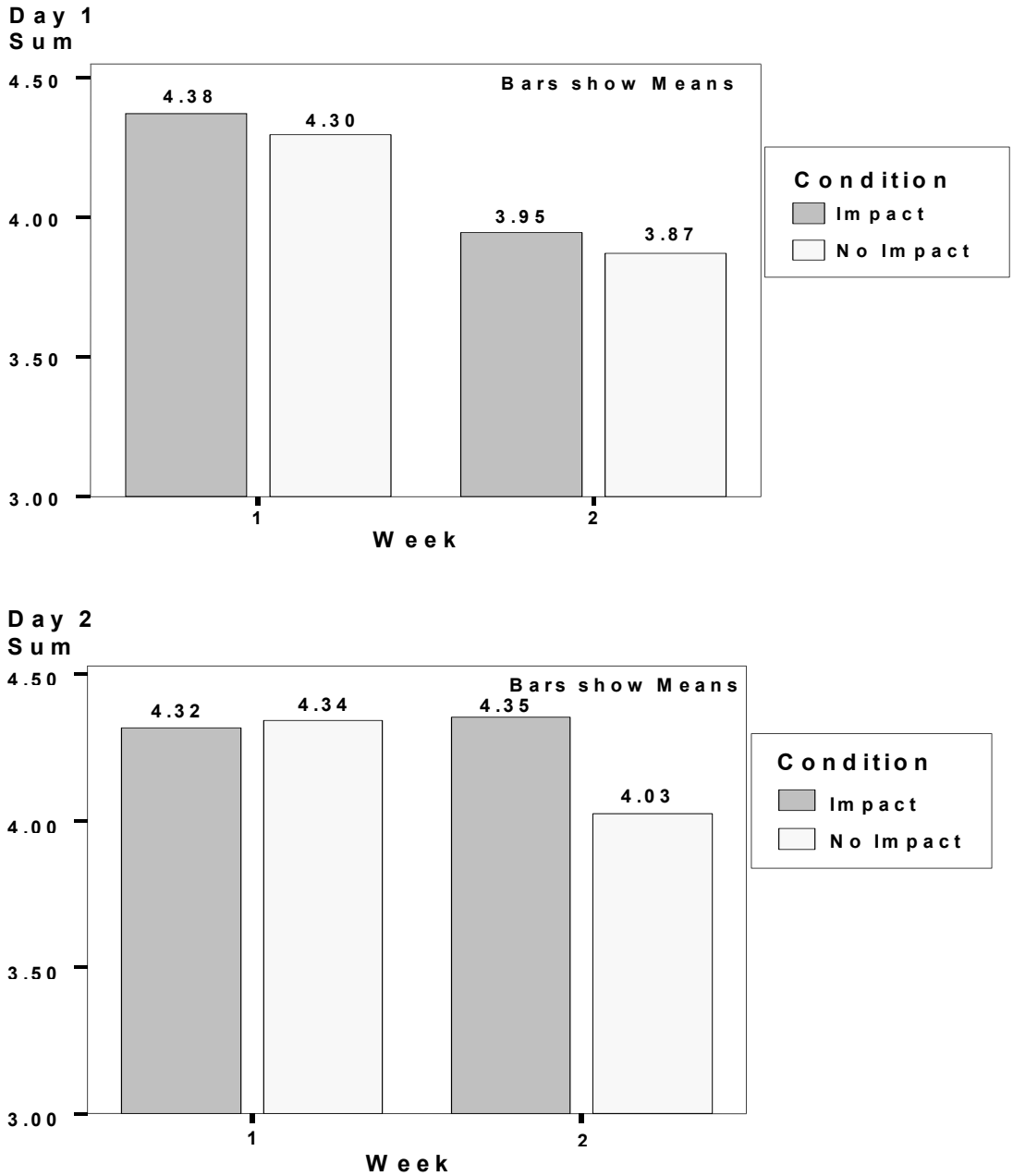


Figure 1. Summary of cadet ratings from the DMG Session Evaluation Form for IMPACT and NO-IMPACT groups for Day 1 and Day 2 for Week 1 and Week 2. The graphs indicate that the IMPACT groups had more positive evaluations than the NO-IMPACT groups on every day except Day 2, Week 1.

In order to determine if the observed differences on the DMG Session Evaluation Form were due to the facilitators, rather than condition, the summarized ratings were subjected to a mixed ANOVA with facilitators as between-subject factors and day as a within-subject factor. As in the above analysis there was a significant main effect of day, $F(1, 53) = 14.83$, $p < .05$. There was also a marginally significant main effect for facilitator, $F(11, 53) = 1.97$, $p < .06$; and a significant day by facilitator interaction, $F(11, 53) = 2.75$.

The means and standard deviations for the summary ratings for the different facilitators are shown in Table 4. An examination of these means indicates that of the two facilitators with the highest summary ratings (M = 4.79 and M = 4.68), one was in the IMPACT condition and one was in the NO-IMPACT condition. Likewise, of the two facilitators with the lowest summary ratings (M = 3.72 and M = 3.72), one was in the IMPACT condition and one was in the NO-IMPACT condition. Therefore, it appears that although there were reliable differences between the facilitators, these differences were not confounded with condition.

Table 4

Cadets' Summary Ratings on the DMG Session Evaluation Form for Each Facilitator

Condition	**Week**	**Facilitator**	**M**	**SD**	**N**
IMPACT	1	A	4.14	.57	6
	1	B	4.15	.51	5
	1	**C**	**4.79**	**.28**	**5**
	2	*D*	*3.72*	*.53*	*4*
	2	E	4.13	.35	6
	2	F	4.38	.34	8
NO-IMPACT	1	G	4.17	.44	3
	1	**H**	**4.68**	**.25**	**4**
	1	I	4.12	.30	5
	2	J	4.08	.38	6
	2	*K*	*3.72*	*1.09*	*6*
	2	L	4.17	.35	7

Note. The facilitators in bold type had the highest summary ratings, while the facilitators in shaded italics had the lowest summary ratings.

The means and standard deviations for cadets' responses on the Cadet Post-Test Questionnaire are shown in Table 5 for the IMPACT and NO-IMPACT conditions for each of 10 rating scales. These data indicate that overall the cadets in both conditions rated the DMG sessions positively on the 5-point scales where high numbers indicate positive evaluations. In general, cadets in the IMPACT condition rated the DMG sessions somewhat more positively than the cadets in the NO-IMPACT condition, however this effect was not found to be significantly reliable. A two-factor ANOVA with condition and week as between-subject factors was conducted on the average evaluation rating, which was computed for each cadet by summing his or her ratings on all of the scales except question number 8. There was no

significant main effect of condition, $F < 1$. Nor was there a significant main effect due to week $F < 1$, or a significant interaction between condition and week, $F < 1$.

Table 5

Cadet Responses to the Post-Test Questionnaire for IMPACT and NO-IMPACT Conditions

Rating Scale	Condition	M	SD
1. Participation in DMG sessions should improve my ability to make rapid decisions on the battlefield.	**IMPACT**	**4.28**	**.62**
	NO-IMPACT	4.13	.87
2. I learned a great deal about MOUT by participating in the DMG sessions.	**IMPACT**	**3.81**	**1.08**
	NO-IMPACT	3.65	.88
3. I learned a great deal of new information about MOUT in today's DMG session.	**IMPACT**	**4.18**	**.76**
	NO-IMPACT	4.16	.90
4. DMG sessions provide cadets with valuable opportunities to practice their decision-making skills.	**IMPACT**	**4.39**	**.69**
	NO-IMPACT	4.32	.87
5. Participating in the DMG sessions made me think about the many different factors involved in making rapid decisions in MOUT settings.	**IMPACT**	**4.59**	**.61**
	NO-IMPACT	4.35	.87
6. The MOUT scenarios described in the DMG sessions were challenging given my current knowledge of MOUT.	**IMPACT**	**4.39**	**.69**
	NO-IMPACT	4.12	.81
7. I would like to participate in DMG sessions in the future.	**IMPACT**	**4.23**	**.83**
	NO-IMPACT	4.08	1.04
8. DMG sessions demonstrated that other cadets can look at the same situation and come up with very different (but reasonable) courses of action.	**IMPACT**	**4.41**	**.76**
	NO-IMPACT	4.04	.92
9. DMG sessions demonstrated that the decisions platoon leaders have to make in MOUT situations involve a surprising number of subtle judgments.	**IMPACT**	**4.43**	**.69**
	NO-IMPACT	4.23	.79
10. Participation in the DMG sessions should improve my ability to communicate orders to my subordinates.	**IMPACT**	**4.29**	**.69**
	NO-IMPACT	4.12	.88

Note. No significant differences were found.

Facilitator Questionnaires

The officers who participated in both the IMPACT and NO-IMPACT conditions were asked to rate 11 items that elicited their self-assessment of their skill at facilitating the DMG

sessions and the usefulness of these sessions. The means and standard deviations for their responses are shown in Table 6. A set of t-tests indicated that there are no significant differences between the IMPACT and NO-IMPACT conditions for any of the items.

The officers who participated in both the IMPACT and NO-IMPACT conditions were also asked a series of open-ended questions to determine how much time they had spent in preparation for the DMG sessions, what else we could have done to better prepare them for leading these sessions, and suggestions for how to improve the DMGs. On the average, officers in the IMPACT condition spent 130 minutes (SD = 30.98) preparing for the sessions and officers in the NO-IMPACT condition spent 55 minutes (SD = 34.35). When asked what we could have done to better prepare them for leading the DMG sessions, two of the six facilitators in each condition replied "nothing," whereas all of the other officers indicated they would have liked more background information on the specific scenario or more information on MOUT. The officers in both conditions seemed to like the DMGs used in the Day 1 and Day 2 sessions, however, several of them had suggestions for improving them.

The officers who participated in the IMPACT condition were also asked to evaluate the usefulness of the IMPACT CD. In general, they had very favorable responses to the IMPACT CD. The average "usefulness" rating of the different instructional modules was a "4" on a 5-point scale where 5 was labeled "extremely useful" and 1 was labeled "not at all useful." The mean rating of the usefulness of the Introduction Module was 4.5 (SD = .55); the mean rating of the usefulness of the module on how to facilitate a DMG was 3.67 (SD = 1.03); and the mean rating of the usefulness of the DMC module was 4.33 (SD = .82).

When asked what they didn't like about the IMPACT CD, several officers expressed concern about the need for a relatively sophisticated computer system to run this software. The computers they were using did not support it adequately, and they thought other officers might encounter similar problems in the field.

All of the facilitators in the IMPACT condition indicated they were likely to incorporate elements of the DMC in their future AARs (M = 3.67, SD = .82, on a 5-point scale where "5" was labeled "very likely" and "1" was labeled "not at all likely"). When questioned about the key differences between the DMC and traditional AARs, the majority of the officers made comments about the DMC's increased focus on decision factors rather than tactics or procedures.

As a manipulation check we included a question on the IMPACT Facilitators Post-Test Questionnaire that asked them whether or not they used the DMC when facilitating their DMG sessions. Five of the six officers indicated they used most of the DMC questions and one reported he used a similar approach but did not use any of the specific questions provided in the DMC. Unfortunately, this self-reported use of the DMC did not correspond to the observations made by the research team members who observed some of the DMG sessions. The officer who reported he did *not* use the DMC questions did incorporate the gist of these questions in his debrief, whereas another officer who said he used the DMC questions failed to incorporate *any* of the questions in his debrief. This lack of correspondence between self-reported use of the DMC and our observations of the officers' actual performance as facilitators leads us to question the effectiveness of our IMPACT versus NO-IMPACT manipulation.

Table 6

Facilitator Responses to the Facilitator Post-Test Questionnaire for IMPACT and NO-IMPACT Conditions

Rating Scale	Condition	M	SD
1. The DMG sessions I conducted were valuable learning experiences for the cadets who participated.	**IMPACT**	**3.83**	**1.17**
	NO-IMPACT	4.00	.00
2. Participation in the DMG session like the ones I conducted should improve the participants' ability to make rapid decisions on the battlefield.	**IMPACT**	**3.83**	**.75**
	NO-IMPACT	4.00	.00
3. DMG sessions provide participants with valuable opportunities to practice their communications skills.	**IMPACT**	**3.33**	**1.03**
	NO-IMPACT	3.67	.52
4. DMG sessions provide cadets with valuable opportunities to practice their decision-making skills.	**IMPACT**	**4.17**	**.75**
	NO-IMPACT	4.17	.41
5. Participating in the DMG sessions made me think about the many different factors involved in making rapid decisions in MOUT settings.	**IMPACT**	**4.33**	**.52**
	NO-IMPACT	4.50	.55
6. The DMG sessions provided a great context for me to share my knowledge of battlefield tactics with a group of cadets.	**IMPACT**	**3.50**	**1.22**
	NO-IMPACT	4.08	.91
7. As the facilitator I was able to keep all of the cadets actively involved during the DMG sessions.	**IMPACT**	**3.50**	**1.22**
	NO-IMPACT	4.08	.49
8. As the facilitator I was able to focus the group's discussion on the critical factors that influence rapid decision making in battlefield settings.	**IMPACT**	**3.67**	**.82**
	NO-IMPACT	4.17	.41
9. I am likely to use DMGs in the future to improve the decision-making skill of my subordinates.	**IMPACT**	**4.00**	**.63**
	NO-IMPACT	4.00	.63
10. DMG sessions demonstrated that other cadets can look at the same situation and come up with very different (but reasonable) courses of action.	**IMPACT**	**4.50**	**.55**
	NO-IMPACT	4.92	.20
11. I would have been more confident facilitating DMG sessions focused on traditional battlefield scenarios instead of MOUT scenarios.	**IMPACT**	**3.33**	**.52**
	NO-IMPACT	2.92	1.80

Note. No significant differences were found.

DISCUSSION

This preliminary evaluation study was conducted in order to obtain feedback from Army officers about the usability of IMPACT and to better understand methodological issues involved in measuring decision quality. We were particularly interested in whether Army officers would be able to learn to use the DMC to facilitate DMG sessions based on the training they received from IMPACT alone (without participating in a DST workshop). We also wanted to further develop strategies to measure decision quality in order to compare the decision-making performance of individuals who participated in DMG sessions led by an IMPACT-trained facilitator (the IMPACT groups) to individuals who participated in DMG sessions led by facilitators who had not had access to IMPACT (the NO-IMPACT groups). We reasoned that if we had successfully implemented our DST program in IMPACT, then we should see improved decision-making performance from individuals who participated in DMG sessions led by facilitators who used IMPACT. The results of this study are mixed: it appears that IMPACT is a very usable training tool, but this particular study was unable to demonstrate that it improves the decision-making performance of trainees. Regarding methodological issues, we were able to develop an objective test to measure decision quality, as well as a process that resulted in reliable ratings of decision quality from subject-matter experts.

Usability of IMPACT

The officers who participated in the DMC condition were asked to evaluate the usefulness of the IMPACT CD and, in general, had very favorable responses. The average "usefulness" rating of the different instructional modules was a "4" on a 5-point scale where 5 was labeled "extremely useful" and 1 was labeled "not at all useful." All six of the facilitators in the DMC condition indicated they were likely to incorporate elements of the DMC in their future AARs. In general, the feedback from the officers in the DMC condition suggests the IMPACT CD is a easy-to-use training tool which teaches Army officers how to facilitate DMGs using a debriefing technique that focuses trainees' attention on the cognitive aspects of decision making (e.g., the DMC).

Although trainers reported that IMPACT is a valuable and highly usable training tool, we found few statistically significant differences between trainees in different conditions. The discussion below explores possible reasons for the lack of measurable differences in decision quality.

There are many reasons why we did not observe performance differences between the cadets in the IMPACT and NO-IMPACT conditions. Of course it is possible that the lack of observed differences reflects the fact that the DST approach implemented in IMPACT is not an effective approach for training recognitional decision-making skills. However, we caution the reader against interpreting null findings in this manner. There are two other explanations for the observed lack of differences between groups. First, the manipulation of the IMPACT versus NO-IMPACT training was not very strong. Second, the participants in the evaluation study may not have been the most appropriate sample for testing the effectiveness of IMPACT/DST.

DST is not meant to be a "quick fix" type of training approach (Pliske et al., 2001). Ideally, DST is implemented from the top down in organizations. Supervisors would learn how to use tools such as the DMC to share their domain-relevant expertise with their subordinates. It takes time for supervisors to learn how to use tools like the DMC. In most of our previous DST efforts, we have held multi-day workshops in which trainers get opportunities to practice using the DST tools and are provided feedback from experienced facilitators. Ideally, after trainers become proficient at using the DST tools they would then use them with their subordinates within the context of their jobs.

The officers who participated as the trainers in our evaluation study at USMA had only a few hours available to review IMPACT prior to conducting their DMG sessions. Several of the officers reported that their computer systems did not fully support the IMPACT CD, which could have diminished its effectiveness as a training tool. They had no opportunity to practice the new skills they learned about on the CD, nor did they have an opportunity to get feedback on how to effectively use tools such as the DMC. Most of the officers had only limited experience in the MOUT domain and may not have had a great deal of expertise to share with their trainees. Although all the officers reported experience-facilitating groups, they were not trainers. Therefore, they may not have been particularly motivated to improve their training skills. The cadets who participated as the trainees in our evaluation study had very little prior military experience and had even less sophistication with MOUT. And perhaps, most importantly, the officers and the cadets were not part of operational units, which may also have affected their motivation to learn how each other "thinks" in battlefield situations.

These limitations of our sample may have contributed to the lack of differences we observed in the performance of the IMPACT and NO-IMPACT groups. However, the most serious limitations to the implementation of DST in the evaluation study is that the cadets in the IMPACT groups had only two opportunities to participate in DMG training sessions with facilitators who had been trained to use the DST approach. The facilitators were most likely still getting used to using the DMC and leading the role-play that is critical to the DST approach. Furthermore, while the three DMGs represented the same general level of difficulty, each DMG addressed distinct MOUT decisions and challenges. Therefore it was not possible for cadets to apply lessons they learned from one DMG to their decisions on the following DMG(s). More importantly, it may not be possible to improve recognitional decision-making skills within only two training sessions. Unfortunately, the cadets at USMA were only available for participation in a maximum of three 55-minute sessions, which is why they only had the opportunity to receive two training sessions prior to the test session.

Although we were unable to demonstrate reliable differences between the cadets in the IMPACT and NO-IMPACT conditions in terms of the performance measures (the MOUT Knowledge Test and the test day DMG Response Forms), we were able to demonstrate a reliable difference in the DMG Session Evaluation Forms. Given the limitations of the study discussed above, this is somewhat surprising. It appears that in general, cadets in the IMPACT conditions had a more positive learning experience than cadets in the NO-IMPACT conditions.

Methodological Issues

Researchers who study naturalistic decision making (NDM) have struggled with how to operationalize measures of decision-making quality. Because the NDM perspective does not accept normative models of decision making (such as Bayes' Theorem) as being appropriate for evaluating decision making in the real world, NDM researchers are left without a mathematical criterion to judge the "goodness" of a decision maker's performance. The most typical solution to this problem is to have SMEs rate the quality of the decision maker's performance. We have struggled in the past to develop a process that would result in reliable ratings from SMEs who often have somewhat different ideas about what constitutes "good" decision making for a specific domain relevant problem. The process used in the present study resulted in extremely high inter-rater reliabilities and will be useful in future research efforts.

Another innovation included in the present evaluation study was the development and use of a multiple-choice test of the participants' recognitional decision-making skill within a particular domain. We developed the MOUT Knowledge Test (Appendix D) used in the present study based on the results of our Cognitive Task Analysis in this domain. With the help of SMEs we were able to develop a scoring key for this objective test. This approach to measuring recognitional decision-making skill appears to be very promising and should be examined in future research efforts.

The feedback we received from the officers about the usefulness and usability of IMPACT was very positive. They found the CD "clean and easy to understand," and most commented that the video clips were most helpful for providing examples of good and bad facilitation techniques. Many noted the enhancement that the DMC offers to current AAR practices, and indicated that they would use these methods in the future. Some indicated that the study was a "good learning event" for them and that they enjoyed participating in the research. One officer noted that "DMGs are a great tool and should be made available to all cadets and leaders in the Army!"

In sum, our results suggest that we have succeeded in developing a CD-ROM version of our DST program that Army officers find usable and that shows them how to facilitate DMGs using the DMC. In addition, important developments in measuring decision quality were made. However, it is not clear that instructors using the techniques in IMPACT can produce better learning on the part of students. It may be that IMPACT is not as powerful as the train-the-trainer workshop. It is also possible that the non-significant findings are a result of artificialities in the evaluation environment. The cadets in the IMPACT condition only had the opportunity to participate in two DMG sessions, which may not have been enough time to result in improved recognitional decision skills. Another artificiality introduced by the design of the evaluation study was that the DMG sessions were implemented differently than they would normally be, with more emphasis on recording courses of action than critiquing time-pressured decision making. In addition, cadets may not have perceived the DMG sessions as particularly relevant since they are not currently facing MOUT decisions. Furthermore, the random assignment of participants to sessions may preclude the urgency to improve skills across team members who rely on one another, as we have witnessed when DST is administered within an operational unit. Further evaluation efforts that resolve the limitations of the current study are necessary to

determine whether the MOUT DST program is effective in improving decision-making performance.

REFERENCES

Chi, M. T. H., Glaser, R., & Farr, M. J. (Eds.). (1988). The nature of expertise. Mahwah, NJ: Lawrence Erlbaum Associates.

Ericsson, K. A., & Charness, N. (1994). Expert performance: Its structure and acquisition. American Psychologist, 49(8), 725-747.

Klein, G. (1997). The recognition-primed decision (RPD) model: Looking back, looking forward. In C. E. Zsambok & G. Klein (Eds.), Naturalistic decision making (pp. 285-292). Mahwah, NJ: Lawrence Erlbaum Associates.

Klein, G. A. (1989). Recognition-primed decisions. In W. B. Rouse (Ed.), Advances in man-machine systems research (Vol. 5, pp. 47-92). Greenwich, CT: JAI Press, Inc.

McCloskey, M. J., Pliske, R. M., Klein, G., Heaton, J. K., & Knight, B. J. (1997). Decision skills training: Preparing Marine squad leaders for Hunter Warrior (Technical report submitted to SYNETICS Corporation for Commandant's Warfighting Laboratory, Special Purpose Marine Air-Ground Task Force under Contract No. N00178-95-D-1008, King George, VA). Fairborn, OH: Klein Associates Inc.

Phillips, J., McCloskey, M., McDermott, P. L., Wiggins, S., Battaglia, D. A., & Klein, G. A. (2001). Decision skills training for small-unit leaders in military operations in urban terrain (Research Report No. 1776). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Phillips, J., McDermott, P. L., Thordsen, M., McCloskey, M. J., & Klein, G. (1998). Cognitive requirements for small unit leaders in military operations in urban terrain (Research report 1728). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (ADA 355505)

Pliske, R. M., McCloskey, M. J., & Klein, G. (2001). Decision skills training: Facilitating learning from experience. In E. Salas & G. Klein (Eds.), Linking expertise and naturalistic decision making (pp. 37-53). Mahwah, NJ: Lawrence Erlbaum Associates.

Schmitt, J. F. (1994). Mastering tactics. Quantico, VA: Marine Corps Association.

APPENDIX A

DECISION MAKING GAMES FOR DAYS 1, 2, AND 3

Title	Difficulty Level
Nightmare on Elm Street	Intermediate

Scenario Text

Task Organization: Bravo Company, 1st Battalion, 5th Infantry (Light)

1st Platoon

2nd Platoon

3rd Platoon

You are the leader of 2nd Platoon, Bravo Company.

I. Situation

Task Force Hardnose, 1st Battalion, 5th Infantry Division (Light) has been deployed as part of a U.N. humanitarian effort to provide relief to the war-ravaged country of Nubania. Nubania has several towns of impoverished, hungry civilians, many of who have been left homeless by the war that has recently ended. The task force's broad mission is as it has been for the three months that they have been deployed in Nubania: To maintain order and discipline and to provide a security presence.

All villages in the area are in the same general condition. The towns are in a state of impoverished decay. Homes are simple. They are all basically constructed of plywood and are one story. The structure is the same for most dwellings: four small rooms, each room often packed full of residents. Most street blocks have four homes – two per side backing two others. Separating the backyards of the houses are rickety, 6-foot, wooden fences. The local marketplace consists of several small stands covered by tent-tops, where elderly women sell food and clothing.

A. Enemy Forces (Intelligence Reports)

Corbia's local police force is virtually non-existent since order is only now being restored to this region. You know many of the civilians now fairly well, and they are familiar with you. Most seem to appreciate your presence, although a few malcontents are not uncommon. You have a pretty decent understanding of who the more troublesome civilians are in this town, since you have been there for so long. Since the police force is not a presence to speak of, you have been assigned the additional duty of policing the town, quelling disturbances, and dealing with domestic disputes. The civilians have access to few weapons. Occasionally, you must confiscate a Molotov cocktail, a grenade, or an old semi-automatic rifle from a rabble-rouser, but so far, no one in your platoon has been injured.

The weather is hot and humid, winds are variable, and the temperature is at least 90°F.

B Friendly Forces

1st Battalion, 5th Infantry performs security operations in Sector Zulu to prevent civilian unrest and maintain peace until Nubania reorganizes its police force.

II. Mission

Bravo company secures Corbia, Tranganu, and Finki in order to prevent civilian unrest and maintain peace until Nubania reorganizes its police force.

III. Execution

A. Commander's Intent

I want each village tightly controlled to prevent civilian casualties. Ensure all weapons are promptly confiscated and destroyed per SOP. Keep good intelligence on troublemakers, but attempt to prevent provocation. Evacuate any casualties promptly to the Battalion Aid Station.

B. Concept of the Operation

1st platoon secures Tranganu in order to prevent civilian unrest and maintain peace until Nubania reorganizes its police force. 2nd platoon secures Corbia in order to prevent civilian unrest and maintain peace until Nubania reorganizes its police force. 3rd platoon secures Finki in order to prevent civilian unrest and maintain peace until Nubania reorganizes its police force.

IV. Rules of Engagement

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

V. Scenario

Your platoon is conducting an on-foot patrol of Corbia. You are walking west on Oak Street talking with the occasional civilian who approaches you. Some local children follow you and your men, begging for MREs and candy. “Another boring day in paradise,” you think to yourself, as you continue your patrol.

Suddenly, you hear gunfire coming from about 100 yards north of your current position. A civilian runs up to you and tells you that Alki has shot and killed his wife in an argument and has also shot into the intersection, hitting two of his neighbors. You know Alki to be one of the town drunks. “Where the hell did he get a semi-automatic?” you think. At the same time, you remember that this citizen also has two small children who are likely in the house. You radio the company commander who tells you it is imperative to immediately get the situation under control because the battalion commander said and then the radio goes out. Further efforts to reach the company commander are fruitless. You are currently 5 km from the company assembly area and consequently 5 km from other known friendly units.

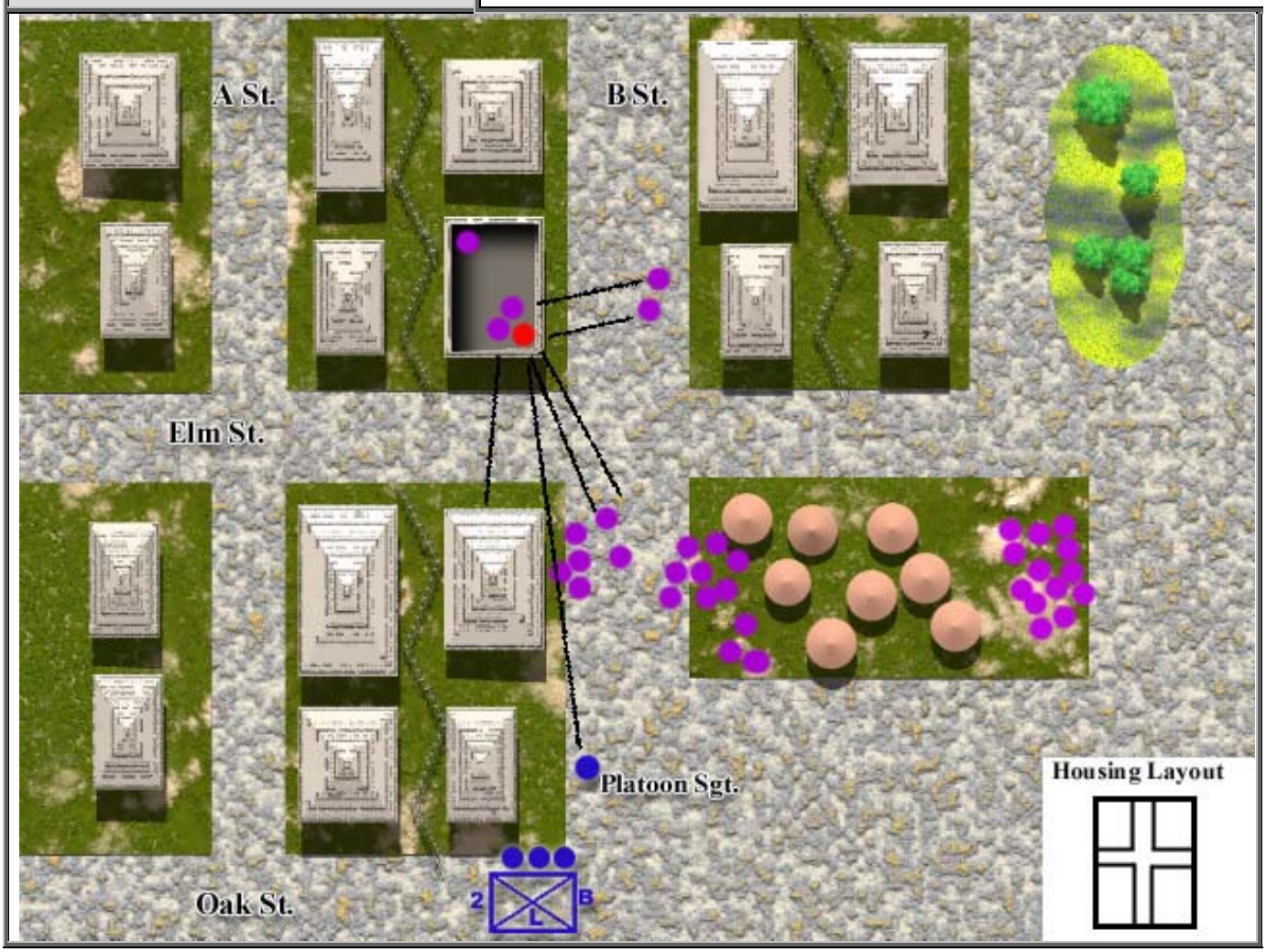
A crowd from the marketplace is now looking on in fear. They all expect you to restore order to their fragile existence. You hear Alki cry out in his native tongue. A local citizen translates: “I’m fed up. I’m going to kill everyone!” As you eye the situation from a distance, gunfire from the house suddenly sprays down B street and hits at least two people from the marketplace, not to mention your platoon sergeant, grazing him in the shoulder.

What do you do?

VI. Requirement

In a time limit of 2 minutes, determine what course of action you will take and issue your plan in the form of orders to your squad leaders.

Scenario Diagram



Title	Difficulty Level
Caught in the Intersection	Intermediate

Scenario Text

Task Organization: Bravo Company, 1st Battalion, 5th Infantry (Light)

1st Platoon

2nd Platoon

3rd Platoon

You are the leader of 2nd Platoon, Bravo Company.

I. Situation

The small, allied European nation of Klinger has been invaded by the neighboring country, Sandia. The Sandians have ruthlessly pushed south, through countless small villages, in an effort to reach the capital city of Kaytown. Task Force Thunder, 1st Battalion, 5th Infantry Division (Light) has been deployed as part of a U.N. fighting force to repel the invaders. The U.N. force has succeeded in halting the advance of the invading enemy, and is currently pushing them back toward their national boundary.

A. Enemy Forces (Intelligence Reports)

Sandian forces are comprised of mostly light infantry and lightly armored wheeled vehicles, operating in platoon and squad size elements in your sector. They are armed with 7.62 mm machine guns and have light mortar capability, but the most common weapon is the AK-47. They do have limited grenades and light anti-armor weapons, with some RPGs. They will usually avoid an all out engagement, but have been known to engage platoons in sector and try to attrite forces through sniper attacks and ambushes.

The weather is hot and humid and the temperature is 85F.

B. Friendly Forces

1st Battalion, 5th Infantry attacks in zone to destroy enemy forces in order to allow Klinger forces to defend Kaytown.

II. Mission

Bravo Company attacks to destroy enemy forces in Zone Lima in order to allow Alpha Company to seize the Kaytown Expressway Bridge to prevent Sandian forces from attacking Kaytown.

III. Execution

A. Commander's Intent

I want all villages in our zone cleared of Sandian forces. Search each building and village thoroughly. Don't leave any building unchecked. I don't want any enemy forces to be able to impact Alpha Company's attack on the bridge or to linger behind if we have to pull out of sector.

B. Concept of the Operation

1st platoon, main effort, clears the village of Garbanza in order to prevent enemy forces from attacking Alpha Company from the east. 2nd platoon clears Hampton in order to prevent enemy elements from setting up ambushes along the Garbanza/Hampton road. 3rd platoon clears the village of Mordozi to prevent enemy forces from infiltrating along the riverbank. Priority of mortar support to 1st platoon.

IV. Rules of Engagement

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

a. 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.

b. Hostile fire may be returned effectively and promptly to stop a hostile act.

c. U.S. forces can use any force deemed necessary under the circumstances and proportional to the threat.

d. Detention of civilians is authorized for security reasons, self-defense, or to support achievement of the mission.

V. Scenario

Your company has been moving north, conducting clearing operations through several, war-ravaged, deserted villages as you make your way forward. Your company commander has entered the village of Hampton ahead of you with 1st and 3rd platoons, expecting to pass through unimpeded and clear the northern villages of Garbanza and Mordozi that will allow Alpha Company to seize the critical bridge. However, you hear on the radio that the company is encountering unexpected enemy resistance. The company commander estimates the enemy strength at company-level. He calls back ordering you to reinforce the rest of the company at the corner of Elm and Banner.

You are just entering Hampton from the south as you get the call from the Captain. Your platoon is traveling in HUMVEEs. As you enter the village, you see that Hampton is comprised of about 15 brick and wooden buildings ranging from one to three-stories. The buildings are in varied states of decay. You are with 1st squad in the lead, heading north on Banner. 2nd and 3rd squads follow behind. Your platoon sergeant is with 3rd squad.

You proceed through the intersection of Banner and Carter unimpeded, and continue toward your company. As you look back, you observe that 2nd squad is now through the intersection. Suddenly, 3rd squad comes under attack from the east. Judging from the small arms fire, you estimate an enemy force of 5-10 enemy soldiers. Again from the east, someone launches a rocket grenade that hits one of the HUMVEEs. Almost immediately you get a call from 3rd squad leader. “We’ve got two serious injuries here and one disabled HUMVEE. I could use some help!” The Captain radios in, too. He tells you they have engaged the enemy and traded several casualties. He is in need of immediate assistance. Judging from the map, they are still about 1 km away.

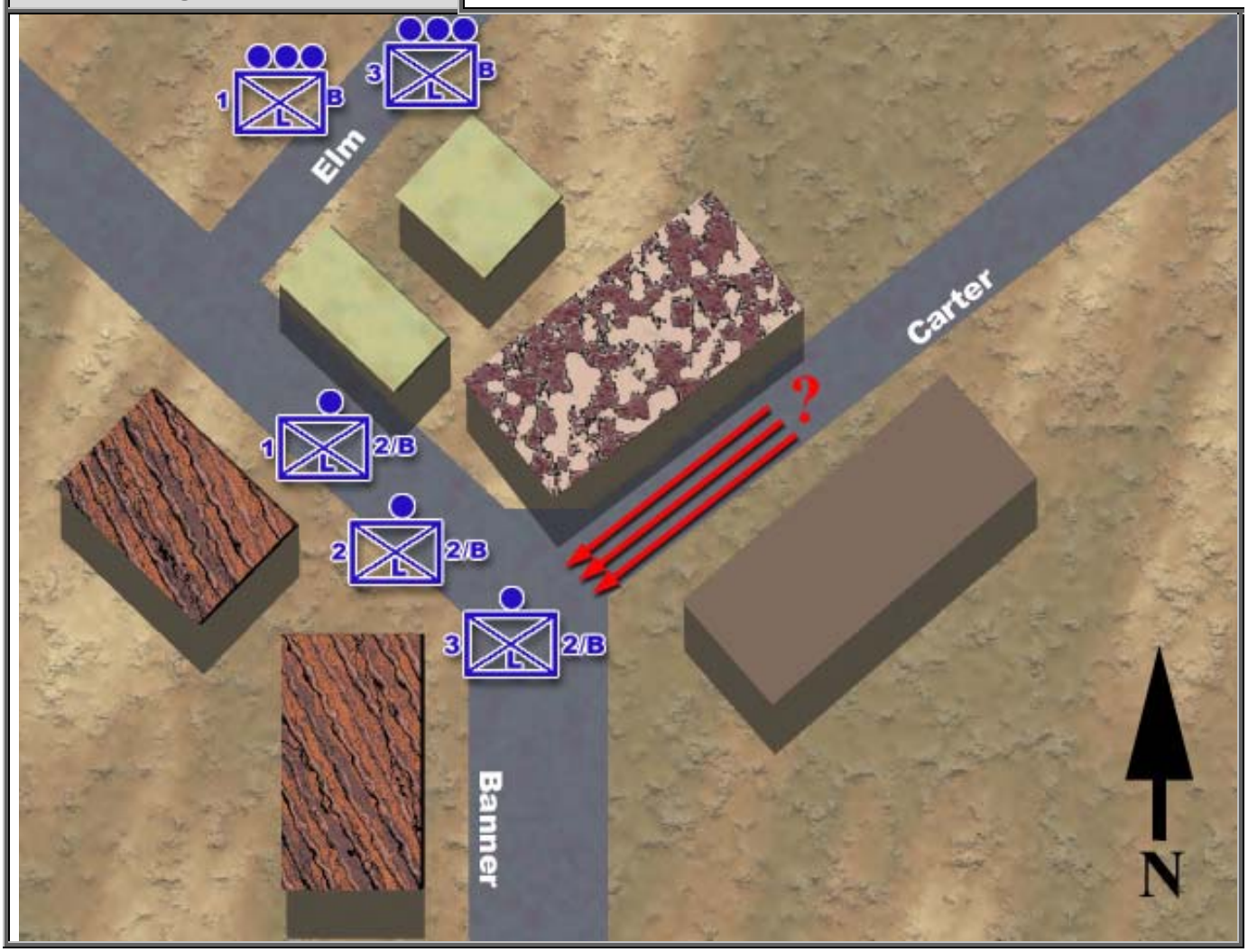
Meanwhile, 3rd squad is now stopped in the middle of the intersection, and you have no radio comms with them. They continue to take a steady stream of fire, and have exited their vehicles to use them for cover as they return fire. A member of 1st squad yells to you that he thinks he saw movement in an upper story window in the building to your left.

What do you do?

VI. Requirement

In a time limit of 2 minutes, issues your orders along with any other communications you may make. Provide reasons for your actions.

Scenario Diagram



Title	Difficulty Level
A Deadly Approach	Intermediate

Scenario Text

Task Organization: Bravo Company, 1st Battalion, 5th Infantry (Light)

1st Platoon

2nd Platoon

3rd Platoon

You are the leader of 2nd Platoon, Bravo Company.

I. Situation

In the past six months, the province of Amwellia has suffered terrorist activities of increasing magnitude, most of which have been aimed at the Muslim population and their religious sites. The Kona, a semi-organized rebel faction from a neighboring province, has all but admitted to the terrorism. In response to the attacks, the Amwellian Muslims have organized a military group that has carried out its own terrorist activities aimed at the Kona. The Muslims call themselves the Butri.

Two weeks ago, after escalation of terrorism by both sides, the Kona invaded the Amwellian city of Botswell. Botswell has a population of about 20,000, about half of whom are Muslims. Since the initial invasion, the Kona and Butri have been vying for control of the city, neither group able to establish and maintain a strong foothold.

Task Force Strongarm, 1st Battalion, 5th Infantry (Light) has been deployed as part of a U.N. humanitarian effort in Amwellia. As a result of the fighting the city has been cut off from the rest of the country, and civilians are beginning to feel the food and supply shortages. The UN is responding by initiating relief efforts to Botswell.

There are two major, armed factions fighting for control of this high-desert country. Violent clashes with Soviet-weapons—typically AK-47s and RPGs and truck-mounted machine guns—are not uncommon. The factions are very difficult to distinguish, and often they appear no different from the local civilians.

A. Enemy Forces (Intelligence Reports)

The Kona are a group of a few hundred men, most of whom are armed with rifles and hand grenades. A few have been seen with machine guns and RPGs. They tend to move in groups of 4-5. It is unclear who their leader is, and how well they are organized. Their communications gear seems to be primitive and basic, and on a good day the groups of 5-6 men will have one radio amongst them. The Kona tend to fight only if they have the upper hand, but when they do, they attack fiercely to seize control of a building or area.

The Butri seem to have more men than the Kona, but are less well equipped. Their weapon types are the same as the Kona, but they have fewer of them, and sometimes not enough to arm all their soldiers. Their operations are only semi-organized, and mostly defensive in nature. They tend to dig into key areas of the city to prevent the Kona from taking those areas.

The civilians in Botswell are clearly siding with the Butri, but not to the extent that they will join in the fighting. They tend to stay close to their homes as much as possible, however it is not unlikely to see groups of 2 or 3 walking briskly down the streets to the market. Some of the more affluent civilians have evacuated the town, but about 70% remain.

The city of Botswell covers approximately 10 square miles. It is situated in a slight valley, with rolling hills on the outskirts of the city. Vegetation is desert-like, with brush and occasionally small trees dotting the landscape. Within the city, trees have been preserved but brush has been removed. The roads within the city are mostly dirt, with a few major roads paved with cement slabs. Almost all roads are 12 feet wide, the major ones perhaps 14 feet wide. The buildings in Botswell vary quite a bit in terms of their construction. Most are one-story, with a few two- and three-story buildings located in the central, “downtown” area. The residential buildings are generally made of plaster or wood, while the more commercial and governmental buildings tend to be made of brick or concrete blocks. Across the street from the town hall and in the area surrounding the mosque are sacred courtyards contained by 2-feet high stone walls.

Intel has reported that there has been a significant amount of unrest in Amwellia in the past week. Small bands of 5-6 men from the factions will pass though town, and have often started skirmishes or drawn sniper fire, resulting in significant civilian injuries and even deaths. You have been told that you are currently the only peacekeeping forces in the village.

The weather is muggy and dry, winds are variable, and the temperature is 80F.

B. Friendly Forces

1st Battalion, 5th Infantry provides security in Amwellia in order to support U.N. efforts to provide humanitarian relief to affected civilian populations.

II. Mission

Bravo Company provides security for medical and food relief missions in Botswell to protect U.N. personnel and allow civilians free and unhindered access to U.N. medical and food relief teams.

III. Execution

A. Commander's Intent

I want each platoon positioned vicinity of the relief operation sites in Botswell to provide security against any hostile force intent on disrupting the food and medical distribution. Ensure that civilians have access to each site. Secure the site and prevent disruption from factional elements. Protect the U.N. operation at your site. Remain on station to allow the medical team to depart unharmed out of the area.

B. Concept of the Operation

1st platoon secures Site East in order to protect and allow civilian access to U.N. relief teams. 2nd platoon secures Site Central in order to protect and allow civilian access to U.N. relief teams. 3rd platoon secures Site West in order to protect and allow civilian access to U.N. relief teams. No fire support is available.

IV. Rules of Engagement

Nothing in these rules negates your inherent right to use reasonable force to defend yourself against dangerous personal attack.

a. Deadly force may be used only when fired upon, when clear evidence of hostile intent exist, or when armed elements, mobs, and/or rioters threaten human life, sensitive equipment and aircraft, or open and free passage of relief supplies.

b. In situations where deadly force is not appropriate, use the minimum force necessary to accomplish the mission.

c. Unattended means of force (e.g., mines, booby traps, trip guns) are not authorized.

d. U.S. forces will not endanger or exploit the property of the local population without their explicit approval.

e. Treat all persons with dignity and respect.

f. Placing fire on religious sites is not authorized.

V. Scenario

Your platoon's current mission is to take control of a key intersection in central Botswell and secure the area so that food and medical supplies can be distributed to civilians from the town hall. In order to secure this intersection, you must clear and take control of the town hall, which is on the southeast corner of Manna and Holti Streets. S-2 reports do not indicate that either faction occupies the town hall or any nearby buildings. However, you have been warned of their potential presence in the area, given the centrality of the intersection.

It is 0100. The skies are cloudless and the moon is a crescent. Your platoon consists of 5 fire teams with 3 SAWs. All of your soldiers are equipped with NVGs. Your plan is to walk south down Manna Street and set up an overwatch in the two-story warehouse on the northwest corner; the warehouse has second-story windows that provide a good view of the town hall and the entire intersection. You need to have the town hall cleared in time for food and supplies to be distributed starting at 0800 tomorrow.

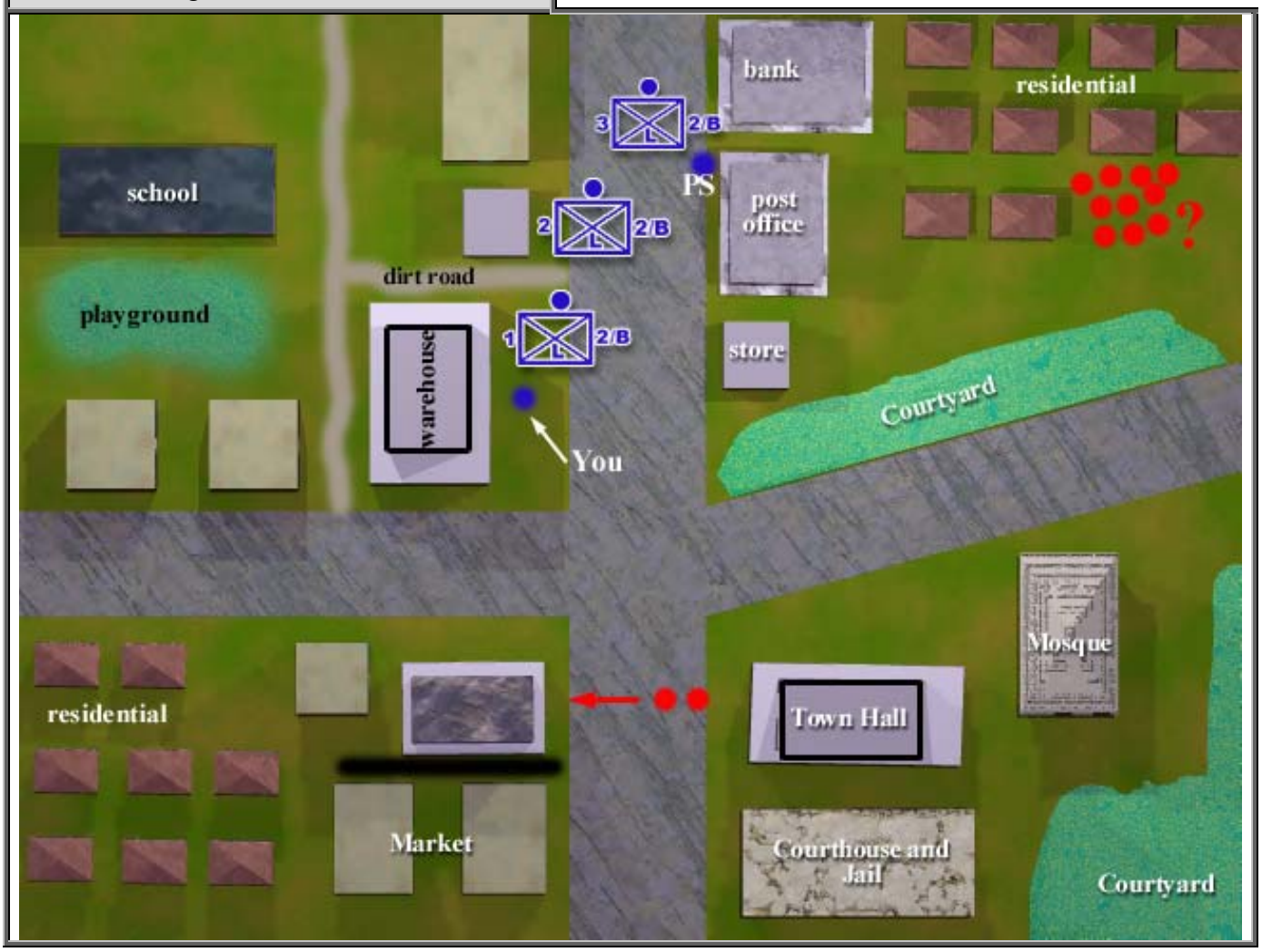
As you approach the warehouse, you notice that the back door has seen better days – there are at least three sizable dents in the door, and the lock and handle apparatus look to have been jimmied. But you can't tell from your current position whether the perpetrators were successful at getting into the warehouse. You scan the area, and spot two men with rifles slung, carrying large duffle bags, walking quickly but cautiously across Manna Street, heading west from the town hall. Then you get a radio call from your platoon sergeant: "There's some commotion over here in the residential area. I can't tell who they are, but I see at least 20 people moving around. Looks like they're up to no good.

What do you want to do?"

Requirement

In a time limit of 2 minutes, issue your orders and intent to your three-squad leaders. Include any additional communications you will make.

Scenario Diagram



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APPENDIX B

HOW TO CONDUCT A DECISION MAKING GAME

Instructions:
How to Conduct a Decision Making Game (DMG)
IMPACT

Guidelines for Facilitators:

Over the next two days you will be conducting Decision Making Game (DMG) seminars. This guide will give you an idea of what to do in the seminars and the order in which to do it.

There are 8 general steps for the seminar. Below you will see the 8 steps, a brief description of what to do in each, and a sample dialogue (when relevant). The samples are intended to be used as examples of possible wording for various phases of the seminar. Please use the samples as a starting point in leading the sessions. We encourage you to use your own words in facilitating the sessions rather than reading the sample dialogue to the class.

1. Introduction

Give a brief introduction to the students about what they will be doing over the course of the next hour.

Sample dialogue: *"Good afternoon. Today we will be participating in a study about developing training for soldiers faced with challenges in urban combat. We will be practicing making decisions and choosing courses of actions in MOUT scenarios***.**

We will be doing an exercise, called a Decision Making Game, or DMG. I will read you a scenario about a battlefield situation. You will have a few minutes to figure out your best Course of Action (COA). You will have to write you answers down NEATLY and LEGIBLY on the DMG Response Form. We'll then discuss different individuals' responses to the scenario."

2. Materials

Pass out the DMG Response Form to the students. Please have them write their name and the date at the top of the form.

Sample dialogue: *"This is the DMG Response Form we will be using.* ***Please make sure that you include your name and today's date at the top of form.*** *I want you to have a look at this before we start, so you are familiar with the things you will be asked to write when the time comes. We will complete one Decision Making Game today. You will complete additional decision games over the next two days."*

3. Read The Scenario

Read the DMG scenario. Use an overhead projector to show the map that corresponds to the scenario. Point out buildings, locations, or landmarks on the map as you read about them.

***Sample dialogue*:** *"Let me read you the scenario. This game is called _____. (Fill in the name of the appropriate Decision Making Game.) You are the leader of the 2nd platoon, Bravo Company…"*

4. Allow Participants To Ask Questions

Ask the cadets if they have any questions about the scenario. Only answer questions that will clarify the scenario. Some questions may require answers that provide *additional* information to what is written in the scenario. If you choose to answer these questions, please make sure your responses are consistent with the information presented in the scenario. You may also reply to any question, "You would not have that information."

5. Give The Students Time To Complete The DMG Response Form

***Give the students four minutes to communicate their COA in the form of orders. Remind them to write neatly and legibly*.**

Sample dialogue: *"You have **four** minutes to write your orders and assessment of the situation on the DMG response form. Please write as neatly and legibly as possible."*

6. Allow Students To Present Their Responses

Call on a student to state his/her orders as if s/he were the platoon leader in this scenario. Assign the role of squad leaders to other students in the class.

Use the Decision Making Critique (DMC) to facilitate group discussion. Some of the key steps are reviewed in Section 7. When asking questions from the DMC, put them in words you are comfortable with. If you don't get a response, try phrasing the questions in a different way. Don't feel like you have to follow the DMC word-for-word.

7. Conduct the Decision Making Critique (DMC)

Step 1: ***Begin the process by having participants identify critical decision points.***

After the orders are issued, start the debrief by asking the following question:

What was the first tough decision you faced?

(At this point, it is helpful to have the participant point out decision points on a map display as s/he discusses them).

Sample dialogue: *What was the most difficult decision you had to make in this situation?*

Step 2: ***After students identify each tough decision, focus the discussion to further break down each decision.***

One of the more challenging aspects of good facilitating is to notice differences in responses and to make those differences visible to the class. There is a tendency for participants to agree too quickly that their responses are basically the same. Don't bow to this pressure. Take the time to pursue subtle differences in responses, for they almost always reflect very different perceptions of the same situation.

For each critical decision ask:

- Why was it difficult?
- Why did you choose that course of action?
- What one piece of missing information would have helped you the most?
- What other actions did you consider? Why didn't you choose them?

Listen for disagreement among the class. Follow up. Ask those who disagree to explain their positions.

Sample dialogue: *"Williams, you mentioned that the decision to do 'X' was difficult. Why was that difficult?"* When you ask these questions, be patient. Allow the participants time to think, and don't get uncomfortable with periods of silence. Continue to probe, even after they provide an initial answer: *"What else made that a difficult decision?"* If they can't think of anything else, try asking, *"How would a brand new soldier mess up this decision? Why?"*

Listen to parts of the response that suggest difficult elements, and follow up on those. Also, ask others in the class to provide their thoughts on these questions. The more you can get the rest of the class involved, the better.

Ask another student to state his/her orders as if s/he were the platoon leader in this scenario and repeat Steps 1 and 2.

Step 3: ***Use the following set of questions to summarize the lessons learned from the training exercise.***

Ask:

- What would you do differently if you were in this situation again?
- What was our biggest weakness? What was our biggest strength?
- What are some important lessons learned from this exercise?

When asking these questions, be sure to ask several trainees for their perspectives. You might want to write the lessons on the board to summarize the exercise.

Listen for: How class members would make decisions differently (seek out more information, check assumptions, be more attentive to cues).

Sample dialogue: *"Based on what we've been discussing here, if you were placed in this situation again, what would you do differently?"* (Give them some time to think). "*Why?"* To the class*: "Who would do something differently?"* Take some time here to probe this question.

Tips for Facilitating the Decision Making Critique

- Try to keep everyone involved, but don't get sidetracked. Don't stay on one topic so long that you lose class member interest. Keep class members engaged.
- Listen for statements that will open the door for more discussion (e.g., "What I needed from him was ...I just assumed that they knew that ...I don't know where I would find that out...").
  You want to stimulate class members to ask questions of themselves about what they should have known or seen.
- Don't get sidetracked into discussions of what was the best action. You are trying to change the way the class members think about things: the patterns they should have noticed, the early alarm bells that should have gone off.

Remember to reserve 5 minutes for the session evaluation form.

8. Distribute Session Evaluation Form

You will receive envelopes with evaluation materials from the Klein Associates representatives. At the end of each DMG session, designate one student to pass out and collect the materials in the envelopes. To ensure anonymity, wait in the hall while the students are writing. Then collect the sealed envelope and return it to the Klein Associates representatives.

Sample dialogue*: "Thank you all for participating. There is one more thing I need you to do. There are some questionnaires that need to be filled out. Do not put your name on the questionnaire, but please* ***include the date and my name****. It is very important that you be honest in all of your responses. I will not see your evaluations. The people running this study will use them, for research purposes only.*

Cadet Smith, please see that these questionnaires are distributed. When everyone is finished, collect both the ***questionnaires*** *and the* ***DMG response forms****, seal them in the envelope, and hand them to me. I will be waiting in the hall."*

Instructions:
How to Conduct a Decision Making Game (DMG)
NO-IMPACT

Guidelines for Facilitators:

Over the next two days you will be conducting Decision Making Game (DMG) seminars. This guide will give you an idea of what to do in the seminars and the order in which to do it.

There are 8 general steps for the seminar. Below you will see the 8 steps, a brief description of what to do in each, and a sample dialogue (when relevant). The samples are intended to be used as examples of possible wording for various phases of the seminar. We encourage you to use your own words in facilitating the sessions rather than reading the sample dialogue to the class.

1. Introduction

Give a brief introduction to the students about what they will be doing over the course of the next hour.

Sample dialogue: *"Good afternoon. Today we will be participating in a study about developing training for soldiers faced with challenges in urban combat. We will be practicing making decisions and choosing courses of actions in MOUT scenarios***.**

We will be doing an exercise, called a Decision Making Game, or DMG. I will read you a scenario about a battlefield situation. You will have a few minutes to figure out your best Course of Action (COA). You will have to write you answers down NEATLY and LEGIBLY on the DMG Response Form. We'll then discuss different individuals' responses to the scenario."

2. Materials

Pass out the DMG Response Form to the students. Please have them write their name and the date at the top of the form.

Sample dialogue: *"This is the DMG Response Form we will be using.* ***Please make sure that you include your name and today's date at the top of form.*** *I want you to have a look at this before we start, so you are familiar with the things you will be asked to write when the time comes. We will complete one Decision Making Game today. You will complete additional decision games over the next two days."*

3. Read The Scenario

Read the DMG scenario. Use an overhead projector to show the map that corresponds to the scenario. Point out buildings, locations, or landmarks on the map as you read about them.

Sample dialogue: *"Let me read you the scenario. This game is called _____." (Fill in the name of the appropriate Decision Making Game.) You are the leader of the 2nd platoon, Bravo Company…"*

4. Allow Participants To Ask Questions

Ask the cadets if they have any questions about the scenario. Only answer questions that will clarify the scenario. Some questions may require answers that provide *additional* information to what is written in the scenario. If you choose to answer these questions, please make sure your responses are consistent with the information presented in the scenario. You may also reply to any question, "You would not have that information."

5. Give The Students Time To Complete The DMG Response Form

Give the students four minutes to communicate their COA in the form of orders. Remind them to write neatly and legibly.

Sample dialogue: *"You have **four** minutes to write your orders and assessment of the situation on the DMG response form. Please write as neatly and legibly as possible."*

6. Allow Students To Present Their Responses

Call on a student or students to present his/her plan to the group. Use the standard After Action Review (AAR) format to facilitate group discussion. Some of the key steps in the AAR are reviewed in Section 7.

7. Conduct the After Action Review

Step 1: Establish what happened. *For this DMG session, discuss the likely outcome(s) of the plan generated and briefed by an individual student (or several students).*	The facilitator and the participants determine what actually happened during performance of the training task.
Step 2: Determine what was right or wrong with what happened. *For this DMG session, discuss what was right or wrong with plan(s) briefed by students.*	The participants establish the strong and weak points of their performance. The facilitator plays a critical role in guiding the discussions so that conclusions reached by participants are doctrinally sound, consistent with Army standards, and relevant to the wartime mission.
Step 3: Determine how the task should be done differently the next time. *For the DMG session, discuss how the DMG should be addressed if it were a real-world situation.*	The facilitator leads the group in determining exactly how participants will perform differently the next time the task is performed. This results in organizational and individual motivation to conduct future sustainment training at desired levels of proficiency.
Step 4: Perform the task again. *Your class will have an opportunity to respond to another DMG in Session 2.*	This is done as soon as possible to translate observation and evaluation into corrective action. Additional training allows the participants to apply the lessons learned during the AAR. Leaders understand that all tasks will not be performed to standard. Therefore, during the short-range and near-term planning process, they provide flexibility in training events and schedules which allow for additional training immediately following the AAR.

Remember to reserve 5 minutes for the session evaluation form.

8. Distribute Session Evaluation Form

You will receive envelopes with evaluation materials from the Klein Associates representatives. At the end of each DMG session, designate one student to pass out and collect the materials in the envelopes. To ensure anonymity, wait in the hall while the students are writing. Then collect the sealed envelope and return it to the Klein Associates representatives.

Sample dialogue*: "Thank you all for participating. There is one more thing I need you to do. There are some questionnaires that need to be filled out. Do not put your name on the questionnaire, but please* ***include the date and my name****. It is very important that you be honest in all of your responses. I will not see your evaluations. The people running this study will use them, for research purposes only.*

Cadet Smith, please see that these questionnaires are distributed. When everyone is finished, collect both the ***questionnaires*** *and the* ***DMG response forms****, seal them in the envelope, and hand them to me. I will be waiting in the hall."*

APPENDIX C

DMG RESPONSE FORMS AND TEST DAY DMG RESPONSE FORMS

DMG Response Form
Today's Date: _____ Your Facilitator:_____ Your Name:_____

You have approximately 4 minutes to write down your responses. **PLEASE WRITE LEGIBLY** so someone else can read it.

1) **State your orders in the exact language** that you would use to deliver them to your squad leaders and other attached units (if applicable).

Squad leader 1:

Squad leader 2:

Squad leader 3:

Additional units (if applicable):

2) **State any additional communications** you would make to people outside of your platoon. Specify to whom you would be communicating. Note that not all DMGs involve communication outside of your platoon.

3) **Describe your assessment of the situation**—what do you believe is happening in this DMG? (You can continue on the back of this form if you need more room.)

DMG Test Form
Today's Date: _____ Your Facilitator:_____ Your Name:_____

Part 1. You have approximately 3 minutes to write down your communications. **State your orders in the exact language** that you would use to deliver them to your squad leaders and other attached units (if applicable). **PLEASE WRITE LEGIBLY** so someone else can read it.

Squad leader 1:

Squad leader 2:

Squad leader 3:

Additional units (if applicable):

2) **State any additional communications** you would make to people outside of your platoon. Specify to whom you would be communicating. Note that not all DMGs involve communication outside of your platoon.

DMG Test Form
Today's Date: _____ Your Facilitator:_____ Your Name:_____

Part 2. You have approximately 5 minutes to answer the following questions about the DMG. Please write legibly so someone else can read it.

1) **Describe your assessment of the situation**—what do you believe is happening in this DMG?

2) **Elaborate on your plan** that you communicate to your squad leaders (and other additional units) in Part 1—what are you trying to accomplish? Why did you choose this other course of action?

3) **What is your greatest concern** given the situation described in the DMG?

APPENDIX D

MOUT KNOWLEDGE TEST

Today's date:_____ Your facilitator's name:_____

MOUT KNOWLEDGE TEST
(Acceptable Answers in Bold)

This questionnaire consists of two scenarios, each with 8 questions, that require you to make judgments about the situation. You are the platoon leader. Read the scenario and then answer the questions that follow. Choose the best answer of those available. Circle your choice.

Scenario One

You are the platoon leader of 3rd Platoon, B Company and are involved in a high-intensity conflict. Your unit is part of a brigade task force attempting to push the invading Mahrian army north, toward their own border, after their invasion of an allied country. Your platoon is the rear element of B Company. You are in HMMWVs mounted with M-240 machine guns and have stopped momentarily in a town that 1st and 2nd platoons cleared of enemy soldiers 4 days ago. You are currently in a large one-room warehouse, checking and reloading supplies, and communicating with key leaders in the platoon. 1st and 2nd squad leaders are in the warehouse with you. 3rd squad leader is outside overseeing the reloading of supplies into the HMMWVs. The machine gunners are outside, pulling local security on the warehouse and your position. It is nighttime and 2200, the skies are overcast, and the weather is 90°F and humid.

As part of your current operation order, the company commander's intent follows:

I want all villages thoroughly searched and cleared of all enemy elements. We cannot allow enemy forces to escape the villages and conduct hit and run operations against the battalion's rear line of communications. Destroy all enemy forces in sector.

Your mission is:

3rd Platoon, B Company, clears Sector Charlie in order to keep battalion lines of communication open along Route Zulu.

Your ROE are the following:

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

a. *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.*
b. *Hostile fire may be returned effectively and promptly to stop a hostile act.*
c. *U.N. 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.

Your platoon has had no enemy contact over 5 days. Your earlier engagements involved just a few (4-8) enemy soldiers who surrendered when they saw you approach. The company commander is with 1st and 2nd platoons, 2 km due north of your position.

In the middle of updating your squad leaders, your RTO hands you the radio mike. It's the company commander. He is yelling above the sounds of explosions and the sound of machine gun fire in the background. You receive a transmission from him: "I need you to move immediately out of that town

and catch up with us! We're taking heavy fire from …" The rest of his message is garbled and then goes dead before you can respond. Attempts to get him back on the radio are not successful.

You direct your leaders to go to Redcon One for immediate movement north. However, the reloading is only half complete. There is still some ammunition, fuel, and rations inside the warehouse. You are inside the warehouse giving a Frago to your platoon sergeant when you hear gunfire, AK-47 you believe, erupt outside, followed by the unmistakable sound of M-16s. 3rd squad leader radios in to you: "LT, we are taking enemy fire from the grocery store 20 meters to our northeast. No one seems to have been hit. We've taken cover behind the vehicles and in doorways, and have returned fire. From the rate of fire, I'd say there are about five or six weapons trained on us. We're not taking fire from any other buildings, but one of my guys thought he just saw something move in the house directly across the street. What do you want to do, LT?"

Scenario One Questions

1. Which is the most likely number of hostiles located in the town?
    a. Less than a squad
    b. **Squad-size**
    c. Platoon-size
    d. Company-size

2. What is the most likely enemy situation?
    a. The enemy sent a unit to recon the town, and they unexpectedly found your platoon
    b. **A civilian faction in the town has decided to attack US forces**
    c. **An enemy element is deliberately attacking your platoon to support their attack against your company in the north**
    d. **A small group of enemy soldiers avoided contact when 1st and 2nd platoons cleared the town**

3. What is the most likely enemy's intent in the town?
    a. **To prevent your unit from aiding the rest of the company in the firefight to the north**
    b. **To regain control of the town and defend it**
    c. **To seize your supplies**
    d. Simply self-defense

4. Which of the following is most likely to happen next?
    a. **3rd squad begins taking fire from the house directly across the street**
    b. Your platoon begins taking indirect fire
    c. The hostiles surrender
    d. 3rd squad takes a casualty

5. After you've eliminated the immediate threat, which is your primary objective?
    a. **Secure and occupy the grocery store**
    b. Finish reloading supplies to prevent their theft
    c. **Break contact and move into position to support the company commander**
    d. Investigate the house directly across the street

Today's date:_____ Your facilitator's name:_____

6. The grocery store is a one-story building the size of a typical 7-Eleven. Its walls are concrete. There are front and back entrances; 2 windows are located on both the north and south walls of the store, and 1 window is located on both the east and west walls. If you were to order the store to be cleared of the hostiles, how would you divide your platoon?

    a. Three squads clear the building while machine gunners provide support and security
    b. Two squads clear the building while squad and machine gunners provide security
    c. **One squad clears the building while two squads and machine gunners provide security**
    d. **One squad secures the area with the machine gunners, one squad conducts a breach of the building, and one-squad assaults and clears the building**

7. What immediate orders should you give to your squad leaders?

    a. Cease fire and then evaluate the situation
    b. **Return fire and suppress the building in order to clear it**
    c. **Cease fire, maintain security, and finish loading supplies**
    d. **Abandon supplies, suppress enemy positions, and break contact with the enemy to get to the rest of the company**

8. After contacting 3rd squad on the radio, who do you communicate with next?

    a. Platoon Sergeant
    b. **Try the company commander again**
    c. **1st or 2nd platoon leaders on the company net**
    d. Switch to battalion net and call the Main CP

Scenario Two

You are the platoon leader of 3rd platoon, A Company. Your company is part of a U.N. task force to provide peacekeeping and humanitarian assistance to the war-ravaged country of Rashanna. Rashanna has several towns of impoverished, hungry civilians, many of whom have been left homeless by the war. The task force has been in Rashanna for 3 months, and its broad mission remains the same: Maintain order and discipline in the country, and provide a security presence. Your company is operating mainly in three villages. The commander's intent is as follows:

> *I want each village tightly controlled to prevent civilian casualties. Ensure all weapons are promptly confiscated and destroyed per SOP. Keep good intelligence on troublemakers, but attempt to prevent provocation. Evacuate any casualties promptly to the Battalion Aid Station. Keep a special eye out for demonstration and protest or any acts of violence by the locals. If disturbance breaks out, bring to a halt using the most expedient means.*

Your platoon is currently located in the town of Tralley, where conditions are similar to most villages in the country. The homes are simple one-stories constructed of plywood. Almost all have four small rooms, each packed full of residents. The street blocks have 4 homes situated on each – 2 per side, backing the others. Separating the back yards of the houses are rickety, 6-foot wooden fences. The local marketplace consists of several small stands covered by tent-tops, where elderly women sell food and clothing.

Today's date:_____ Your facilitator's name:_____

Tralley's local police force is virtually non-existent since order is only now being restored to the region. Your platoon has been policing the region – quelling disturbances and handling domestic disputes – while the local force reorganizes. You know many of the civilians fairly well, and they are familiar with you. Most seem to appreciate your presence, although a few malcontents are not uncommon. The civilians have access to a few weapons. On occasion you have confiscated a Molotov cocktail, a grenade, or a semi-automatic rifle from a rabble-rouser, but so far nobody in your platoon has been injured. Lately, however, civilians have been telling you that a few of the more rebellious townspeople are plotting some form of uprising for *El Dia Del Guapo*, the anniversary of the death of the instigator of the rebellion. Given the language barrier, and the way rumors are known to spread in this area, you are not sure how much stock to put in this latest one.

Your platoon is conducting an on-foot patrol of Tralley on the eve of El Dia Del Guapo. You are with 2nd squad walking north on Sosa Ave. You notice an unnatural emptiness to the streets. Your platoon sergeant is up with 1st squad, 50 meters north of your position. 3rd squad is 75 meters to your rear. Your platoon sergeant radios in: "Sir, we've just spotted four civilians carrying what looks like crates of oranges from a truck into the warehouse a block up. Two more civilians are guarding the door of the warehouse. It looks like whatever they're unloading, they're protecting it closely. From what I can see inside the warehouse, there are at least three more men in there. Some I recognize as troublemakers. The others I've never seen before. And there are three kids there playing marbles or something."

You call the company commander who is roughly 3 km away in the village of Daka. "We're seeing the same thing going on over here," he tells you. "We've confiscated a couple crates of grenades and '47s. It's getting hairy here. 3rd platoon had one casualty today. A couple civilians tell me that at sundown tonight the plan is for all hell to break loose. You need to clear that warehouse immediately, and stop things before they start."

You contemplate how you're going to stop them while adhering to the ROE:

a. You have the right to defend yourself against attacks or threats of attack.
b. U.S. forces should use the minimum force necessary under the circumstances and proportional to the threat.
c. Hostile fire may be returned effectively and promptly only to promote the safety of peacekeeping forces.
d. You may seize the property of others to accomplish your mission.
e. Detention of civilians is authorized for security reasons or for self-defense.
f. Placing fire on religious or cultural centers or toward schools or hospitals is forbidden.

Just then, another truck pulls up to the warehouse. It is full of crates. Five men jump out and immediately begin unloading. It is clear they don't see your platoon yet, even though 1st squad is only a block away. The time is 1900, thirty minutes until sundown.

Scenario Two Questions

1. What is the most likely intent of the civilians in and around the warehouse?
   a. **Instigate random mayhem and destruction**
   b. Organize a rebellion against your platoon and the U.N. task force
   c. Organize a faction and take control of the village
   d. Throw a riotous celebration of El Dia Del Guapo

Today's date:_____ Your facilitator's name:_____

2. What immediate orders should you give to your squad leaders?
    a. **Conceal your positions and continue to watch the situation unfold**
    b. Each squad fire one warning shot
    c. Continue your patrol with triggers ready
    d. **Clear the warehouse**

3. Of the following, what is most likely to happen next?
    a. Another truck arrives at the warehouse
    b. **The guards at the door of the warehouse notice your platoon**
    c. Large numbers of civilians approach and enter the warehouse
    d. The civilians in the warehouse begin shooting

4. Of the following, which is your primary objective?
    a. **Investigate the contents of the crates**
    b. **Take control of the warehouse**
    c. Remove the children from the area
    d. **Secure the area surrounding the warehouse to be in position to stop whatever violence might occur**

5. If you could have one of these pieces of information, which would help you the most?
    a. What 1st and 3rd platoons are encountering in the villages they are patrolling
    b. **Whether all the civilians in and around the warehouse are locals from Tralley, or whether some have come from another village**
    c. **How Rashannans typically act on Holidays of this sort**
    d. Whether ROE can change in situations like this

6. Which course of action is most appropriate?
    a. **Take no action unless the civilians initiate hostile acts**
    b. **Use force to clear the warehouse**
    c. One squad attempts to talk to the people unloading the truck while the other two squads provide security
    d. Take no action until you can get reinforcements

7. As the crates are unloaded from the truck, one falls and several bottles of whiskey scatter to the ground as the men frantically try to catch them. You know that Rashannans drink whiskey like Americans drink water. Based on this additional information, what is your assessment of the civilians' intent?
    a. **Instigate random mayhem and destruction**
    b. Organize a rebellion against your platoon and the U.N. task force
    c. Organize a faction and take control of the village
    d. **Throw a riotous celebration of El Dia Del Guapo**

8. The crate that fell from the truck contained several AK-47s instead of bottles of whiskey. Based on this information, what is your assessment of the civilians' intent?
    a. **Instigate random mayhem and destruction**
    b. Organize a rebellion against your platoon and the U.N. task force
    c. Organize a faction and take control of the village
    d. Throw a riotous celebration of El Dia Del Guapo

APPENDIX E

SESSION EVALUATION FORMS AND CADET POST-TEST QUESTIONNAIRE

Today's date: _____ Facilitator name:_____

SESSION EVALUATION FORM

Please circle a number on the scale below to indicate the extent to which you agree or disagree with the following statements. These statements all concern the Decision Making Game (DMG) session about Military Operations in Urban Terrain (MOUT) that you participated in today. Your answers are for research purposes only—they will not be shared with the facilitator so please give us your honest opinion. Thanks!

1. Today's DMG session was a valuable learning experience for me.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

2. Participation in today's DMG session should improve my ability to make rapid decisions on the battlefield.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

3. I learned a great deal of new information about MOUT in today's DMG session.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

4. The facilitator did an outstanding job of leading today's DMG session.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

5. Today's DMG session provided participants with a valuable opportunity to practice their communication skills.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

Today's date _____ Your name _____

6. Today's DMG session provided participants with a valuable opportunity to practice their decision-making skills.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

7. The facilitator helped me think about the many different factors involved in making rapid decisions in MOUT settings.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

8. The MOUT scenario described in the DMG was challenging given my current knowledge of MOUT.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

9. The facilitator kept all of the students actively involved during the DMG session.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

10. I would like to participate in more DMG sessions in the future.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

Today's date _____ Your name _____

CADET POST-TEST QUESTIONNAIRE

Please circle a number on the scale below to indicate the extent to which you agree or disagree with the following statements. These statements all concern the Decision Making Game (DMG) sessions about Military Operations in Urban Terrain (MOUT) that you participated in during the past few days.

1. Participation in DMG sessions should improve my ability to make rapid decisions on the battlefield.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

2. I learned a great deal of new information about MOUT by participating in the DMG sessions.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

3. DMG sessions allowed me to hear my fellow cadets describe the thinking that went into their solutions to the DMGs.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

4. DMG sessions provide cadets with valuable opportunities to practice their decision-making skills.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

5. Participating in the DMGs sessions made me think about the many different factors involved in making rapid decisions in MOUT settings.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

Today's date: _____ Facilitator's Name:_____

6. Overall, the MOUT scenarios described in the DMGs were challenging given my current knowledge of MOUT.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

7. I would like to participate in more DMG sessions in the future.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

8. DMG sessions demonstrated that other cadets can look at the same situation and come up with very different (but reasonable) courses of action.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

9. DMG sessions demonstrated that the decisions platoon leaders have to make in MOUT situations involve a surprising number of subtle judgments.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

10. Participation in the DMG sessions should improve my ability to communicate orders to my subordinates.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

APPENDIX F

FACILITATOR POST-SESSION QUESTIONNAIRE

FACILITATOR POST-SESSION QUESTIONNAIRE—NO-IMPACT

This information is for research purposes only so please give us your honest opinion. Thank you for your participation.

Part I. Please circle a number on the scale below to indicate the extent to which you agree or disagree with the following statements.

1. The DMG sessions I conducted were valuable learning experiences for the cadets who participated.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

2. Participation in DMG sessions like the ones I conducted should improve the participants' ability to make rapid decisions on the battlefield.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

3. DMG sessions provide participants with valuable opportunities to practice their *communication* skills.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

4. DMG sessions provide cadets with valuable opportunities to practice their *decision-making* skills.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

5. Facilitating these DMG sessions made me think about the many different factors involved in making rapid decisions in MOUT settings.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

Today's date: _____ Facilitator's Name:_____

6. The DMG sessions I facilitated provided a great context for me to share my knowledge of battlefield tactics with a group of cadets.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

7. As the facilitator, I was able to keep *all* of the cadets actively involved during the DMG sessions.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

8. As the facilitator, I was able to focus the group's discussion on the critical factors that influence rapid decision making in battlefield settings.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

9. I am likely to use DMGs in the future to improve the decision-making skill of my subordinates.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

10. The DMG sessions demonstrated that different cadets can look at the same situation and come up with very different (but reasonable) courses of action.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

11. I would have been more confident facilitating DMG sessions focused on traditional battlefield scenarios instead of MOUT scenarios.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

Today's date: _____ Facilitator's Name:_____

Part II. Please provide your answers to the following questions in the space provided. If need be, you can continue your answer on the back of this form.

1. How much time did you spend preparing for the first DMG session?

2. How much time did you spend preparing for the second DMG session?

3. What could we have done to better prepare you for your role as the facilitator for these DMG sessions?

4. What suggestions for improvements do you have for the DMG scenario used for the first DMG session you facilitated?

Today's date: _____ Facilitator's Name:_____

5. What suggestions for improvements do you have for the DMG scenario used for the second DMG session you facilitated?

6. Do you have any other suggestions or comments?

THANK YOU FOR PARTICIPATING!

FACILITATOR POST-SESSION QUESTIONNAIRE—IMPACT

This information is for research purposes only so please give us your honest opinion. Thank you for your participation.

Part I. Please circle a number on the scale below to indicate the extent to which you agree or disagree with the following statements.

1. The DMG sessions I conducted were valuable learning experiences for the cadets who participated.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

2. Participation in DMG sessions like the ones I conducted should improve the participants' ability to make rapid decisions on the battlefield.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

3. DMG sessions provide participants with valuable opportunities to practice their *communication* skills.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

4. DMG sessions provide cadets with valuable opportunities to practice their *decision-making* skills.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

5. Facilitating these DMG sessions made me think about the many different factors involved in making rapid decisions in MOUT settings.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

Today's date: _____ Facilitator's Name:_____

6. The DMG sessions I facilitated provided a great context for me to share my knowledge of battlefield tactics with a group of cadets.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

7. As the facilitator, I was able to keep *all* of the cadets actively involved during the DMG sessions.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

8. As the facilitator, I was able to focus the group's discussion on the critical factors that influence rapid decision making in battlefield settings.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

9. I am likely to use DMGs in the future to improve the decision-making skill of my subordinates.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

10. The DMG sessions demonstrated that different cadets can look at the same situation and come up with very different (but reasonable) courses of action.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

11. I would have been more confident facilitating DMG sessions focused on traditional battlefield scenarios instead of MOUT scenarios.

1	2	3	4	5
Strongly disagree		Neither agree or disagree		Strongly agree

Today's date: _____ Facilitator's Name:_____

Part II. Please provide your answers to the following questions in the space provided. If need be, you can continue your answer on the back of this form.

1. How much time did you spend reviewing the IMPACT CD *before* you facilitated the first DMG session?

2. Did you do anything else (besides reviewing the IMPACT CD) in order to prepare for the first DMG session? If so, please describe what you did and about how long you spent on this preparation.

3. How much time (if any) did you spend reviewing the IMPACT CD *after* you facilitated the first DMG session and before you facilitated the second DMG session?

4. Did you do anything else (besides reviewing the IMPACT CD) in order to prepare for the second DMG session? If so, please describe what you did and about how long you spent on this preparation.

Today's date: _____ Facilitator's Name:_____

5. What could we have done to better prepare you for your role as the facilitator for these DMG sessions?

6. What suggestions for improvements do you have for the DMG scenario used for the first DMG session you facilitated?

7. What suggestions for improvements do you have for the DMG scenario used for the second DMG session you facilitated?

8. On the scales below, please rate the usefulness of the different modules provided on the IMPACT CD for preparing you to facilitate the DMG sessions.

A. Introduction

1	2	3	4	5	NA
Not at all useful		Somewhat useful		Extremely useful	I didn't review this module

B. Facilitating DMGs

1	2	3	4	5	NA
Not at all useful		Somewhat useful		Extremely useful	I didn't review this module

Today's date: _____ Facilitator's Name:_____

C. Decision Making Critique (DMC)

1	2	3	4	5	NA
Not at all useful		Somewhat useful		Extremely useful	I didn't review this module

D. Creating DMGs

1	2	3	4	5	NA
Not at all useful		Somewhat useful		Extremely useful	I didn't review this module

E. DMG library

1	2	3	4	5	NA
Not at all useful		Somewhat useful		Extremely useful	I didn't review this module

9. How useful was the Decision Making Critique (DMC) when facilitating the DMG sessions with the cadets? Check the answer the best describes your use of the DMC.
   _____ I didn't try to use the DMC
   _____ I used a similar approach, but did not use any of the specific questions provided in the DMC
   _____I used most of the questions on the DMC

10. How similar is the Decision Making Critique to a standard After Action Review?

1	2	3	4	5
Not at all similar		Somewhat similar		Same

11. How likely are you to incorporate elements of the Decision Making Critique in future After Action Reviews you lead?

1	2	3	4	5
Not at all likely		Somewhat likely		Extremely likely

Today's date: _____ Facilitator's Name:_____

12. What do you think the key differences are (if any) between the Decision Making Critique (DMC) and the traditional After Action review (AAR)?

13. What did you like best about the IMPACT CD? Why?

14. What part of the IMPACT CD did you like the least? Why?

15. Do you have any other suggestions or comments? [About the IMPACT CD or the DMG sessions]

THANK YOU FOR PARTICIPATING!