Using Tactical Decision Exercises to Study Tactics

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What is necessary to be performed in the heat of action should constantly be practiced in the leisure of peace.

— Vegetius[1]

USING GAMES to train leaders is neither new nor revolutionary. Such methods date back to Sun Tzu.[2] Although initially played principally for amusement, such exercises were soon found to be worthwhile for training and educating students for their respective professions. Today, many organizations use similar practices to develop leaders and prepare them for decisionmaking under actual conditions. Notables include the U.S. Armed Services and some law-enforcement and fire-prevention services. The variation of such games found effective for training subordinates in decisionmaking skills is the tactical decision exercise (TDE).

The TDE provides an effective mechanism for developing individual ability to make decisions under physical and mental stress. While TDEs are not the perfect substitute for actual training and experience, they do serve to sharpen individual intuitive decisionmaking ability. In today's military, constrained as it is by shrinking budgets, personnel shortages, and numerous missions, TDEs provide leaders at all levels an opportunity to hone decisionmaking skills during scenarios that place the student-leader in stressful situations. Recently, there has been a resurgence of the TDE variety of war games. Experiences in peace operations have rekindled interest in the merits of using these role-playing scenarios to develop decisionmaking skills.

History of Wargaming

Who actually invented the first war game is unknown, but historians generally credit Prussian Baron von Reisswitz for being the first to move war games out of the entertainment realm and into the military. He designed the 1811 version of the game using scaled pieces to represent units. He later moved the game to a sand table containing features corresponding to actual terrain. Tthe pieces were no longer restricted to moving within the confines of the squares of a chessboard. Players could move the pieces freely within the capabilities of the respective units. The accompanying rules were also noteworthy because their foundation in military experiences of the day (Napoleonic Wars) added realism.

Reisswitz's game became extremely popular in courts and higher echelons of society, yet never really took root within professional military circles.[3] Many in the military were skeptical of the game's merits. In 1824, Reisswitz's son George, a lieutenant in the Prussian Guard Artillery, developed a more refined version of the game that included a number of improvements. He titled his version of the game "Instructions for the Representation of Tactical Maneuvers under the Guise of a War Game."[4]

The refined game included set-piece rules and incorporated actual topographical maps to represent the battlefield. The game gained widespread attention and eventually became a staple within the regiments. The game's intrinsic worth so impressed Lieutenant Helmuth von Moltke that in 1828 he founded a war-game club called the *Kriegspieler Verein*. In 1857, as the chief of staff in the Prussian Army, Moltke pushed the use of wargaming throughout the army.[5]

During the 1870-71 Franco-Prussian War, the heavily reserve- and militia-based Prussian Army soundly defeated the highly regarded French Army in a mere 5 months. The reversal of the balance of power in Europe was so rapid and unexpected that it shocked the world. Noted military historian Michael Howard writes that the nature of the Prussians' overwhelming victory was largely attributed to superior organization and education.[6] Their remarkable military successes prompted many other countries to analyze and incorporate some of the Prussian reforms into their own military establishments, one of which was officer education through war games and staff rides.

The United States also took note. In 1882, Major William R. Livermore devised the U.S. Army's first war game. His system, a close derivative of the Prussian models, was titled "The American Kriegsspiel, A Game for Practicing the Art of War on a Topographical Map." Shortly thereafter, William McCarty Little, a friend of Livermore's, developed a similar version for the U.S. Navy. Both variations became integral parts of the men's respective senior service school curriculums.[7]

Since the introduction of Reisswitz's initial game, there have been many adaptations. Some innovators developed a less rigid set of rules for the games, which became known as "free" kriegsspiels. These rules use an umpire to mediate results through subjective judgment calls rather than by using an extensive set of mathematical formulas and calculations. Naturally, recent technological developments enable the execution of both varieties of kriegsspiels via computers and simulations with relative ease. Perhaps it is safe to say that virtually

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all U.S. Armed Services incorporate such exercises into training strategies at nearly all echelons.

Another derivation of the war game is the TDE, wherein the participant is posed a military problem in the form of a situation and simple graphic. He is then given a short period in which to develop a solution and present it in the form of orders to subordinates.

Although unable to accurately trace the development of the TDE to any one individual, one thing remains constant: as with Reisswitz's invention, the TDEs' application within the military still lacks merit in some circles. Critics invoke the age-old argument that experience is the best form of training. While this might be true, conditions of peace and shrinking budgets challenge the Services' abilities to conduct exercises of such frequency and realism as to thoroughly train infantry leaders without some augmentation. More often than not, supplementary training is needed to bridge existing gaps. The Joint Readiness Training Center is one of a few sites that

facilitate effective training of units and their leaders under conditions comparable to combat. Although combat training centers offer remarkable experiences to rotational units, a typical brigade cycles through only about every 18 months.[8]

Even the mere title—"war game" or "exercise"— causes considerable debate. Rather than being caught up in whether it is a game or an exercise, it seems prudent to look toward what benefits can be derived from its execution. Using a TDE is not the cure-all for budget woes or lack of combat experience, nor is it a suitable replacement for unit training. However, it is a powerful tool that leaders and organizations can use with other methods and techniques to educate leaders and subordinates, as many organizations outside the military are discovering.

Benefits of Wargaming

More important than the history of such games is what they can do for those who use them. History illustrates how Germany, Britain, and the United States have successfully used adaptations to train and educate members in the practice of war. Decision exercises enable users to explore alternatives to problems and issues, generate discussions, and practice decisionmaking under a variety of situations and conditions. Recent studies delve even deeper into the development of an individual's decisionmaking ability. This brings up the question of whether a leader can be made. Perhaps or perhaps not, but participating in TDEs does develop an individual's ability to make better decisions more rapidly.

The U.S. Army Infantry School is attempting to create a means to exchange materials between the field and the schoolhouse for use in both noncommissioned officer and officer professional development. The Infantry Captains Career Course uses TDEs in the classroom for a variety of reasons. They help stimulate peer interaction and allow students to share experiences, insights, and tactics, techniques, and procedures (TTP). Although the scenarios place students in the role of infantry commander, any situation or role might suffice. Such exercises are limited only by creativity, target audience, and training objective. Any organization can tailor them to their specific needs.

The exercises simultaneously place the students as commanders in a tactical situation with a specific dilemma they must solve or address. The materials are a simple graphic or sketch (photo, map, or PowerPoint drawing) and a short, written narrative that provides the necessary detail for the issue at hand. The narrative also includes specific instructions on what the commander must do. He is also advised of how much time he has available. Typically, participants have anywhere from 5 to 15 min-

utes, depending on the exercise. The general requirement is for the commander to develop the orders that he would issue to his subordinates based on the situation. Once the time limit expires, all participants cease work, and the facilitator selects one of the students to issue his orders to the group. The student may elaborate on his selected course of action, answer any questions, and defend his rationale only after he issues his orders to his peers.

This type of small-group interaction is excellent for the sharing of ideas. There is no set solution, which typically fosters a spirited debate on the various ways by which the particular problem could have been solved. The TDE also allows small-group instructors (SGIs) to reinforce doctrinal principles (breaching fundamentals, engagement-area development, direct fire control, and so on) as well as to introduce a variety of TTP. Doing so works well whether the SGIs are just beginning the course and are attempting to reinforce the knowledge and comprehension level cognitive skills or toward the end when the students reach the evaluation level.

The instructors serve as facilitators for the discussions. Any number of students may brief their plans for an exercise; however, two student briefs usually suffice to bring up the salient points. Instructors select the different TDEs to coincide with the lessons. The TDEs usually come at the end of instruction for a respective lesson so as to highlight the importance of the training objectives. For example, an instructor might use a TDE based on a vignette of company commander in Korea to underscore the significance of a sound mission analysis using the factors of mission, enemy, terrain, troops, time available, and civilian concerns. The TDE places the students in a combat situation once faced by an infantry commander. The students discuss the historical vignette only after they have attempted their own solutions to the situation. This adds a new dynamic when they see how that commander fared under such circumstances.

"Paper" TDEs are also augmented with simulations. The key is finding a simulation with a pedagogic focus that enables participants to work on cognitive skills. An even trickier proposition is maintaining the suspension of disbelief. If the virtual world does not look, feel, or interact like the real thing, students will not become engaged. The object is not for them to feel they are simply on Day 3 of learning the importance of conducting a mission

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analysis. They must be able to use the process and tools that are taught and gain experience through various applications. The simulations simply serve as one of many instruments to reinforce training objectives and to gain valuable practice. Simulation allows the student to progress to the point where he can observe the ramifications of his decisions.

JANUS and the battalion battle simulation have been part of the Army's training curriculum for some time. They are effective at reinforcing some training objectives, but something more was needed for use in the small-group setting over shorter periods of time with an easier user interface. Some commercial off-the-shelf games, such as TACOPS, for simulating the TDEs and other exercises, failed to measure up as effective cognitive simulations.

Recently, the Institute of Creative Technologies and the Simulation, Training, and Instrumentation Command teamed up to build a specifically designed simulation from the ground up. The fortunate timing of the project capitalized on the transformation of technology toward a cost-effective, user-beneficial

simulation called Full Spectrum Command (FSC). Research actually began as a simple proof of concept for something to fill the current void of small-unit tactical simulations that could truly facilitate training junior leaders on cognitive skills and adaptive

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Participating in TDEs does develop an individual's ability to make better decisions more rapidly, but "Practice does not make perfect—perfect practice makes perfect." One of the great benefits of using TDEs in a group setting is that participants get feedback from other participants. There is no right or wrong answer when using TDEs. In fact, the answer is less important than the rationale and thought process behind the participant's answer.

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behavior. The final "Gold" 1.0 version will soon be available. The model now being tested by students is extremely impressive.

The simulation enables a student to execute TDEs and other missions in the classroom on a personal computer (PC) in a real-time, three-dimensional environment. Perhaps what is most noteworthy is that this is the first PC-based simulation that has an explainable artificial intelligence (AI), which means the AI can tell the student exactly what it did and why. This is a powerful tool and a wonderful augmentation to the instructor-facilitated after-action review (AAR) because the student will get the AI rationale on why it took certain actions.

The simulation is also built around current doctrine and lexicon so there are no work-arounds for existing shortcomings. The student simply inputs his plan by dragging tactical mission graphics onto a synchronization matrix. Once satisfied, he hits execute and enters the three-dimensional world as an active participant. The student can change his orders at any time through the issuance of fragmentary orders to subordinate units.

Because the simulation is in real time, the commander must adapt to any changing conditions without the benefits of artificial stoppages or turn-based play. Included are realistic audio and visual cues, as well as sounds of battle to add to the realism. While no simulation is a perfect substitute, FSC offers a new and unique ability to repetitively practice mission planning and adaptive reactions to changing conditions against an explainable AI. The 2.0 version will expand the capabilities of collaborative execution, increase the battlespace, and integrate additional assets. Full-spectrum command simply provides another effective medium for reinforcing cognitive skills training given the benefits of the latest technology.

The key to TDEs, whether done on paper or in simulation, is that they provide students repetitive practice in visualizing a tactical situation, describing that visualization, deciding on a course of action, and directing subordinates toward accomplishing the mission. The fact that they must brief their solution in the form of orders to their peers rather than to subordinates provides practice in exercising some of the facets of battle command. The recurring application of the mental skills needed to solve tactical problems helps students develop the ability to make sound, timely decisions and to issue clear, concise orders. Regardless of whether a group is peer-based or mixed, everyone benefits vicariously from the group's experiences and unique insights into the tactical problem and its solutions.

TDEs allow leaders to build teamwork and cohesion up and down the chain of command as well as among peers. The TDEs provide the opportunity for subordinates to gain insight into how the commander thinks about tactical problems and allow the commander to practice describing his vision and expressing his intent to the leaders who turn his vision and intent into action. The TDEs also afford subordinates, such as platoon leaders, the unique opportunity to perceive the commander's insight and understand his thought process when they all participate in a particular TDE. A common operational picture based on shared situational understanding will not appear magically once a unit crosses the line of departure; it begins with shared training and experiences among the unit's leaders. The TDEs provide a great place to begin building this understanding with minimal costs in resources and time.

And old adage states, "Practice does not make perfect—perfect practice makes perfect." One of the great benefits of using TDEs in a group setting is that participants get feedback from other participants. There is no right or wrong answer when using TDEs. In fact, the answer is less important than the rationale and thought process behind the participant's answer.

When the briefer explains the rationale to the group, the other members gain a better appreciation of the problem. The feedback and comments from the other participants provide the briefer with the insight with which to solve the tactical problem better next time. An individual capitalizes on the exercise because he improves his ability to quickly formulate and brief a plan. Leaders strengthen their ability to make sound decisions quickly by repeatedly practicing visualizing a situation, describing that visualization to others, and directing subordinates through orders and instructions. Regularly conducting such training develops an individual's ability to assess the situation and to issue orders. The critical part is rig-

TDG #1-01

LIGHT INFANTRY ATTACK OF A RIDGELINE

The god of war hates those who hesitate
— Euripedes: Heraclidae (circa 425 B.C.)

SITUATION — You are the commander of A/2-87 IN (L) consisting of 3 rifle platoons, an AT section, a mortar section, and a headquarters element. You are Javelin/240B equipped and are 100% on personnel and equipment.

For the last two weeks, your battalion has faced strong attacks from a regimental sized enemy light infantry element that managed to cross the Pecos River (northwest of Hill 122 off sketch). This was the last significant barrier between US forces and the enemy. As such, our division commander committed our brigade to block the penetration. Our battalion, as a supporting effort, is to seize a ridgeline that overlooks the river to facilitate the brigade (-) attack on the enemy's bridgehead. Hill 122 marks the start of this ridgeline. The battalion commander's intent is to destroy all crew served and AT weapons, control key hill tops on the ridge, and pass the Bde (-) unhindered along Axis White (which runs to the NW through CPs 2, 3, & 5 — CP 5 is to the northwest off of the sketch).

Your battalion has twice failed to seize the ridgeline in earlier attempts the past 2 days.

Since the other companies were a bit weakened from their assaults, the commander has chosen your company to lead this attack. You are to seize the high ground vicinity Hill 122 to secure a foothold in order to facilitate the battalion's seizure of the rest of the ridgeline and pass the brigade main attack.

You are the lead element in the battalion's movement and have priority of fires for FA. The DS artillery battalion (105mm) completed a 15-minute suppression mission on the objective in preparation for your assault. Anticipating a fierce fight based upon B Company's experiences yesterday, you transition into bounding overwatch as you cross Schiller's Bridge over the Bullfrog River. Your lead platoon makes it nearly to the marker atop Hill 122 when it comes under automatic weapons fire from the south.

The battalion commander calls for a Sitrep and informs you that C Company started taking mortar fire east of Schiller's Bridge.

REQUIREMENT — Take 12 minutes to develop the orders you would pass to your subordinates. Ensure to include guidance for supporting arms and a sketch of your plan. Then provide a brief explanation.

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idly adhering to the only rule: brief your plan as if you are talking to subordinates.

Shifting gears into the passive mode by talking philosophically about how the briefer would maneuver hither and yon is all too easy. The more complicated route is for the briefer to actually describe it as if he wanted it to happen right now and the group being briefed is the collective body that is going to execute the orders. The discourse following such a briefing is usually phenomenal. This is perhaps where the majority of the learning takes place. The healthy interaction within a group of peers forces the briefer to defend his logic; bare any shortcomings; spark energetic discussions on warfighting; and expose all participants to new ideas and ways of solving a problem.

Forcing a participant to address the others as if he were directing them will improve his communication skills and reinforce the importance of the lexicon. The time stress the games impose exacerbates the need for internalizing the orders process and issuing succinct instructions that provide enough clarity and detail for subordinate units to execute the plan. A great idea that a leader cannot articulate can easily lead to failure or disaster. Likewise, a sound idea clearly expressed in a timely manner could prove decisive.

Infantry Magazine *includes a TDE in all issues and includes a solution from the community at large. Downloadable TDEs are at www.infantry.army.mil/CATD/tactics/ index.htm [sample above]. Future exercises will be added to the online collection. Perhaps the best part of the TDE Web site is that anyone can access the electronic copies and tailor them to their own specific needs or echelon.*

Another important benefit is that there are no school solutions to the exercises. The real litmus test as to whether a plan would succeed or fail is principally measured in actual execution. Since the exercises do not progress to this stage, failure is more contingent on the participant's ability to clearly express his intentions using sound tactical concepts.

A player should be able to defend his rationale for his plan. Nonetheless, the lack of any exclusive right answer encourages participants to take the initiative and think outside any existing parameters. Although not a mandate, using historically based TDEs

is recommended. They will add to the discussion in that the mediator can conclude the exercise by relating to the group how someone else in that actual situation reacted and fared. Again, this should not serve to preclude courses of action but, rather, to stimulate debate. A more adept participant, having a foundation in military history, can skillfully use such historical vignettes to bolster and guide his rationale for his selected course of action.

A natural reaction to taking part in the exercises is that doing so stimulates discussion about warfighting and the profession of arms, subtly encouraging the study of military history. This is not to argue that simply knowing how Captain X fought while assaulting a hill in 1944 will provide the blueprint for success in current or future endeavors; it is more important for leaders to study past great military leaders to understand the bases for decisions and reasons for success given the environment of the day.

Capitalizing on what others have learned is fine if one remains aware of the danger of taking things out of context. One can gain an appreciation into how humans react in certain situations, as well as how others applied principles under certain conditions. Given proper caution, TDEs can help foster professional enlightenment. Discussing historical vignettes will undoubtedly stir intellectual debate.

Another way to foster study is to give subordinates an assignment to research and develop their own historically based TDEs. Books such as *Infantry in Battle* and *Combat Actions in Korea* are but two of many that provide great ideas for tactical scenarios.[9] Both books include AAR-style discussion following the tactical vignettes.

Because they allow leaders to practice on paper, TDEs are extremely effective. The exercise is a low-cost event in terms of time, resources, and effort. The only real constraint is in the participant's creativity and imagination. Despite the simplicity of the exercises, decisionmaking scenarios offer ample benefits. They can be as effective for corporals as they are for generals, as long as they are tailored to the respective audience. Nonetheless, they are extremely effective for training subordinates one or two levels down. They allow a subordinate to function in the same situation as his superior and experience the considerations that he must take into account. This can help in mentoring junior leaders to broaden their focus within the organization.

TDEs provide a means for mentally preparing leaders for the rigors of combat. They might not be exact replicas, yet they offer a unique ability to practice conveying and executing decisions while under some sort of mental and physical duress. Just as we use physical training to develop the body for the shock and rigors of combat, so too must we prepare the mind.[10]

Decisionmaking

The entire nature of wargaming TDEs is that an individual is faced with a particular problem. The participant must process given information, arrive at a course of action, and develop the orders needed for subordinates to execute the plan. Adjusting the amount of time allotted to the participant imposes added stress. In fact, the entire intent is to keep the allowable time short to exacerbate the need for the participant to rapidly get to the heart of the problem and take action. The same is true for limiting the amount of information provided in the situation, which places added strain on the participant and replicates his having to confront real-world dynamics such as the fog and friction of war. Simply modifying the conditions, such as time or place, adds further stress.

Scientists generally agree that the two primary methods of decisionmaking are the analytical and the intuitive. Analytical decisionmaking involves collecting and analyzing information to generate, compare, and select an optimal course of action. This method is largely based on a logical analysis of a situation. An excellent example of this method is the Army's Military Decisionmaking Process. Such analytical processes are extremely effective if given accurate information, a clearly defined goal, and a capable decisionmaker.[11] The preponderance of military schooling centers on the analytical approach.

Intuitive decisionmaking, on the other hand, bases decisions on pattern recognition and experience and is known by several other terms throughout the military, such as "Fingerspitzengefuhl" and "Coup d'oeil." Some members within the scientific community refer to it as naturalistic decisionmaking and define it as "the way people use their experience to make decisions in field settings."[12] Intuitive decisionmaking is more than simply analytical decisionmaking internalized. TDEs afford participants the opportunity to build on their experience and become better intuitive decisionmakers.

Many studies within military and scientific communities conclude that commanders actually rely more heavily on intuitive rather than analytical decisionmaking procedures when in a field environment.[13] Studies examining decisionmaking generally find certain common characteristics present when individuals rely more heavily on an intuitive versus an analytical approach to making a decision. Individuals facing ill-structured problems; uncertain or dynamic environments; time stress; or high stakes generally opt to use an intuitive approach to reach a decision. Under similar conditions, experienced decisionmakers tend to employ intuitive methods more often than analytical processes.[14]

Time stress and high stakes are but a few of the commonalties associated with intuitive decisionmaking. The environment generally associated with the intuitive approach accurately describes what com-

manders potentially face in combat. When an individual faces such conditions, it is reasonable to conclude that the net effect is degradation of decisionmaking effectiveness. Leaders will not overcome all uncertainty or stress in combat situations, but experience will help them make decisions. Studies tend to focus on individuals who regularly face such conditions. Soldiers, police officers, firefighters, and emergency medical technicians participated in the research. Virtually all organizations reached similar conclusions; namely, they can conduct exercises under realistic conditions to increase member experience and the ability to make more effective decisions when in stressful situations.

Members of the U.S. Forest Service expressed the need to incorporate tactical-decision games in training to make more effective decisions when combating forest fires. In his 1997 report to the National Fire Academy, Mike Kuypers says, "Tactical decision games add to the trainees' experience base, prepare them to respond under uncertainty and time pressure, and require them to formulate their intent."[15] He goes on to address the mechanics of TDEs in decision-skills training. His words read like a civilianized version of what many in the military advocate.

U.S. Marine Corps Major John F. Schmitt published a work in 1994 titled *Mastering Tactics: A Tactical Decision Games Workbook*.[16] The book is an excellent source and includes tactical-decision games (exercises) and supporting information on their relevance toward improving tactical skill and decisionmaking capability. Schmitt's comparable piece, *Designing TDGs,* provides outstanding insight into how to design effective exercises and discusses how individuals decide.[17] Anyone interested in applying TDEs in the military environment should read these books. They provide a great how-to starting point for those interested in designing such exercises for their own training.

Web Connectivity

The drive to better incorporate technological aids into military doctrine and training provides additional opportunities for decisionmaking exercises. The recent development of an infantry Web site to foster improved communication between the field and the schoolhouse has been a catalyst for the sharing of such helpful training techniques.[18] The Web site is a leading platform to stimulate debate about the military profession. Links to *Infantry Magazine* and *The Infantry Forum* provide a place for interaction and the relatively instantaneous sharing of ideas unhindered by geographic location.[19] The medium also enables a means for TTP exchange, such as TDEs. The intent is to manage a repository of TDEs at the Combined Arms and Tactics Directorate at the Infantry School. While using exercises as training tools is not new, the simplicity of using, sharing, and discussing them is something the military community has yet to achieve.

Infantry Magazine includes a TDE in all issues and includes a solution from the community at large. Downloadable TDEs are at www.infantry. army.mil/CATD/tactics/index.htm. Future exercises will be added to the online collection. Perhaps the best part of the TDE Web site is that anyone can access the electronic copies and tailor them to their own specific needs or echelon. This forum also enables those in the field to post solutions, which should stir a healthy professional debate on warfighting.

Timely, effective decisionmaking is essential to the success of military operations. Participating in TDEs is but one means to develop the skills necessary for executing and communicating decisions in a judicious manner. This, will help make leaders more effective at facing stressful or uncertain situations. Trainers at the Infantry School hope this is the beginning of a sharing of techniques for training subordinate leaders in decisionmaking skills.[20] *MR*

NOTES

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19. *Infantry Magazine* can be accessed at <www.benning.army. mil/infantry/magazine/index.htm>; The Infantry Forum can be accessed at <http://forums.military.com/1/OpenTopic?q=Y&a=cfrm&s=78919038>.
20. Other sites of interest related to the subject can be accessed at <www.mca-marines.org/Gazette/gaz.html> and <http://knox-www.army.mil/center/dtdd/doctrine/armordoc.htm>.

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