

Filling in the Blanks: Leveraging Simulations to Provide Tactical Experience

by Dale Spurlin, Steven R. Scholtz and James Valentine

Baking is both art and science – very similar to the application of Army tactics. Bakers follow a recipe to combine ingredients in just the right proportions, yet they also know by touch, sight and smell if the dough is ready. Teaching someone to bake is much easier when the student can identify ingredients, operate kitchen appliances and has had some prior baking experience; the opposite conditions can result in a kitchen nightmare.

With an increase in the number of students with limited or no maneuver experience above the platoon level, tactics instructors at the U.S. Army Command and General Staff School sometimes face conditions in the classroom akin to a culinary disaster. The development of tactical plans based on the military decision-making process recipe can result in plans that fall short of expectations or fail for lack of knowing how the different tactical ingredients react in the real world.

To fill the experience gap in students during instruction, we have added the use of a commercial-off-the-shelf simulation during tactics lessons. The simulation – Combat Mission: Shock Force® – replicates modern U.S. equipment fighting a fictitious war near Syria against a hybrid threat of Soviet-equipped conventional forces and irregulars. Players direct the actions of squads, individual vehicles and platoon formations across rural and urban terrain displayed in three dimensions. The software supports two-player or single-player games in either real-time or turn-based formats. Single-player mode is possible at one of four computer artificial-intelligence levels to provide better enemy actions and reactions to challenge the human player.

Like all good games, CMSF is easy to learn but hard to master. Using the editing tools, the instructor can create an endless number of scenarios, including large urban maps with specially designed buildings. CMSF does not require the latest computer technology; it will run without a hitch on Windows XP and graphics cards with modest video random-access memory.

Also, like most games, it is not perfect. There is no way to represent complex obstacles. Fighting positions must be created with each scenario before play. Calls for fire must be on observed targets. To

date, these shortcomings have been only minor distracters.

The standard lesson plan for CGSS offensive and defensive lessons (part of a series of lessons on Army tactical doctrine) calls for instructor-facilitated discussion of doctrine followed by a practical exercise where students apply the doctrine using a map or sketch to solve a simple tactical problem. Student briefings of their solutions and instructor feedback close out the lesson. This is similar to the culinary student who reads a recipe, talks about it with other students, and proposes when it would be most appropriate, but never actually bakes a cake. Past students have indicated that they leave the lesson understanding the fundamentals of Army tactics but are unsure of their application in real operations.

Prior experience and an opportunity to immediately apply instruction are two fundamental characteristics of adult learning. We schedule a two-hour session to teach students the basics of the simulation, with the instructor giving over-the-shoulder help as needed. Students work alone or in pairs to allow them to become comfortable with the simulation. The lesson for offense or defense tactics begins with a short review of doctrine and an orientation to the simulation scenario. The students now have a tactical problem with visible forces portrayed in 3D against a competitive foe. Students develop a basic tactical plan and begin playing the same scenario emphasizing the lesson's tactical concepts.

After about 30 minutes, the instructor halts the simulation and facilitates a discussion of student actions and results to solicit good and bad applications of tactical principles. This discussion also draws out details about how weapons and forces really act in combat. Students resume their missions in simulation and report their outcomes with the changes they made from the earlier discussion. Student gaps in experience fill quickly.

Appreciation for the effects of terrain. Maneuvering forces in contact emphasizes the effects of terrain on friendly and enemy weapon systems. Students gain a better appreciation of what rolling or urban terrain with multistory buildings does to observation and fields of fire. Cover is significantly different than concealment

when weapons engage enemy forces. Some systems perform better than others in different types of terrain. For example, despite its maneuverability on roads, students find the Stryker vehicle is much less mobile in open or hilly terrain.

Appreciation for time and space relationships. Indirect fires and the variability of movement rates for tracked, wheeled and dismounted forces lead to a better understanding of synchronizing operations. Too little, too late due to a misunderstanding of time and space relationships, movement rates and decision-point criteria is a common lesson-learned from the simulation. Watching forces move in simulation provides a more tangible experience than consulting movement-rate tables. Anticipating indirect-fire support and coordinating ground movements to receive maximum benefit also takes practice. This leads to greater student understanding of how to anticipate decision points and focus information collection to support those decisions – at a time that permits friendly forces to react effectively.

Understanding battlefield geometry. Students of tactics wrestle with the array of units on the battlefield to maximize their combat-power effects while reducing the risks of fratricide. The application of appropriate graphic control measures is difficult when leaders lack an understanding of where munitions go and what their effects look like. CMSF fills this experiential gap by showing the effects of indirect and direct weapon systems. Fragments from large-caliber munitions cause area effects and small-arms fire ricochets off objects, sometimes resulting in fratricide. Field exercises with Multiple Integrated Laser Engagement System equipment cannot replace seeing how system location and firing vectors affect the massing of combat power. Students leave the simulation with a greater understanding of how these factors combine with terrain to create or prevent massed effects on their targets.

Awareness of sustainment constraints. Although the simulation does not permit the evacuation of casualties or damaged vehicles, the classroom discussion period permits instructors to engage students on how Army forces would perform those actions for the losses incurred in the simulation. The simulation accurately models

ammunition consumption, which in turn prompts students to consider how to get more ammunition to their forces before systems run out.

Tangible examples of unit advantages and disadvantages. Although students come with experiences from within the different formations of the Army, few come with experiences from all of them. It is hard for some of them to articulate why one tactical unit is superior to another except by referring to doctrinal manuals. Using the simulation's range of scenarios that incorporate Stryker, Bradley, Abrams and humvee vehicles in pure and mixed formations (with and without dismounted elements), students have an opportunity to experiment and compare these systems side by side to *know* their pros and cons, rather than merely reciting generic doctrinal statements.

Although CMSF replicates units much smaller than the focus of CGSS curriculum, exercises for battalion and higher operations generally use constructive simulations where symbols represent aggregate units on a map-like display. This conceptual representation is too abstract for students with little experience in actual unit operations. CMSF provides a foundation of shared experiences for the instructor to extrapolate lessons and concepts to higher echelons.

For example, the realization that a company can use most of its basic load of ammunition in one simulation engagement spurs discussion with Logistics Corps officers on what these consumption rates would look like for larger formations and how to better anticipate ammunition resupply during operational planning. With a little preparation, instructors can use CMSF scenarios to give students practice in understanding the situation, visualizing and describing a course of action, and giving clear commander's intent during planning. During mission execution, they practice giving mission orders and accepting prudent risks.

Because of CMSF, we see students gravitate to lower-scale maps in discussing possible offensive and defensive operations later in the curriculum, where they can better visualize distances and the effects of terrain. Student plans for brigade and division operations are more feasible. Wargaming during the MDMP is more realistic, with fewer arguments over the outcomes of engagements. Using a simulation to fill a gap of experience creates a foundation to build higher-echelon planning skills, yielding tangible im-



provements in student performance and confidence.

We are not reinventing the wheel. The U.S. Army has long used simulations for training purposes. However, most COTS simulations have been overlooked, and CMSF provides an inexpensive, easy-to-learn method of teaching basic tactical fundamentals. It has filled a gap in student experience of basic combat operations, permitting faculty and students to progress resolutely to higher levels of tactical operations with a strong visualization of what their units can and cannot do.



Retired LTC Dale Spurlin is an instructor at CGSS, Fort Leavenworth, KS. He previously served as chief, training and education, Defense Reform Directorate, in Kabul, Afghanistan; chief, leader development and collective training, Combined Arms Center G-3, Fort Leavenworth; command-and-control and maneuver observer/trainer, Battle Command Training Center, Fort Leavenworth; and executive officer, 1-63 Armor Battalion, 3rd Brigade, 1st Infantry Division, Vilseck, Germany. The former Armor officer's military education includes Command and General Staff College, Combined Arms and Services Staff School, Joint Firepower Control Course, Field Artillery Officer Advanced

Course and Armor Officer Basic Course. He holds a bachelor's of arts degree from the University of Florida in history and a master's of education degree from Oklahoma University in teaching, and is a doctoral candidate at North Central University in curriculum and teaching. Mr. Spurlin's military awards include a Legion of Merit, Bronze Star and Meritorious Service Medal (four oak-leaf clusters).

Retired LTC Steven Scholtz is also an instructor at CGSS. He previously served as deputy director, CAS3, Fort Leavenworth; staff officer, Office of the Deputy Chief of Staff for Operations and Plans, Washington, DC; plans officer, C-5 Combined Task Force Provide Comfort, Incirlik, Turkey; and S-3, 3rd Battalion, 64th Armor, 3rd Infantry Division, Schweinfurt, Germany. The former Armor officer's military education includes Command and General Staff College, Combined Arms and Services Staff School, and Armor advanced and basic courses. He holds a bachelor's of arts degree from the University of Vermont in history and a master's of science degree from Kansas State University in education.

Retired MAJ James Valentine is an instructor with Department of Army Tactics, Command and General Staff College, Fort Leavenworth. He previously served as battalion operations officer, 1-67 Armored Regiment, 2nd Brigade, 4th Infantry Division, Fort Hood, TX; small-group instructor, 3-16th Cavalry, Fort Knox, KY; bri-

gade reconnaissance troop commander, H Troop, 2nd Brigade, 4th Infantry Division, Fort Hood; and company commander, A Company, 3-67 Armor Regiment, 2nd Brigade, 4th Infantry Division, Fort Hood. Mr. Valentine's military education includes Armor Officer Basic Course, Scout Platoon Leaders Course, Armor Captain's Career Course, M1A2 Tank Commanders Certification Course, Cavalry Leader's Course, CAS3 and Command and General Staff College. He holds a bachelor's of science degree from the University of South Dakota in business administration and a master's of arts degree from Kansas State University in adult and continuing education. Mr. Valentine's military awards include a Bronze Star, Purple Heart and Combat Action Badge.

ACRONYM QUICK-SCAN

- AS3** – Combined Arms and Services Staff School
- CGSS** – Command and General Staff School
- CMSF** – Combat Mission: Shock Force®
- COTS** – commercial-off-the-shelf
- ILE** – intermediate level education
- MDMP** – military decision-making process
- STX** – situational-training exercise