

AD-A063 972

HUMAN RESOURCES RESEARCH ORGANIZATION ALEXANDRIA VA
DECISION-MAKING AND TRAINING TECHNIQUES FOR COMMAND AND CONTROL--ETC(U)
JUN 75 T R TREMBLE, A J DELUCA, L L LACKEY DAHC19-73-C-0004
HUMRRO-FR-CD(C)-75-3-PT-2 NL

UNCLASSIFIED

| OF |
ADA
063972

11



END
DATE
FILMED

3 -79
DDC

E 8526

① LEVEL III

HumARO

A063971

A063973

⑨ Final Report

HumARO-FR-CDIC-75-3-PT-2

AD A063972

DDC FILE COPY

⑥ Decision-Making and Training Techniques for Command and Control Systems. Part II. Terminal Performance Objectives For the Demonstration Model of CATTs.

⑩ Trueman R. Tremble, Jr., Arthur J. DeLuca
Larry L. Lackey

⑮ DAHC 19-73-C-0004

HUMAN RESOURCES RESEARCH ORGANIZATION
300 North Washington Street • Alexandria, Virginia 22314

⑯ 200621074745

DISTRIBUTION STATEMENT A
Approved for public release
Distribution Unlimited

⑰ 42p.

⑱ Jun 1975

Prepared for
U.S. Army Research Institute for the Behavioral and Social Sciences
1200 Wilson Boulevard
Arlington, Virginia 22209

DDC
RECEIVED
JUN 21 1975

405 260
29 01 24 045 mt

The findings in this report are not to be construed as an official Department of the Army position, unless so designated by other authorized documents.

FR-CD(C)-75-3

FINAL REPORT

**Decision-Making and
Training Techniques for
Command and Control Systems
Part II. Terminal Performance Objectives
For the Demonstration Model of CATTs**

by

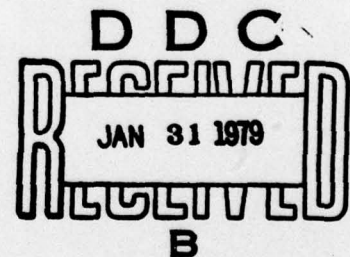
Trueman R. Tremble, Jr., Arthur J. DeLuca,
and Larry L. Lackey

June 1975

Work Unit DECIDE

Prepared for

U.S. Army Research Institute for the
Behavioral and Social Sciences
(Contract DAHC19-73-C-0004)



DISTRIBUTION STATEMENT A

**Approved for public release;
Distribution Unlimited**

HUMAN RESOURCES RESEARCH ORGANIZATION
300 North Washington Street • Alexandria, Virginia 22314

79 01 24 025

SUMMARY AND CONCLUSIONS

MILITARY PROBLEM

Technical advances have increased the capabilities of military commanders for successfully commanding and controlling the execution of tactical operations. These advances have also increased the complexity of command. The concept of the Combined Arms Tactical Training Simulator (CATTS) has been advanced as one means for meeting the requirement to train commanders and selected members of their staffs to conduct tactical operations under the varied and complex conditions of the modern battlefield.

Under the CATTS concept, training personnel, assisted by a computer system, would create simulated tactical situations within which a command group would cope with stresses and problems that realistically approximate those experienced during participation in actual combat operations. It has been expected that participation in this training simulation would improve both the command group's appreciation of conditions characterizing the modern battlefield and their ability to fight under such conditions. Development of a demonstration model of CATTS has been undertaken in order to determine the feasibility and suitability of this concept.

RESEARCH PROBLEM

One objective of Work Unit DECIDE has been to assist in the development of CATTS. While the nature of the required assistance has varied, one continuing requirement has been to assist in development of the training concepts, and materials to be used with the demonstration model of CATTS. According to the evolved goals of the CATTS program, the purpose of training is to increase a command group's capacity to understand and to cope with the varied and dynamic conditions characterizing battle. That is, training in CATTS is not directly concerned with prescribed procedures and performances applicable to a single tactical setting. Rather, the goal of training is to improve performances required to understand and effectively cope with the varying, dynamic, and often unanticipated conditions of combat. Moreover, training is concerned with command groups as groups—commanders and selected members of their staffs functioning as integrated members of command groups.

This volume reports on work undertaken as a first step in the development of training for CATTS. This work involved the development of terminal performance objectives, that is, the performances that are to be improved as a result of training in CATTS. Although terminal performance objectives represent only an early product in the cycle of training development, the performance objectives reported here represent a substantial contribution because they constitute the basis for the development of the performance objectives for the demonstration model of CATTS. In addition, they specify accepted and potentially measurable goals of training that appear to be compatible with the remaining components of the system (hardware and computer software) which are being developed independently.

APPROACH

The terminal performance objectives for the demonstration model of CATTS were designed in terms of performances of a command group that could be applicable to a

variety of tactical operations. Each was also designed in terms of the traditional components of a training objective—action, conditions, and standard. However, because of the necessity for application to a range of tactical operations, each component of the objectives was developed at a general level rather than the highly specific level characteristic of conventional objectives.

To develop the objectives, a candidate list of performances of the command groups was compiled from a list of priority performance areas suggested by the U.S. Training and Doctrine Command (TRADOC) and augmented by statements of command problems identified from reports of a recent combat incident. Action statements were then developed by revising the performances so that they would describe performance categories that could be represented in somewhat different ways under differing conditions. For each action, conditions were developed in terms of variables in the tactical setting that were deemed appropriate for both the performance and measurement of the action. Standards were formulated from military literature; they were designed to serve as a framework for objectively evaluating any representative action under varying combinations of conditions.

Finally, steps were taken to reduce the generality of the terminal performance objectives insofar as feasible and to assure that training with respect to them would be compatible with the computer software concurrently under development.

RESULTS

After development, 15 terminal performance objectives were submitted for review by military agencies. Each objective consisted of statements of action, conditions, and standards. Summaries of the 15 objectives in terms of the action statements follow. Statements of conditions and standards for the objectives are presented in the text of this volume of the report.

The terminal performance objectives are:

- (1) Prevent unanticipated enemy actions by collecting information about the enemy, evaluating it with respect to the tactical situation, and using it effectively.
- (2) Recognize features in the area of operations (e.g., avenues of approach, key terrain features) and use their advantages and disadvantages to enhance the capabilities of friendly forces.
- (3) Determine the enemy's most probable course of action.
- (4) Identify and interpret the fires of enemy weapons.
- (5) Identify, based on available information, enemy actions and take appropriate actions.
- (6) Identify enemy feints, ruses, and deceptions.
- (7) Prevent unanticipated enemy actions by taking measures to counter the enemy's gathering of information about the situation of friendly forces.
- (8) Employ organic and supporting fires to maximize their fullest capabilities.
- (9) Implement improvisation when the conventional methods of employment of tactical formations, weapons, and equipment would not be effective.
- (10) Identify, under conditions of unanticipated catastrophic losses of equipment and casualties, remaining capabilities and vulnerabilities and take immediate action.
- (11) Take effective actions in situations for which tactical doctrine is insufficient or inappropriate.

(12) Effect timely resupply in personnel, supplies, and equipment to minimize interruptions in executing tactical operations.

(13) Maintain continuous and secure communications.

(14) Communicate with higher, subordinate, and adjacent headquarters personnel and with members of the command group in a fashion that produces intended responses.

(15) During combined arms operations, alter the scheme of maneuver and/or plan of fire support when either or both would be ineffective due to unanticipated conditions associated with the enemy, weather, and terrain.

CONCLUSIONS

The conclusions for this portion of Work Unit DECIDE are:

(1) Terminal performance objectives, which were developed, are an initial step of training development for the CATTs concept. These more general objectives constituted the basis of the specific performance objectives for the demonstration model of CATTs.

(2) Further training development must be undertaken before training can be implemented in CATTs. This additional work, which will include the development of training content and approaches, needs to take into account features of the performance objectives, the training purpose of CATTs, and the capabilities of remaining components of the system.

ACCESSION for	
NTIS	Write Section <input checked="" type="checkbox"/>
DDC	Buff Section <input type="checkbox"/>
UNANNOUNCED	<input type="checkbox"/>
JUSTIFICATION	
PER LETTER	
BY _____	
DISTRIBUTION/AVAILABILITY CODES	
Dist.	AVAIL. and/or SPECIAL
A	

PREFACE

This is the second volume of a report that describes work completed by the Human Resources Research Organization in Work Unit DECIDE, Decision-Making and Training Techniques for Command and Control Systems. This volume reports the development of terminal performance objectives for the demonstration model of the Combined Arms Tactical Training Simulator (CATTS), a training system advanced as a potential means for training commanders and members of their staffs in commanding and controlling the execution of tactical operations.

Work Unit DECIDE was conducted at the Columbus Office of the HumRRO Central Division, Columbus, Georgia. Dr. Joseph A. Olmstead was Office Director at completion of the project. The principal participants in the research reported in this volume were COL (Ret) Arthur J. DeLuca, Theodore R. Powers, and Dr. Trueman R. Tremble, Jr., Work Unit Leader.

General military support was provided by the U.S. Army Infantry Human Research Unit, Fort Benning, Georgia, of which LTC Robert G. Matheson was Chief at completion of the work. Specific guidance for assistance in the development of CATTS was provided by MAJ Albert R. Amos, Jr. and MAJ David Fried during the earlier phases of the Work Unit. Subsequently, the development of training and testing was accomplished in close working relationship with the CATTS Directorate under the direction of LTC Glenwood E. Jones, Jr.

HumRRO research for the Department of the Army under Work Unit DECIDE was conducted under Contract DAHC19-73-C-0004. Army training research is conducted under Army Project 2Q062107A745. The DECIDE work was conducted under the sponsorship of the U.S. Army Research Institute for the Behavioral and Social Sciences, with James Baker serving as the technical monitor.

TABLE OF CONTENTS

PART II

	Page
Summary and Conclusions	3
Preface	7
Introduction	13
Military Problem	13
Research Problem	13
Method	15
Background	15
Analysis of Training Problem	15
Development Guidance	16
Approach	17
Results	19
Terminal Performance Objective 1	19
Terminal Performance Objective 2	19
Terminal Performance Objective 3	20
Terminal Performance Objective 4	20
Terminal Performance Objective 5	20
Terminal Performance Objective 6	21
Terminal Performance Objective 7	21
Terminal Performance Objective 8	22
Terminal Performance Objective 9	22
Terminal Performance Objective 10	23
Terminal Performance Objective 11	23
Terminal Performance Objective 12	24
Terminal Performance Objective 13	24
Terminal Performance Objective 14	24
Terminal Performance Objective 15	25
Discussion	26
References	31
Appendices	
A List of Subjects for Training: TRADOC	33
B Enabling Objectives for the Demonstration Model of CATTs	34

**Decision-Making and
Training Techniques for
Command and Control Systems
Part II. Terminal Performance Objectives
For the Demonstration Model of CATTs**

INTRODUCTION

MILITARY PROBLEM

Technological advances in such areas as weaponry, mobility, and communications have increased the military commander's capabilities for the successful conduct of combat operations. At the same time, such advances have added to the complexity of command by increasing the range and lethality of the weapons, the speed with which events take place on the battlefield, the potential dispersion of troops, and the amount of information potentially available on short notice. The difficulty of commanding and controlling can also be increased by similar and often unanticipated avenues in the capabilities of opposing forces.

The concept of the Combined Arms Tactical Training Simulator (CATTs) was proposed as a possible means of training commanders and their staffs in commanding and controlling subordinate units in the execution of tactical operations under battlefield conditions. According to the concept of CATTs, personnel assisted by a computer system would create simulated tactical situations in which the command group of a combat arms maneuver battalion would cope with the stresses and problems associated with the execution of combat plans and orders. In this manner, training in CATTs would provide decision-making experiences that could otherwise be obtained only through participation in battle.

The military problem addressed in this volume concerns the objectives of training in the first version of CATTs, developed to demonstrate the feasibility and suitability of the concept of CATTs. The first volume of the report provides an overview of the Work Unit DECIDE research; the third volume describes a model for combat order production.

RESEARCH PROBLEM

One objective of Work Unit DECIDE was to assist in the development of CATTs. The assistance provided has ranged from consultation regarding day-to-day problems to the development of directly usable products. One substantial product consisted of terminal performance objectives developed for the demonstration model of CATTs. That work is the subject of the present volume.

As used in this report, a terminal performance objective describes actions that a commander and his staff are able to perform upon completion of training in CATTs. The performance objectives developed for the demonstration model were designed according to the format of traditional training objectives. That is, each performance objective has three components. The first is an action statement that describes tasks or performances in the job setting that are to be influenced by training in CATTs. Second, a statement of conditions specifies the setting appropriate for the occurrence and measurement of the actions. The third component consists of standards, or a statement of the factors that can be used to evaluate performances under the specified conditions.

Like training objectives, the performance objectives are intended to set forth the goals of training in CATTs and thereby provide a framework for the identification and development of training course materials. As instructional objectives, however, the performance objectives reported here have certain limitations. They are incomplete in

that the knowledges, skills, attitudes, and perhaps component tasks that underlie the terminal performances¹ and which should form the basis of training in CATTS have not been specified. They are also stated in general terms which creates certain measurement problems, as will be discussed later.

Despite their limitations, the terminal performance objectives represent a major contribution to the development of the CATTS system. In particular, they define training goals or purposes that have been judged to be appropriate for the demonstration model of CATTS. That is, prior to the development of the performance objectives, the objectives of training for the demonstration model had not been clearly defined; yet at the time of their development, the hardware and the computer software of the demonstration model were scheduled to be nearly completed.

With respect to the objectives of training in CATTS, the concept paper governing the development of the system stated that the device was to train commanders and their staffs in "commanding and controlling combat operations on the battlefield."² Emphasis in the paper was otherwise placed on the training environment or conditions created by CATTS. It was indicated, for example, that decision-making experiences would be created by imposing the stresses and problems actually found on the battlefield. More definitive statements of the objectives of training were not available. Moreover, interpretation of the generally stated objectives of CATTS changed during the development of the system.

Perhaps equally important was the final judgment that performance objectives based on those presented in this report would be appropriate for training in the demonstration model of CATTS. The term "appropriate" refers to the feasibility of implementing training with respect to the performance objectives as well as to the acceptability of the objectives to the user community. To determine feasibility, it was necessary to compare the performance objectives with the plans and status of the hardware and computer software already under development. In this manner, an estimation could be made of the compatibility of the requirements for implementing training relevant to a performance objective with the capacities of the planned and partly developed hardware and computer software.³

¹ Harry L. Ammerman and William H. Melching. *The Derivation, Analysis, and Classification of Instructional Objectives*, HumRRO Technical Report 66-4, May 1966.

² United States Army Infantry School. *Training Device Requirement for the Combined Arms Tactical Training Simulator*, Fort Benning, Georgia, March 1973, p. 2.

³ Paul W. Caro. *Equipment-Device Commonality Analysis and Transfer of Training*, HumRRO Technical Report 70-7, June 1970.

METHOD

BACKGROUND

As reviewed in the first volume of this report, several approaches have been arrived at and partly implemented in attempts to develop training objectives for the demonstration model of CATTs. Because of difficulties encountered in that earlier work, an analysis of the training problem was undertaken in order to determine a more satisfactory approach. The resulting approach, which is reported next as part of the analysis of the training problem, was not fully implemented due to guidance from TRADOC that both changed and specified the purpose of training in CATTs. Nevertheless, the conclusions upon which the suspended work was based shaped HumRRO's response to this guidance.

Analysis of Training Problem

As described earlier, the concept paper guiding the development of CATTs indicated that training in the demonstration model was to concern battalion commanders and selected members of their staff in the commanding and controlling of ongoing tactical operations. In addition, use of a computer was to afford training personnel the opportunity to create tactical situations that would be realistic and responsive to the decisions and actions of the personnel being trained. This concept suggested that training in the developmental model of CATTs was to concentrate on the execution of combat operations by members of battalion-level command groups. The concept, however, was not definitive with respect to the subject of training—commanding and controlling. It also failed to specify whether CATTs was concerned with the training of groups or of individuals.

A search of military manuals and documents was undertaken to define the training problem more clearly. This search produced little relevant information. It appeared as if military literature concentrated upon procedures and the planning phase, as opposed to the execution phase. In fact, the term "supervision" tends to be used as a general summary for the activities of the commander and his staff during the execution phase. The review did reinforce two conclusions relevant to training in CATTs. First, staff members as well as the commander participate in supervisory activities. Second, supervisory activities involve the use of information and interpersonnel interaction in such a manner that the organization as a whole accomplishes its missions.

The focus of the concept paper on the execution of tactical operations and the notion that all members of the battalion command group participate in supervising combat operations led to three tentative conclusions about training in the demonstration model of CATTs.

First, it appeared as if training in CATTs should focus on general-level performances and skills applicable to the dynamic and varied tactical problems characterizing combat. That is, training in CATTs was not to prepare the members of a command group to cope with a prescribed set of problems or to be able to demonstrate a fixed set of performances. Rather, this training should prepare trainees to handle problems that would emerge from the interaction of the effects of their own decisions/actions and the other variables that characterize and influence the unfolding of a tactical operation. In this sense, training was to concern soft-skills that would perhaps be applicable to settings other than the military.

Second, it was clear that training in CATTs should pertain to tasks involved in the supervision of ongoing combat operations.

Third, it was concluded that the demonstration model of CATTs should be a team trainer. This conclusion was supported by both the configuration of the hardware and software of the CATTs system and the interpersonal nature of supervisory activities.

Based on these conclusions, an approach for the development of training or performance objectives was formulated. According to the approach, training in CATTs was to be based on two sets of interrelated performance objectives. The first set was concerned with the types of tactical operations that could be simulated in CATTs. These objectives were to consist of tasks or performances based on "tactical concepts" judged to be important in the execution of tactical operations in desert settings. The term "tactical concept" referred to formulations, principles, or accepted beliefs on how tactical operations should be conducted through the use of men, equipment, and the environment when such functions as firepower, information acquisition, movement, and engagement are being implemented.

The second set of objectives was to be identified from the literature on decision making. Categories of performances were to be formed by extracting statements that describe behaviors demonstrated or hypothesized to be involved in decision making. These statements were then to be combined into groups of statements that seemed to be homogeneous in terms of either the behaviors described in them or the effects of the performances. For each group of statements, a "performance area" was to be formulated. A performance area would consist of statements that together could provide a conceptual definition and description of a set of performances and/or tasks involved in decision making and problem solving. Tasks listed in job-task inventories for the battalion commander (CO), intelligence officer (S2), operations officer (S3), and fire support coordinator (FSCOORD) would then be related to the performance areas and used as the media for training in CATTs.

Substantial progress was made toward completion of this approach. An initial identification of performance areas had been made, and job-task inventories for the battalion CO, S1, S2, and FSCOORD were partly developed. A change in guidance from TRADOC resulted in suspension of this work so that performance objectives responsive to the guidance could be prepared prior to the delivery of the hardware and computer software of CATTs. As the scheduled delivery was proximate, HumRRO's response to this guidance was shaped by the conclusions upon which the suspended work had been based.

Development Guidance

In early FY75, TRADOC¹ provided guidance that both changed and specified the objectives of training in the demonstration model of CATTs. According to this guidance, there is a training need to prepare the soldier to be able to adapt to and effectively fight under the conditions of the modern battlefield. These conditions include:

- Revolutionary changes in weaponry that can force the soldier to cope with previously unanticipated enemy capabilities of increasing magnitude.
- Adversity associated with rapid attrition rates.
- Reduced preparation time that increases the relative importance of oral orders as opposed to written orders.
- Means of communication that increase the importance of communications security.

¹"Meeting of B.G. Gorman with PD CATTs," Fort Benning, Georgia, 13 August 1974.

CATTS was presented as one attempt to satisfy this training need. According to this guidance, the two objectives of training in CATTS are:

- To increase the command group's understanding of the conditions characterizing the modern battlefield.
- To increase the command group's ability to fight under these conditions.

A list of relevant training areas was provided as part of the guidance and is presented in Appendix A of this volume.

APPROACH

Discussions with the user agency of TRADOC indicated that performance objectives for the demonstration model of CATTS should directly reflect the training areas included in TRADOC's guidance. It was also concluded that training in CATTS would concentrate on the command group as a team so that performance objectives were to describe performance accomplishments of the command group as a whole. The new approach adopted to develop performance objectives conformed to this definition of the research problem.

According to this approach, terminal performance objectives would consist of general performances to be attained by a command group during the execution phase of a combat operation. The action statement of a performance objective would not describe specific operating techniques or procedures. Rather, it would describe categories of performances so that actions could be represented in different ways under different conditions. The statement of conditions would identify dimensions or variables that would characterize, in varying degrees, the performance setting and that would be appropriate for the occurrence and measurement of the actions in the tactical settings simulated in CATTS. In the statement of standards, a basis for evaluating any representative action under any array of conditions was to be identified. The standards were to be of such a form that they could be translated into objective measures for evaluation of training effectiveness. This approach was judged favorably because it seemed to address the training purpose of CATTS: To prepare command groups to adapt to the varying conditions of the battlefield.

The general nature of the performance objectives, however, created two problems. The first concerned specification of the appropriate training content. That is, the performance objectives delineated the types of performances that should be influenced during training. The subject matter of training should be designed to improve these performances in terms of the requirements for successful performance accomplishment. The general nature of the performance objectives would increase the difficulty of specifying the requirements underlying the performance objectives. To handle this problem, "enabling objectives" were to be developed. According to the approach, enabling objectives were to consist of the component tasks that together constituted a performance objective.

The second problem was especially related to performance standards. The standard of a performance objective was designed to outline the general basis for evaluating performance. This design lacked precision and objectivity. To increase the specificity of standards, a third set of objectives were to be developed along with the tactical scenarios by identifying actions, conditions, and solutions directly involved in the scenarios. According to this approach, the problems of specificity and objectivity were to be handled at a later time and with the development of training materials.

To implement this approach, a candidate list of performances of the command group during the execution phase of a combat operation was developed.¹ The list was based on the examples of priority performance areas suggested by TRADOC (see Appendix A), augmented by statements of problems encountered during the most recent incident in the Middle East.

The performances were then reviewed by military training experts to develop statements of actions and conditions. The statements of actions were developed by rewriting the performances so that they would be more appropriate for training. The statements of conditions were intended to describe the tactical settings appropriate both for performing the tasks and for measuring them. At that time, the candidate list was also reduced by eliminating those performances that could not be supported by the software being developed for the demonstration model of CATTs. In particular, those performances that were not applicable to all operations being modeled by the computer were eliminated from further consideration.

After the actions and conditions had been drafted, standards were developed by a military expert who consulted military literature. The draft performance objectives and the related actions, conditions, and standards were then reviewed and revised together.

After terminal performance objectives had been developed, they were analyzed to derive enabling objectives, as defined earlier. That is, the action statements of several performance objectives were composed of several actions. For these performance objectives, each component action became the basis of an enabling objective. The conditions and standards for an enabling objective were derived by extracting the appropriate materials from its original performance objective.

The terminal performance objectives developed according to this approach are presented as the results of this volume. Related enabling objectives can be found in Appendix B. The objectives were submitted to TRADOC's direct user agency of CATTs as draft performance objectives. This agency then revised and staffed them with students from the U.S. Army Infantry School. This coordination resulted in further revisions of the performance objectives prior to their use for further training development.

¹Dr. Bruce Knerr of the U.S. Army Research Institute for the Behavioral and Social Sciences participated in the development of the initial list of performances.

RESULTS

The terminal performance objectives developed for training in the demonstration model of CATTS are presented in this section. As mentioned earlier, each performance objective consists of three sets of statements representing the following components: actions, conditions, and standards. The enabling objectives related to the performance objectives are listed in Appendix B.

TERMINAL PERFORMANCE OBJECTIVE 1

Action

Prevent unanticipated actions of the enemy by collecting information about the enemy, evaluating it with respect to the tactical situation, and using it effectively.

Conditions

- (1) Information is being communicated among all agencies and sources intermittently.
- (2) Specific information is being sought on a continuing basis.
- (3) Subordinate units are tasked with operational missions.
- (4) Recent and past activities of the enemy indicate that the unexpected action is now a common characteristic in all operations.

Standard

The command group will collect and evaluate that information which will yield the intelligence needed for issuing timely orders and taking necessary actions to prevent unanticipated enemy actions.

TERMINAL PERFORMANCE OBJECTIVE 2

Action

Recognize features in the area of operations (e.g., avenues of approach, key terrain features) and use their advantages and disadvantages to enhance the capabilities of friendly forces.

Conditions

- (1) Terrain in the area of operations is varied in terms of (a) avenues of approach, (b) key terrain, (c) observation, (d) field of fire, (e) cover and concealment, and (f) obstacles.
- (2) Actions of the enemy occur that give terrain new significance in light of the current mission, or
- (3) New missions are received that give terrain new significance, or
- (4) Natural phenomena occur that give terrain new significance, or
- (5) Ongoing operations reveal new information about terrain or confirm assumptions.

Standard

The command group will achieve or retain control of terrain that is essential for:

- (1) Observation
- (2) Communications
- (3) Maneuver of forces
- (4) Security
- (5) Flexibility

TERMINAL PERFORMANCE OBJECTIVE 3

Action

Determine the enemy's most probable course of action.

Conditions

- (1) Assorted information about the enemy has been and is being reported from subordinate units and elements.
- (2) Assorted information about the enemy has been and is being reported from higher and adjacent headquarters.
- (3) Past and recent activities of the enemy are known.

Standard

The command, by continuous analysis of the enemy's situation, will be able to determine two courses of action that are within the capabilities of the enemy and the one most probable of adoption at any time during the conduct of the operation.

TERMINAL PERFORMANCE OBJECTIVE 4

Action

Identify and interpret the fires of the enemy's weapons.

Conditions

- (1) The enemy has been and is firing various types of weapons on friendly forces.
- (2) SOPs on the enemy's activities are being implemented at all levels of command.
- (3) Friendly forces are executing assigned tasks.

Standard

The command group will:

- (1) Accurately and timely identify the fires of the enemy's weapons.
- (2) Accurately and timely interpret the fires of the enemy's weapons.

TERMINAL PERFORMANCE OBJECTIVE 5

Action

Identify, based on available information, the enemy's actions and take appropriate actions.

Conditions

- (1) The enemy is conducting a given tactical operation, and this is known by all concerned.
- (2) Tasks assigned in the current operations orders are being implemented as directed.
- (3) Various reports from sources and agencies are describing enemy activities that are:
 - (a) Anticipated
 - (b) Unanticipated
 - (c) Conform to enemy doctrine
 - (d) Do not adhere to characteristic model of operation
 - (e) Any combination of (a) through (d).

Standard

The command group will:

- (1) Accurately and timely identify anticipated actions of the enemy and take appropriate actions.
- (2) Accurately and timely identify unanticipated actions of the enemy and take appropriate actions.

TERMINAL PERFORMANCE OBJECTIVE 6

Action

Identify the enemy's feints, ruses, and deceptions.

Conditions

- (1) Reports of recent and past activities indicate that the enemy has used feints, ruses, and deceptions with success.
- (2) Current intelligence estimates give the enemy the capability to execute feints, ruses, and deceptions, but these activities are not the enemy's current most probable course of action.
- (3) Various reports of current activities tend to confirm current estimates of the enemy's most probable course of action.
- (4) Other unconfirmed reports do not support the current estimates of enemy's most probable course of action.

Standard

The command group will correctly and timely identify those actions of the enemy which are feints, ruses, and/or deceptions.

TERMINAL PERFORMANCE OBJECTIVE 7

Action

Prevent unanticipated enemy actions by taking measures to counter the enemy's gathering of information about the situation of friendly forces.

Conditions

- (1) SOPs regarding security measures are being implemented.
- (2) Current operation order accentuates selected provisions of the SOPs and includes tailored instructions for the current operation.
- (3) The enemy is actively engaged in the pursuit of information.

Standard

The command group will prevent unanticipated actions of the enemy by taking measures to counter the gathering of information by the enemy that include (a) physical security and (b) communications security.

TERMINAL PERFORMANCE OBJECTIVE 8

Action

Employ organic and supporting fires to maximize their fullest capabilities.

Conditions

- (1) Concept of fire support is in consonance with the scheme of maneuver.
- (2) Target lists concentrate on the enemy's vulnerabilities.
- (3) Organic and supporting elements are delivering fires as planned or on call.
- (4) Enemy is within range of organic and supporting fires.

Standard

The command group will take actions to employ organic and supporting fires which place (a) the best available destructive weapon on (b) the intended target at (c) the most advantageous time.

TERMINAL PERFORMANCE OBJECTIVE 9

Action

Implement improvisation when the conventional methods of employment of tactical formations, weapons, and equipment would not be effective.

Conditions

- (1) An unanticipated action of the enemy occurs during a given operation.
- (2) Conventional tactical formation is obviously ineffective to cope with the situation resulting from the action.
- (3) Only one of the immediately available close support weapons would be effective against the enemy.
- (4) Some of the available equipment is still effective despite the action of the enemy.

Standard

The command group will adopt and implement without hesitation a course of action that best utilizes the fires of the immediately available close support weapons and available equipment in combination with available personnel when unanticipated actions

of the enemy render ineffective conventional methods of employment of tactical formations, weapons, and equipment.

TERMINAL PERFORMANCE OBJECTIVE 10

Action

Identify, under conditions of unanticipated catastrophic losses of equipment and casualties, remaining capabilities and vulnerabilities and take immediate action.

Conditions

- (1) A major subordinate element reports unanticipated catastrophic losses of personnel and equipment at a crucial stage during an attack, defense, or retrograde operation.
- (2) Higher headquarters direct continuation of the assigned mission.
- (3) Higher headquarters direct that no immediate replacements are available for either personnel or equipment.
- (4) Confirmed reports indicate that the situation will favor the enemy if some immediate action is not taken.

Standard

The command group will order immediate actions that take maximum advantage of the available organizational capabilities to offset any temporary gain of the enemy and/or reduce own vulnerabilities as a result of unanticipated catastrophic equipment losses and casualties.

TERMINAL PERFORMANCE OBJECTIVE 11

Action

Take effective actions in situations for which tactical doctrine is insufficient or inappropriate.

Conditions

- (1) A subordinate unit reports inability to accomplish immediate tasks due to unique conditions in the situation.
- (2) It is apparent to all concerned that tactical doctrine is insufficient or inappropriate for the reported unique conditions.
- (3) The mission of the organization is unchanged.

Standard

The command group will, when tactical doctrine is insufficient or inappropriate, take some action that either:

- (1) Supports the accomplishment of subordinate unit's immediate tasks, or
- (2) Furthers the ultimate accomplishment of the organization's mission.

TERMINAL PERFORMANCE OBJECTIVE 12

Action

Effect timely resupply in personnel, supplies, and equipment to minimize interruptions in executing tactical operations.

Conditions

- (1) An unanticipated excessive loss of personnel is reported, or
- (2) An unanticipated loss of a critical class of supply is reported, or
- (3) An unexpected excessive loss of equipment is reported, or
- (4) Any combination of (1), (2), or (3) is reported.
- (5) Emergency resupply is obvious to all concerned.
- (6) Contingency plan exists, but they do not take into account the situation being reported.

Standard

The command group will effect resupply of a class of supply, equipment, and/or personnel in a timely manner that allows the organization:

- (1) To accomplish its assigned mission without interruption, or
- (2) To alter or modify its operations plan and still execute its assigned mission.

TERMINAL PERFORMANCE OBJECTIVE 13

Action

Maintain continuous and secure communications.

Conditions

- (1) Multiple means of communication exist between command levels.
- (2) Capabilities of equipment satisfy needs for communicating between command levels during the conduct of the battle.
- (3) Enemy has ECM capability.
- (4) SOPs and operation orders provide appropriate guidance.

Standard

The command group will maintain continuous and secure communications by:

- (1) Overcoming attempted and/or successful interferences by the enemy.
- (2) Overcoming disruptions due to weather and failure of equipment.
- (3) Adhering to policies and procedures relating to security.

TERMINAL PERFORMANCE OBJECTIVE 14

Action

Communicate with higher, subordinate, adjacent headquarters personnel and with members of the command group in a fashion that produces intended responses.

Conditions

- (1) Ongoing activities are being reported at the various levels of command.
- (2) Orders and requests are being issued at the various levels of command.
- (3) Intra-staff procedures are being implemented routinely.
- (4) Inter-staff procedures are being implemented routinely.

Standard

The command group will produce the intended responses each time it communicates.

TERMINAL PERFORMANCE OBJECTIVE 15

Action

During combined arms operations, alter the scheme of maneuver and/or plan of fire support when either or both would be ineffective due to unanticipated conditions associated with the enemy, weather, and terrain.

Conditions

- (1) During the conduct of the operation, while executing assigned tasks based on a scheme of maneuver and its related plan of fire support, subordinate units report that conditions related to the enemy, terrain, and/or weather are interfering with their progress in varying degrees.
- (2) The reports imply that a change in the scheme of maneuver and/or the plan of fire support is necessary.

Standard

The command group will alter the scheme of maneuver and/or its related plan of fire support, as necessary, to successfully accomplish the assigned mission.

DISCUSSION

The terminal performance objectives represent an application of training technology in the development of CATTS as a training system. They are only an initial step in the development of training for the demonstration model, and further training development is necessary before training can be implemented. The additional work includes (a) the identification and selection of training content and (b) the specification of a feasible training approach for the demonstration period. Certain features of the performance objectives and of the approach used in their development need to be taken into account as this work is undertaken.

The performance objectives for the demonstration model describe general-level performances that can be represented by different performances in a variety of tactical settings. The enabling objectives were derived in order to increase their specificity. Even the enabling objectives lack the most desired level of specificity, however.

The general nature of the performance and enabling objectives has several implications for future training development. The potentially greater number and variety of knowledges, skills, and attitudes underlying such performances will increase the level of effort required to identify appropriate training content. Specification of performance requirements will be less unequivocal, especially for those actions that are soft skills. Greater care will also be needed in the selection of appropriate training content for groups with known and varying entry levels. As discussed later, the lack of specificity will also affect the measurement of training effectiveness.

The general or abstract nature of the performance objectives was intended to fit with the purpose of training in CATTS. According to the concept of CATTS, training is to improve the command group's understanding of and ability to handle the various, unpredictable, and dynamic conditions of the modern battlefield. The approach taken in response to this purpose creates measurement problems that are discussed later. It also raises questions about the conditions that should characterize tactical training exercises in CATTS. These training conditions would ideally be structured so that training benefits could generalize or transfer to performance in a variety of operational settings, as opposed to a single tactical setting.

The statements of conditions, included as one of the components of a performance objective, describe conditions that would provide occasions for performance of the related actions. The conditions as stated, however, do not indicate the specific tactical conditions that would be most conducive to the transfer of training. Moreover, the selection of training conditions is not facilitated by either the potential variations in the complex of tactical operations or the available information descriptive of performance during the execution phase. One solution would be to structure training in CATTS in terms of the learning of "principles."¹ In this manner, training groups would be exposed to varying combinations of the tactical conditions associated with the actions of a performance objective.

The general nature of the performance objectives and the aim of generalizing training effectiveness across tactical settings produce several measurement problems. The traditional problem of developing training conditions conducive to the objective

¹ R.M. Gagne. *The Conditions of Learning*, Holt, Rinehart and Winston, New York, 1965.

identification and evaluation of performance must be handled. Two other problems are somewhat unusual, however. The first concerns the settings for measuring training effectiveness. In terms of the training purpose, the appropriate measure of training effectiveness would seem to involve multiple measures made under differing performance settings. In this manner, transfer across performance settings could be assessed. The second problem concerns the appropriate manner in which to summarize repeated measures. Performance consistency in addition to (or in combination with) level of achievement merits consideration.

One final implication concerns the likelihood of successfully implementing training in CATTs. According to the concept of CATTs, training takes place by involving trainees in simulated tactical exercises that closely approximate the conditions of the modern battlefield. Several different approaches to training could be used to implement this concept. Training could, for example, be based on the implementation of continuous uninterrupted tactical scenarios. An alternative approach would involve the design and implementation of short tactical scenarios structured around a limited number of performance objectives. Whatever the particular approach eventually selected, it should conform to sound training principles.

In addition, the requirements for implementing the approach must be compatible with the operational capabilities of other components of the training system, in particular the capabilities of the hardware and computer software and the requirements to operate them, thereby making use of the capabilities. If training technology, hardware/software capabilities, and operating requirements are not compatible, the likelihood of implementing an effective training program would be greatly diminished.

Ideally, there would be no question about the compatibility of these three components, since the hardware and software would have been designed in terms of the training use of the system. The development of CATTs did not proceed according to this ideal. The training use of CATTs had not been thoroughly enunciated when the design specifications for the hardware and software were written. As noted earlier, the objectives of training in CATTs have also changed since their development. These conditions imply that the likelihood of successfully implementing training in CATTs is partly dependent on the development of training technology matched to the capabilities of the hardware and software of CATTs. For this reason, only those performance objectives judged to be compatible with the CATTs' mathematical model were recommended. Before the content and techniques of training are finalized, they will also have to be assessed to estimate the feasibility of their implementation within the restraints of remaining components of the system.

In summary, terminal performance objectives were developed for the demonstration model of CATTs. Before training can be implemented, further training development will be necessary. This work, which includes the development of training content and approaches, will need to take into account the general nature of the performance objectives, their orientation toward the group, and the training purpose of CATTs. It will also entail development of a training approach that is compatible with the capabilities of the remaining components of the system.

**REFERENCES
AND
APPENDICES**

REFERENCES

- Ammerman, Harry L., and Melching, William H. *The Derivation, Analysis, and Classification of Instructional Objectives*, HumRRO Technical Report 66-4, May 1966.
- Caro, Paul W. *Equipment-Device Commonality Analysis and Transfer of Training*, HumRRO Technical Report 70-7, June 1970.
- Gagne, R. M. *The Conditions of Learning*, Holt, Rinehart and Winston, New York, 1965.
- U.S. Army Infantry School. *Training Device Requirement for the Combined Arms Tactical Training Simulator*, Fort Benning, Georgia, March 1973.

Appendix A

List of Subjects for Training: TRADOC

1. Feasibility and desirability of night operations.
2. River-crossing capabilities.
3. Use of terrain to minimize losses.
4. Value and use of combined arms on the modern battlefield:
 - a. Suppression effects of anti-tank guided missiles.
 - b. Suppression of RPG fires.
 - c. Suppression effects of anti-air weapons.
 - d. Overwatch techniques of tank gunnery.
 - e. Capabilities of Air Force.
5. Production of complete, succinct, and secure oral orders:
 - a. Radio-telephone procedures.
 - b. Electronic countermeasures/communication security.
6. Appreciation of the lethality and ranges of modern weapons.
 - a. Enemy tanks.
 - b. SWAGGER/SWATTER.
 - c. Unanticipated weapons.
7. Requirements for operating under conditions of high combat losses.
 - a. Catastrophic losses and associated repairs.
 - b. Attrited capabilities.
 - c. Resupply orchestration.

Appendix B

Enabling Objectives for the Demonstration Model of CATTs

TERMINAL PERFORMANCE OBJECTIVE 1

ENABLING OBJECTIVE 1A

Action

Collect information about the enemy.

Conditions

- (a) Brigade and battalion EEI and OIR are known.
- (b) The collection plan has been developed, approved, and is being implemented.
- (c) Collection agencies are capable of accomplishing their assigned missions.

Standard

The command group, as a minimum, will:

- (a) Select the best agencies for accomplishing collecting information.
- (b) Issue timely, succinct, and understandable orders and requests.
- (c) Allow enough time for the agency selected to plan, execute, and report the results of the mission.

ENABLING OBJECTIVE 1B

Action

Record information reported to the command group.

Conditions

- (a) Assorted pieces of information are available.
- (b) Intelligence map, journal, workbook, files, and writing equipment are available.

Standard

The command group, as a minimum, will record in a timely and accurate manner, pertinent information on the intelligence map and at least on one of the following:

- (a) The unit journal,
- (b) The S-2 workbook, or
- (c) The intelligence files.

ENABLING OBJECTIVE 1C

Action

Evaluate information with respect to the tactical situation.

Conditions

- (a) Assorted pieces of information are available.
- (b) Several periodic reports which give information on recent enemy activity are available.
- (c) All recent intelligence reports from brigade and division have been received and are available.
- (d) Staff members, higher subordinate, and adjacent headquarters are seeking information from the command group.
- (e) The situation map is posted with current data.

Standard

The command group, as a minimum, will determine:

- (a) The pertinence of the information.
- (b) The reliability of the source or agency providing the information.
- (c) The accuracy of the information.

ENABLING OBJECTIVE 1D

Action

Use available intelligence.

Conditions

- (a) An assortment of intelligence is available.
- (b) Some of the available intelligence is needed.
- (c) A variety of dissemination means are available.

Standard

The command group, as a minimum, will use available intelligence for the following purposes:

- (a) Continuing intelligence estimate (oral presentation),
- (b) Spot reports,
- (c) Intelligence summary,
- (d) Operation orders and fragmentary orders, and/or
- (e) Briefing and conferences.

TERMINAL PERFORMANCE OBJECTIVE 2

ENABLING OBJECTIVE 2A

Action

Identify avenues of approach into the enemy's rear area during offensive operations.

Conditions

- (a) An approved analysis of the area of operations and/or intelligence estimate for higher headquarters is available.
- (b) A current map of the area of operations is available.
- (c) Key terrain features have been correctly identified and are known.
- (d) Composition and disposition of enemy forces in the area of operations are known, or this information is available.

Standard

- (a) The command group will, as a minimum, identify all avenues of approach into the battalion area in writing and/or graphically portray them on a map from the line of departure/line of contact to the objective in the enemy's rear area.
- (b) They will be identified as high speed armor-mechanized or dismounted infantry avenues of approach.
- (c) They will be identified for main attack and supporting attack(s).
- (d) Minimum considerations in determining the above will be:
 - (1) Observation and fire,
 - (2) Cover and concealment,
 - (3) Obstacles—natural and man-made.
 - (4) Key terrain—natural and man-made,
 - (5) Ease of movement—pertaining to size and type of force making attack over the avenue of approach, and
 - (6) Maneuver space—pertaining to size and type of force making attack over the avenue of approach.

ENABLING OBJECTIVE 2B

Action

Identify avenues of approach into the battalion area of operations during defensive operations.

Conditions

- (a) An approved analysis of the area of operations and/or intelligence estimate from higher headquarters is available.
- (b) A current map of the area of operations is available.
- (c) Key terrain features have been correctly identified and are known.

Standard

- (a) The command group will, as a minimum, identify all avenues of approach into the battalion area in writing and/or graphically portray on a map from the enemy's current

location to a point in the battalion rear which would control all (or a large portion) of the battalion area of operations.

(b) They will be identified as high speed armor-mechanized or dismounted infantry avenues of approach.

(c) They will be identified from most dangerous to least dangerous.

(d) They will be identified from most likely to least likely.

(e) Minimum considerations in determining the above will be:

- (1) Observation and fire,
- (2) Cover and concealment,
- (3) Obstacles—natural and man-made,
- (4) Key terrain—natural and man-made,
- (5) Ease of movement—pertaining to the size and type of enemy force opposing the battalion, and
- (6) Maneuver space—pertaining to the size and type of enemy force opposing the battalion.

ENABLING OBJECTIVE 2C

Action

Identify key terrain features within the area of operation.

Conditions

(a) An approved analysis of the area of operations and/or current intelligence estimate from higher headquarters is available.

(b) A current map of the area of operations is available.

(c) Current weather report for the period during the operation is available.

Standard

The command group will, as a minimum, identify those terrain features, natural or man-made, which afford a marked advantage to the unit occupying or controlling them, in writing and/or on a map of the area of operations.

ENABLING OBJECTIVE 2D

Action

Utilize the advantages and disadvantages of key terrain and avenues of approach.

Conditions

(a) A current map of the area of operations is available.

(b) Key terrain features and avenues of approach have been correctly identified and are known.

(c) The number and type of troops, equipment and additional combat power assigned, attached, OPCON, supporting or allocated to the battalion for the operation is known.

(d) Current intelligence estimates and intelligence summaries from higher headquarters are available and have been received.

Standard

The command group will, as a minimum:

- (a) Utilize key terrain features and avenues of approach to provide for:
 - (1) Placement of troops on the battlefield so as to deny the enemy access to the battalion rear area.
 - (2) Placement of artillery fire.
 - (3) Emplacement of engineer obstacles to reinforce natural barriers and obstacles.
 - (4) Maneuver of the reserve.
 - (5) Placement of combat and field trains.
 - (6) Placement of organic indirect fire supporting weapons.
 - (7) Placement of organic direct fire supporting weapons.
- (b) Identify key terrain features and avenues of approach in written operations orders, written or oral fragmentary order, or situation map overlap.

TERMINAL PERFORMANCE OBJECTIVE 3

ENABLING OBJECTIVE 3A

Action

Know the enemy's strength and location.

Conditions

- (a) Assorted enemy information has been and is being reported for subordinate units and elements.
- (b) Assorted enemy information has been and is being reported from higher and adjacent headquarters.
- (c) Past and recent activities of the enemy are known.

Standard

The command group, as a minimum, will know the estimated strength and location of the enemy opposing the forward elements with no greater error than 10% in the strength and 100 meters in the location at anytime during the operation.

ENABLING OBJECTIVE 3B

Action

Know the enemy's activities.

Conditions

- (a) Assorted enemy information has been and is being reported from subordinate units and elements.
- (b) Assorted enemy information has been and is being reported from higher and adjacent headquarters.
- (c) Past and recent activities of the enemy are known.

Standard

The command group, as a minimum, will know the most significant recent and current enemy activities that impact on enemy capabilities.

TERMINAL PERFORMANCE OBJECTIVE 4

ENABLING OBJECTIVE 4A

Action

Identify the fires of enemy weapons from various reports.

Conditions

- (a) The enemy is firing various types of weapons on forward elements.
- (b) Reporting of enemy activities is in accordance with SOPs at all levels of command.
- (c) Friendly forces are executing assigned tasks.

Standard

The command group, as a minimum, will accurately and timely identify the fires of enemy weapons as either direct or indirect, short or long range.

ENABLING OBJECTIVE 4B

Action

Interpret the fires of enemy weapons from various reports.

Conditions

- (a) The enemy is firing various types of weapons on forward elements.
- (b) Reporting of enemy activities in accordance with SOPs at all levels of command.
- (c) Friendly forces are executing assigned tasks.

Standard

The command group, as a minimum, will accurately and timely interpret the fires of enemy weapons as either organic to or in support of the locally available enemy forces.

TERMINAL PERFORMANCE OBJECTIVE 5

ENABLING OBJECTIVE 5A

Action

Identify anticipated enemy actions and take appropriate action.

Conditions

- (a) Past reports of enemy activities confirm current estimates of enemy probable course of action.
- (b) Tasks assigned in the current operation order are being implemented as directed.
- (c) Friendly forces report ongoing enemy activity which conforms to enemy tactical doctrine and which requires immediate command action.

Standard

The command group, as a minimum, will accurately and timely identify probable enemy actions and take appropriate immediate action that produces a favorable outcome.

ENABLING OBJECTIVE 5B

Action

Identify unanticipated enemy actions and take appropriate action.

Conditions

- (a) Past reports of enemy activities confirm current estimates of enemy capabilities.
- (b) Tasks assigned in the current operation order are being implemented as directed.
- (c) Friendly forces report on-going enemy activity which does not conform to enemy tactical procedures and requires immediate command action.

Standard

The command group, as a minimum, will accurately and timely identify previously unanticipated enemy actions and take appropriate immediate action that produces a favorable outcome.

TERMINAL PERFORMANCE OBJECTIVE 6

(No Enabling Objectives)

TERMINAL PERFORMANCE OBJECTIVE 7

ENABLING OBJECTIVE (Defense) 7A

Action

Prevent unanticipated enemy actions by denying to the enemy knowledge of own activities through use of physical security measures.

Conditions

- (a) Enemy is in active pursuit of information.
- (b) Security SOP is being implemented.
- (c) COP is established.
- (d) A ground surveillance section is attached to the COP.
- (e) Requests for TAC RECCE have been made.

Standard

The command group, as a minimum, will:

- (a) Provide for aggressive patrolling in front of the COP and the Forward Defense Echelon.
- (b) Provide for indirect fire support for the COP to yield Harrassing and Interdicting fires as well as fires for denial to enemy key terrain for observation.
- (c) Provide use of camouflage.
- (d) Provide for tactical cover and deception for all units including battalion TOC.

ENABLING OBJECTIVE (Offense) 7B

Action

Prevent unanticipated enemy actions by denying to the enemy knowledge of own activities through use of physical security measures.

Conditions

- (a) Enemy is in active pursuit of information.
- (b) Security SOP for internal activities is being implemented.
- (c) Own forces are implementing tactical security tasks.
- (d) Close supporting fires are planned and on call.

Standard

The command group, as a minimum, will:

- (a) Provide for continuous tactical security—air and ground during the attack.
- (b) Employ close fire support to deny enemy key terrain for observation.
- (c) Move reserve elements during periods of poor visibility and/or from concealment to concealment.
- (d) Order extensive use of camouflage as appropriate.
- (e) Provide for tactical cover and deception for all units including the battalion TOC.

ENABLING OBJECTIVE 7C

Action

Prevent unanticipated enemy actions by denying to the enemy knowledge gained through monitoring FM radio transmissions.

Conditions

- (a) Enemy is in active pursuit of information.
- (b) All FM radio sets within the battalion have secure speech modes with the exception of the squad radios.
- (c) Security SOPs are being implemented.
- (d) Current CEOI is in effect.

Standard

The command group, as a minimum, will direct that:

- (a) No radio sets will be operated without secure speech mode being utilized.
- (b) No grid coordinates will be sent in the clear.
- (c) Call signs and shackle codes will be changed each 24 hours.
- (d) Authentications will be used upon opening and closing of any set at any time doubt exists as to the authenticity of any station.
- (e) No classified data will be transmitted.
- (f) FM transmissions will be kept to a minimum.

TERMINAL PERFORMANCE OBJECTIVE 8

ENABLING OBJECTIVE 8A

Action

Employ organic indirect fires to their maximum destructive capabilities.

Conditions

- (a) The fire support plan supports the scheme of maneuver.
- (b) Target lists concentrate on the enemy's known and assumed locations as well as vulnerabilities.
- (c) 4.2" mortar platoon is delivering fires as planned or on call.
- (d) The enemy is within range.

Standard

The command group, as a minimum, will:

- (a) Displace 4.2" mortars in a timely manner so that continuous, organic, indirect fire is available to all organic, attached, or OPCON unit.
- (b) Change fire priority as the tactical situation dictates to maximize available destructive capabilities.
- (c) Call for massing of fires in a timely manner to exploit either any unexpected change in the tactical situation or any enemy weakness.
- (d) Shift fires, as necessary, to maximize destructive capabilities.

ENABLING OBJECTIVE 8B

Action

Employ supporting indirect fires to their maximum destructive capabilities.

Conditions

- (a) The fire support plan supports the scheme of maneuver.
- (b) Target lists concentrate on enemy's vulnerabilities.
- (c) Supporting indirect fire elements are delivering fires as planned or on call.
- (d) The enemy is within range.

Standard

The command group, as a minimum, will:

- (a) Change fire priority as the tactical situation dictates to maximize available destructive capabilities.
- (b) Call for massing of fires in a timely manner to facilitate the scheme of maneuver.
- (c) Shift fires, as necessary, to maximize destructive capabilities.

ENABLING OBJECTIVE 8C

Action

Employ aviation fire support to its maximum destructive capability.

Conditions

- (a) The fire support plan supports the scheme of maneuver.
- (b) Appropriate targets are identified and reported.
- (c) Aviation assets (tactical air and aerial field artillery) are included in the plan of fire support.

Standard

The command group, as a minimum, will:

- (a) Request pre-planned tactical air strikes when their maximum destructive capabilities can be realized.
- (b) Modify pre-planned tactical air strikes, when necessary, to achieve maximum destructive capabilities.
- (c) Call for planned aerial field artillery support when maximum destructive capability is possible.
- (d) Modify aerial field artillery support plan, when necessary, to achieve maximum destructive capabilities.

TERMINAL PERFORMANCE OBJECTIVE 9

ENABLING OBJECTIVE 9A

Action

Formulate tentative courses of actions and test their feasibility and effectiveness prior to implementation.

Conditions

- (a) An unanticipated enemy action occurs during a given operation.
- (b) Conventional tactical formations would not be effective for coping with the situation resulting from the action.
- (c) Only one of the immediately available close support weapons would be effective against the enemy.
- (d) Some of the available equipment is still effective despite the enemy action.

Standard

The command group, as a minimum, will accomplish the following when unanticipated enemy actions render ineffective tactical formations, weapons, and equipment:

- (a) Immediately formulate tentative courses of actions.
- (b) Test the feasibility and effectiveness of the courses of action with lower and higher headquarters.

TERMINAL PERFORMANCE OBJECTIVE 10

ENABLING OBJECTIVE 10A

Action

Formulate tentative courses of action and test their feasibility and effectiveness prior to implementation.

Conditions

- (a) A major subordinate element reports unanticipated and catastrophic losses in personnel and equipment at a crucial stage during an operation.
- (b) Higher headquarters directs continuation of the assigned mission.
- (c) Higher headquarters indicates that no immediate replacements are available for either personnel or equipment losses.
- (d) Confirmed reports indicate that the situation will favor the enemy if some immediate action is not taken.

Standard

The command group, as a minimum, will accomplish the following under conditions of unanticipated catastrophic equipment losses and casualties:

- (a) Immediately formulate tentative courses of action.
- (b) Test the feasibility and effectiveness of the courses of action with lower and higher headquarters.

TERMINAL PERFORMANCE OBJECTIVE 11

ENABLING OBJECTIVE 11A

Action

Formulate tentative actions and test their feasibility and effectiveness prior to implementation.

Conditions

- (a) A subordinate unit reports inability to accomplish immediate tasks due to unique conditions in the situation.
- (b) It is apparent that tactical doctrine is insufficient or inappropriate for the reported unique conditions.
- (c) The mission of the organization is unchanged.

Standard

The command group, as a minimum, will accomplish the following when tactical doctrine is insufficient or inappropriate for a given situation:

- (a) Immediately formulate tentative courses of action.
- (b) Test the feasibility and effectiveness of the courses of action with lower and higher headquarters.

TERMINAL PERFORMANCE OBJECTIVE 12

ENABLING OBJECTIVE 12A

Action

Effect resupply of personnel.

Conditions

- (a) An unanticipated excessive loss of personnel is reported, and replacements are requested.
- (b) Contingency plans do not provide for this situation.
- (c) The loss of personnel jeopardizes the accomplishment of the mission.

Standard

The command group, as a minimum, will affect resupply of personnel in a timely manner that allows the organization:

- (a) To execute its assigned mission without interruption, or
- (b) To alter or modify its operation plan and still execute its assigned mission.

ENABLING OBJECTIVE 12B

Action

Effect resupply of critical supplies.

Conditions

- (a) An unanticipated excessive loss of small arms ammunition is reported during a critical stage of the operation, and emergency resupply is requested.
- (b) Contingency plans do not provide for this situation.
- (c) The loss of ammunition jeopardizes the accomplishment of the mission.

Standard

The command group, as a minimum, will effect resupply of critical supplies in a timely manner that allows the organization:

- (a) To execute its assigned mission without interruption, or
- (b) To alter or modify its operation plan and still execute its assigned mission.

ENABLING OBJECTIVE 12C

Action

Effect resupply of equipment.

Conditions

- (a) An unanticipated excessive loss of critical equipment is reported and resupply is requested.
- (b) Contingency plans do not provide for this situation.
- (c) The loss of equipment jeopardizes the accomplishment of the mission.

Standard

The command group, as a minimum, will effect resupply of equipment in a timely manner that allows the organization:

- (a) To execute its assigned mission without interruption, or
- (b) To alter or modify its operation plan and still execute its assigned mission.

TERMINAL PERFORMANCE OBJECTIVE 13

ENABLING OBJECTIVE 13A

Action

Maintain continuous communications.

Conditions

- (a) Several communication means are available to the organization and are in operation.
- (b) Assorted mechanical failures with communication equipment occur intermittently.
- (c) Occasional interferences are encountered due to weather effects.
- (d) Frequent jamming attempts are made by the enemy.
- (e) Appropriate provisions of SOPs that address communications are in effect.

Standard

The command group will, as a minimum:

- (a) Communicate with subordinate headquarters as necessary despite interferences due to equipment failure, weather, and/or the enemy actions.
- (b) Communicate with higher headquarters as directed and/or according to SOPs despite interferences due to equipment failure, weather, and/or the enemy actions.
- (c) Communicate with adjacent headquarters as directed and/or according to SOPs despite interferences due to equipment failure, weather, and/or the enemy actions.

ENABLING OBJECTIVE 13B

Action

Maintain secure communications.

Conditions

- (a) Appropriate provisions of SOPs and operation orders that address communications are in effect.
- (b) The available communications means are in continuous use.
- (c) TOC personnel are performing routine functions.

Standard

The command group will, as a minimum, adhere to the provisions of each directive concerning communications security at all times.

TERMINAL PERFORMANCE OBJECTIVE 14

ENABLING OBJECTIVE 14A

Action

When communicating, use interpersonal knowledges and skills.

Conditions

- (a) Ongoing activities are being reported at the various levels of command.
- (b) Orders and requests are being issued at the various levels of command.
- (c) Intra-staff procedures are being implemented routinely.
- (d) Inter-staff procedures are being implemented routinely.

Standard

The command group, as a minimum, will, when communicating:

- (a) Apply those communicative skills which assist in conveying a message.
- (b) Apply those psychological skills which assist in influencing or eliciting a response.

ENABLING OBJECTIVE 14B

Action

When communicating, use technical knowledges and skills.

Conditions

- (a) Ongoing activities are being reported at the various levels of command.
- (b) Orders and requests are being issued at the various levels of command.
- (c) Intra-staff procedures are being implemented routinely.
- (d) Inter-staff procedures are being implemented routinely.

Standard

The command group, as a minimum, will, when communicating:

- (a) Adhere to the regulations and policies concerning communication.
- (b) Apply the procedures for using communicating means.

TERMINAL PERFORMANCE OBJECTIVE 15

ENABLING OBJECTIVE 15A

Action

Change the task organization to alter the scheme of maneuver.

Conditions

- (a) Subordinate units report conditions related to the enemy, terrain, and/or weather which are interfering with their progress in varying degrees.
- (b) The reports indicate that a change in current task organization is necessary.

Standard

The command group, as a minimum, will attach and detach elements as necessary, when the scheme of maneuver requires such modification.

ENABLING OBJECTIVE 15B

Action

Change control measures to alter the scheme of maneuver.

Conditions

- (a) Subordinate units report conditions related to the enemy, terrain, and/or weather which are interfering with their progress in varying degrees.
- (b) The reports indicate that a change in existing control measures is necessary.

Standard

The command group, as a minimum, will change boundaries, phase lines, objectives, line of departure, check points, and final coordination lines as necessary when the scheme of maneuver requires such modification.

ENABLING OBJECTIVE 15C

Action

Change priorities of fires to alter the plan of fire support.

Conditions

- (a) A change in the scheme of maneuver is being made.
- (b) A change in fire support priority is necessary.

Standard

The command group, as a minimum, will change the priority of fires when necessary to support changes in the scheme of maneuver.