

# Engagement Simulation: A Method of Tactical Team Training

By WAYNE D. GRAY

- TASK:** Train 150,000 men for a job that requires a high level of proficiency.
- CONDITION:** Training must be conducted continually, so that the job may be performed well at a moment's notice.
- STANDARD:** Few measurable standards exist; however, the penalty for less than excellent on-the-job performance is the death of oneself and one's co-workers.

**T**actical field training mimics many of the characteristics of combat. Like combat, two opposing forces engage and attempt to defeat each other using the full ingenuity and skills of their men and the full capabilities (simulated) of their weapon systems. Like combat, tactical field training is a free-play exercise involving many men spread out over a large piece of rugged terrain. However, combat emphasizes tactical outcomes while training emphasizes tactical processes. In combat, the goal is to inflict maximum damage on the enemy at a minimum cost to oneself; for tactical field training, the goal is to

identify weaknesses in a team's tactical skills and to conduct training which corrects those weaknesses.

Tactical field training exercises are used by the Army to teach the most difficult tactical skills. In this training, officers and men must learn to recognize when a certain tactic is the most appropriate, how to modify the "school" solution to meet the conditions at hand and, generally, how to survive under the unpredictable conditions of a combat-like engagement.

Unfortunately, both the identification and correction of tactical weaknesses are difficult within a field exercise context. First, standards of performance tend to be based upon the trainer's subjective judgment. Each time a task is performed, the conditions of performance are unique. This uniqueness places a large burden of interpretation on the expert judgment of the trainer. Trainees often complain

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that such standards are vague and ad hoc. In addition, the unavoidable use of subjective methods of casualty assessment contributes to the trainees' perceptions of performance standards as unconvincing at best and unfair at worst.

Second, because tactical field training is free-play, neither the tasks performed nor their sequence can be determined beforehand. Even if these could be predicted, the trainer still has the difficulty of observing a large number of men (each of whom is trying to be invisible) over a large area that affords many opportunities for cover and concealment.

For both these reasons it is hard for the trainer to know how well or poorly specific actions were performed or even to know exactly what has occurred in a field exercise. Players also have

this difficulty. Each man has a partial picture of the exercise. No one has the big picture that is necessary to understand how one operated as a member of the team and what the team could have done to reduce casualties and to deal more effectively with the enemy.

### Engagement simulation

In the past decade, the Army Research Institute, working with the Army Training and Doctrine Command, has developed methods for tactical field training which are collectively called engagement simulation.<sup>1</sup> These methods can aid the average officer or enlisted leader (that is, the tactical trainer) in identifying and correcting his unit's tactical weaknesses, thereby increasing the effectiveness of his field training. There are basically three factors in engagement

simulation: casualty assessment, the specification of training objectives and exercise design and the post-exercise discussion.

•*Casualty assessment.* Inflicting casualties on the enemy and avoiding casualties oneself is the ultimate standard of performance for all tactical tasks, both individual and collective. Unless real bullets are used, it is hard to link directly an individual's or group's tactical performance to outcomes. For example, if an infantry squad (11 men) is taken under fire by a sniper, the trainer must decide how many and which squad members are casualties and whether the sniper is killed or withdraws safely. This may be an extremely difficult judgment: An 11-man squad may be spread out over quite a large area, and at the moment the sniper attacks, the trainer certainly will not know what each squad member is doing or how each member is positioned in relation to the sniper.

Both ingenuity and technology were applied to solve the casualty assessment problem. The first objective casualty assessment system used telescopic sights on weapons and used numbers on men and vehicles. The major assumption was that if a target's number could be seen, the target (man or vehicle) could have been destroyed. For example, if the sniper could see the number worn by an opposing squad member, he would fire a blank round and call out the number for each squad member he observed. A trainer would then assess those men as casualties and take them out of the exercise. The sniper would only be considered "killed" if one of the squad members could identify the sniper's number in his scope, fire a blank round and call out the number. Although this system required considerable trainer intervention and a large number of trainers, it decreased the subjectivity of casualty assessment and was generally credible to the trainees.

At present, casualty assessment is performed with a laser-

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based system called MILES (Multiple Integrated Laser Engagement System). Most infantry and armor weapons are equipped with lasers, and all vehicles and men with laser detectors. The system is smart. For example, an infantryman's rifle (M16) cannot "kill" a tank, and the system will differentiate between a hit and a near miss. With MILES, the outcome of the sniper attack is decided by the system, not by the trainer.

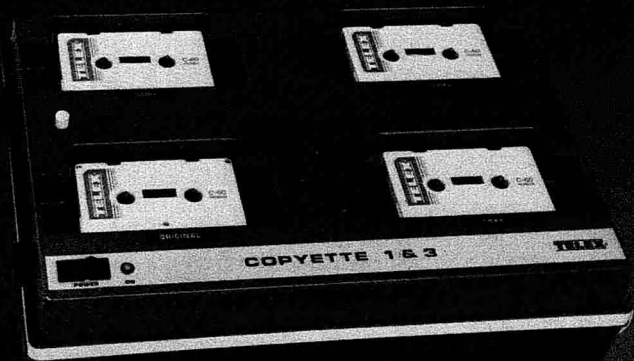
Objective casualty assessment motivates the trainees to perform all tactical tasks as if the exercise were real and provides the trainer with an important tool to use when teaching tactics. For example, as soon as the sniper opens fire, the squad members should react by finding cover and concealment and by returning fire in such a manner that the sniper ceases fire and finds cover and concealment of his own. If the sniper is not suppressed, but continues to kill squad members, then the trainer knows that his squad needs to practice the tactical skills of cover and concealment and the use of suppressive fire. More important, the squad members know this, too.

Without objective casualty assessment, it is easy for the squad members to argue that they were killed only because the trainer said so, and not because they did something improper. With objective casualty assessment, the men know that if real bullets had been used, they would have been hit.

Engagement simulation is a collection of training methods designed to make maximum use of the information and motivation produced by objective systems of casualty assessment. This is accomplished principally through the use of training objectives and exercise design and post-exercise briefings.

• *Training objectives and exercise design.* Tactical field training exercises typically follow one of two structures. At one extreme are detailed scenarios, often time-based, with list upon list of specific tasks, conditions and

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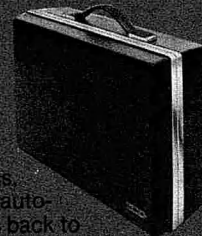
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standards controlled by "umpires." At the other extreme are completely free-play exercises in which units maneuver against each other with the same degrees of freedom they would have in combat. In this case, specific training objectives are frequently not set, and units are given do-your-best-type standards. Usually, the rigid scenarios are used only in preparation for or during external evaluations of the unit, while complete free-play is the norm at other times.

Engagement simulation offers an alternative. First, it emphasizes that each field training exercise should have training objectives which focus attention on the unit's weakest skills. Second, engagement simulation provides techniques which the trainer can use unobtrusively to structure the exercise. These techniques increase the probability that certain, pre-selected tactical situations will arise but do not interfere with the unit's experience of free-play.

A training objective can be any individual or collective tactical skill that the unit needs to practice under field conditions. Training objectives are set by the trainer after discussion with the unit's leader or the unit itself about what their major weaknesses are and what tactical skills should be emphasized in the next field training exercise. There are typically no more than two or three training objectives per exercise. The selected training objectives are announced to the unit at the beginning of the exercise and are reviewed at the end.

It is the trainer's responsibility to structure the exercise unobtrusively by selecting the terrain, positioning the opposing units, selecting weapon systems and so on to ensure that the training objectives are emphasized. For example, if use of suppressive fire is a training objective, the trainer will choose the terrain and position the opposing force so the advancing squad contacts the opposing force at a certain position and must use sup-

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pressive fire to accomplish the mission.

The use of clear and specifiable training objectives is supported by literature on goal-setting and task performance.<sup>2</sup> It suggests that there are many trainers who think the idea of specifying training objectives is either too simple to work or so obvious and easy that everyone does it.

The importance and advantages of structuring a training session to emphasize pre-selected skills is generally well accepted. In the past, however, the imposition of structure has tended to conflict with the free-play required for a realistic simulation of combat. Engagement simulation attempts to resolve this conflict by providing techniques which the trainer can use to ensure that critical skills are trained, but which do not interfere with the free-play required for a realistic exercise.

•*Post-exercise discussion.* A post-exercise discussion is included in engagement simulation.<sup>3</sup> Termed an after action review, it disseminates knowledge of results and establishes the conditions under which the training objectives were performed and whether reasonable standards were met.

The military historian and theorist S.L.A. Marshall reconstructed World War II and Korean War battles by interviewing groups of soldiers immediately after a tactical engagement. Many of the techniques Marshall used are similar to those incorporated in the after action review. Such techniques were needed because, as Marshall concluded, "battle is a fog for the men who fight."<sup>4</sup> While each man is aware of his own actions, usually he is not aware of the context in which his actions take place. Likewise, even the best trainer can observe only a small portion of the action.

In the after action review, the trainer uses his understanding of the exercise to structure the review, not to critique the players. If one of the training objectives was "actions upon enemy

contact," then the trainer leads the players in a discussion of what they were doing immediately prior to contact with the enemy, how they were spread out and so on. The opposing force tells their location, what weapons they had, how they first observed the squad and what tactics they were using. A discussion develops among the squad members and between them and the opposing force until all participants have a good understanding of what the conditions were when "actions upon enemy contact" occurred. Further discussion establishes what was done and what, given the conditions, could or should have been done.

We know that goal-setting works best when combined with a systematic dissemination of knowledge of results.<sup>5</sup> In the post-exercise discussion, dissemination of knowledge of results occurs almost as a by-product of the compilation of results. A good discussion starts from and fills in the trainer's outline of what happened. When the conditions of performance, the actions performed by each player and the tactics attempted by the unit are established, it becomes relevant to ask whether the training objective was accomplished. If the objective was met, a new one is established by the leader or trainer based on performance information brought out during the discussion. If the objective was not met, the unit tries again or establishes a simpler and more basic training objective.

### Summary

Engagement simulation methods provide the Army trainer with a systematic approach to tactical field training. While none of the techniques is new, their combination and application to a complex training problem in a critical area is new.

The system of casualty assessment helps trainer and trainees to recognize which tactical skills need improvement and which are performed well. The specification of training objectives focuses the

trainees' efforts on improving those tactical skills in which they are weakest, while attention to exercise design makes sure these skills are likely to be practiced. Finally, the formalized post-exercise discussion establishes the conditions under which the training objective tasks were performed, forces the leaders and trainers to judge performance in light of those conditions, disseminates knowledge of results to all participants and sets training objectives for the next exercise.

The goal of engagement simulation for the trainer is to acquire the knowledge and skills needed to get the most training out of each tactical field exercise. The final goal is to improve the tactical skills of the team so that in the next exercise, or the next war, the soldier will stay "alive" and the unit will accomplish its mission.



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