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ISSUES CONFRONTING THE DESIGN OF A NEW BATTLE DRILL TRAINING SYSTEM*

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Army units organize their combat training around two programs: (a) individual soldier training based on Soldier's Manual (SM) tasks, and (b) collective training based on their Army Training and Evaluation Program (ARTEP). The ability of units to meet individual and collective training requirements is reduced by shortages of experienced trainers, peacetime garrison/administrative distractions from training, and personnel turbulence (Funk, Johnson, Batzer, Gambell, Vandecaveye and Hiller, 1980).

Effective training in the unit training environment depends on the degree to which training and evaluation can be standardized across units, and it depends on the extent to which individual training and collective training can be successfully integrated. The Chief of Staff of the Army, General Meyer, called for efforts to integrate individual and collective training in his White Paper dated February of 1980, and in a subsequent letter, dated June of 1980, called for efforts to standardize Army training.

A standardized training system would, in effect, remove much of the burden of preparing training exercises from the shoulders of inexperienced junior leaders. Such a system would also insure that soldiers entering a unit would have a training history similar to that of the unit being entered and alleviate many of the training problems caused by personnel turbulence. Further, a standardized training system would reduce the amount of time required to plan/prepare effective training exercises and help to compensate for garrison/administrative requirements which disrupt training schedules and reduce the time available for training. Integration of individual and collective training could insure that soldiers have mastered those individual skills necessary to benefit from collective training and even make it possible for training on selected individual tasks to be conducted concurrently with collective training.

The goal of the present project was to develop a standardized training system which integrates both individual and collective training requirements in small units (e.g., squad, armor platoon, section, crew). The focus of the effort was collective training, with individual skills training subordinated to collective training requirements. The proponent for this research was the U.S. Army Training Board (ATB). ATB required a product in the form of guidance materials which training developers across U.S. Army schools could use to apply the standardized, integrated training system concept to their branches.

Inadequate or inappropriate utilization of new training innovations is a frequent and well documented problem (McCluskey and Tripp, 1975; Bialek, Brennan and Hiller, 1979; Scott, 1981). It was decided at the outset of the current

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project that concern over the utilization of a product should influence the early stages of product development, in that any new training system should be designed to have a high potential for utilization in the field. This decision meant that system characteristics which might be ideal from the training technician's point of view had to be compromised to mesh with the less than ideal circumstances in which unit training exists. Designing a system which is compatible with the training environment would insure that the system is usable and is perceived by users as being a product which meets their real needs. Designing a system in this way also supports the eventual implementation of the system, since the need for implementers to first radically alter the skills/perceptions of the intended users or existing Army training management/organization (Gray, 1981) is carefully eliminated/reduced.

This project started with the design of a concept for standardizing small unit training and integrating individual skills training with collective training. The system concept was then further developed through trial application to a sample branch of the Army, light infantry. After a usable prototype system had been developed for light infantry, the principles/rules used in preparing the final system were recorded in the form of a draft guideline for training developers. The clarity/adequacy of this guideline was then tested through trial application, and necessary revisions were made in the guideline.

DESIGN OF THE SYSTEM CONCEPT

The starting point for this effort was a careful analysis of the tasks a trainer must perform to plan, prepare, and conduct integrated small unit training. The primary sources of this information were the various documents describing the Army's Battalion Training System. Given that the purpose of the project was to develop a standardized training system, the next step was to determine the extent to which these trainer tasks had been standardized or could be standardized within the framework of ARTEP documents.

After a careful review of ARTEP 7-15 for infantry units and ARTEP 71-2 for Mechanized Infantry, it was decided that increased standardization of entire ARTEP missions would not meet the need for a standarized, training-environment-compatible, small unit training system. ARTEP mission training objectives contain variable task, conditions and standards statements necessary to describe the diverse situations in which a unit must be able to perform each of its missions. If entire ARTEPS were standardized to the degree necessary to help inexperienced trainers conduct training and to reduce the effects of personnel turbulence, ARTEPS would become extremely large, cumbersome documents. Time constraints would force leaders to select among a large number of potential training objectives, and, as a result, training would not be standardized across units in terms of the specific training objectives being trained/evaluated.

It was decided to select small "chunks" of battle actions which, if standardized, would provide the greatest benefit to small unit training. Two criteria were believed to be of special importance in selecting such chunks of battle. First, the chunks of battle selected should require specific, active participation by all, or nearly all, unit members. This criterion would insure that all unit members would benefit from taking part in training. Second, the portions of battle selected should have wide applicability across ARTEP missions. In selecting these mission chunks, the small unit training vehicle would be one which fit the general rubric of "battle drills." The primary distinction between the present battle drill training system concept and battle drills informally

AD A100863

used by various unit leaders was in terms of the intended degree of standardization.

The selection of drills as a small unit collective training vehicle meant that the goal of integrating individual and collective training would be accomplished by integrating individual skills training with drill training. The set of SM tasks potentially covered within the small unit training system was thus reduced to those which are drill relevant. It was further determined that individual skills training could be integrated with drill training in three ways. First, certain SM tasks must be trained/evaluated in preparation for drill training to avoid tying up the collective training with individual training. Second, certain SM tasks could be completely trained/evaluated to SM standards by simply embedding them in the drill standards. Third, certain SM tasks could be fully trained/evaluated as time permits after partial coverage during drill training.

It was determined that the appropriate method of integrating a particular individual skill would depend upon identifiable characteristics of the individual skill. A decision rule was developed to determine how each soldier's manual task needed for a drill was to be integrated (i.e., as a drill prerequisite, embedding it in the drill, providing partial coverage in the drill with a recommendation to finish training as time permits). The primary goal of the decision rule was to insure that a particular individual skill would not disrupt drill training per se, or cause drill-training-time to be used in an inefficient manner.

DEVELOPMENT OF THE SYSTEM CONCEPT

Based on the definition for drill tasks formed early in the project (see Table 1), the ARTEP for light infantry squads was analyzed to identify squad/fireteam level drill candidates. Twenty-five candidates were found and then reduced to 16, with the assistance of Army Training Board subject matter experts. By retrospective analysis, the rules for identifying drills through analysis of ARTEP missions and for preparing standardized drill training objectives were developed.

TABLE I

CHARACTERISTICS OF A DRILL TASK

- Keyed to one or more ARTEP mission tasks
- Requires performance by most or all unit members
- Requires rapid unit reactions to enemy threat or leader order
- Minimizes need for leader tactical decisions and coordination with other units
- Requires a relatively standard set of actions in a variety of situations
- Has natural starting and stopping points
- Maximizes application across ARTEP Missions

The prototype drill training objectives included administrative conditions for conducting training, as well as traditional tactical conditions. The prototypes provided a brief description of desirable training site features, instructions for properly positioning the unit and the opposition force at the start of the drill, and the instructions to be given to the unit and to the opposing force. The precisely defined administrative conditions served to provide information which inexperienced junior leaders need to conduct training exercises that provide meaningful training to meet the performance standards. The prototype training objectives were reviewed by subject matter experts (SMEs) and a few minor changes were made in the content of the training objectives in response to SME feedback.

In the course of preparing prototype drill training objectives, it became apparent that certain portions of the ARTEP selected for drills were too complex to be directly covered by standardized drill training objectives. This complexity was due to the large number of different tactical situations possible. It was decided to simplify these complex training objectives to facilitate standardization and make it easier for trainers to conduct drill training by narrowing the scope of those battle chunks initially selected as candidate drills. This decision represented another compromise made to produce a usable system, since it had the effect of reducing the number of drill-relevant SM tasks and reducing the extent to which individual skills training and collective training would be integrated within the drill training system.

While defining prototype light infantry squad drills, it became apparent that relatively few individual skills could be included in drills without detracting from the objective of using drills as a collective training vehicle. A substantial number of SM tasks were excluded from drill training because including them would have required drill trainers to spend an excessive amount of time training or evaluating each individual, at the expense of collective training. Including certain other SM tasks in drills would have made it necessary for trainers to bring cumbersome equipment to the field, without supporting collective training. Other SM tasks could simply be more efficiently trained/evaluated using resources best used in garrison. Of those SM tasks found appropriate for training/ evaluation in the field, only a few could be completely covered by drill performance standards, because the SM tasks standards often require performance of actions not relevant to a given drill.

It was recognized that the act of merely placing battle drill training objectives in the hands of junior leaders was not sufficient to insure that effective drill training would be conducted. Four major potential problems in the execution of drill training were identified. First, junior leaders might lack the degree of familiarity with tactical doctrine necessary to conduct effective drill training. Second, leaders might have difficulty controlling the execution of an exercise. Third, leaders might not know how to most easily/meaningfully apply each performance standard. Fourth, management of unit training (i.e., planning, sequencing, resourcing, etc.) is complicated, and drill training is no exception. Each of these problems was addressed. Drill Trainer's Guides were prepared for each of the sixteen prototype drills. Each Trainer's Guide provides a lesson plan which includes (in addition to a training objective) references to specific drill-relevant doctrine and step-by-step instructions for conducting training on a particular drill. An abbreviated field-expedient version of each Trainer's Guide, the Trainer's Guide Outline, was prepared for use by trainers during the conduct of training. Guide Outlines were bound

together in the form of a pocket-sized booklet. An additional booklet, entitled Drill Evaluator's Checklists, was prepared for use by training supervisors to evaluate unit performance on a drill at the end of training. This latter booklet is a greatly abbreviated version of the Trainer's Guide Outline, omitting such features as the step-by-step procedures for conducting drill training. Finally, a Drill Training Management Guide was prepared to help leaders resource and schedule drill training in an efficient manner. These four training system aids combined to form a prototype Drill Training Package (DTP).

The prototype DTP was tried out within two companies of one battalion within the 7th Infantry Division. Companies were free to use or not use the DTP, at the option of leaders, during a two week period of training away from their home station. Training was observed on a non-interference basis. Both companies made extensive use of the Drill Trainer's Guide Outlines and Drill Evaluator's Checklist during the tryout. As a result of feedback provided by trainers, seven minor editorial changes were made in the content of the Guide Outlines and Checklists.

The principles/rules used in preparing the prototype DTP were recorded in the form of a draft "Guideline for Designing Drill Training Packages." The clarity/adequacy of this guideline were tested using contract staff simulating the role of school training developers. Members of the contract staff used the draft guideline to prepare sample drill training objectives for both light infantry and mechanized infantry units. Certain critical difference were found between the training objectives produced by a contract staff and the prototypes. In general, the sample training objectives were very complex and left much of the responsibility for designing drill training exercises on the shoulders of trainers. In effect, the sample training objectives were too similar to their parent ARTEP training objectives. In discussion with members of the contract staff, it became apparent that the failure to adequately specify the administrative conditions under which each drill should be conducted was due to the complexity of the sample training topics. In response to these findings, the draft guideline underwent considerable revision to explain/demonstrate the required simplicity of drill training objectives relative to ARTEP mission training objectives.

UTILIZATION OF SYSTEM CONCEPT

Soon after the company level tryout, the parent battalion and the parent brigade adopted the prototype DTP for use in training. The second resident brigade later adopted the DTP for use, as did the 1st Brigade of the 82nd Airborne Inf Division. To date, a total of over fifteen hundred copies of the DTP have been requested for use by units in the 7th Infantry, 9th Infantry, 4th Mechanized Infantry, 82nd Airborne, 101st Airborne, California National Guard, Pennsylvania National Guard and Oregon National Guard.

The U.S. Army Training and Doctrine Command (TRADOC) distributed six hundred additional copies of the DTP across major Army commands for purposes of review. Feedback received from these major commands has been highly favorable. ATB has decided to publish the revised "Guideline for Designing Drill Training Packages" as a TRADOC Pamphlet and is considering the possibility of publishing it as a Regulation. The U.S. Army Armor School has now used the guideline in preparing drill training objectives for Armor platoons.

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