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**Assessment of SIMITAR:
Status Report One**

Jesse Orlansky
John Metzko
John Morrison
Greg Pickell

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PREFACE

This report is a partial fulfillment of a task entitled "Advanced Distributed Simulation Technology," which is sponsored by the Defense Advanced Research Projects Agency (DARPA). It describes the authors' initial assessment of the Simulation in Training for Advanced Readiness (SIMITAR) Program in training two Army National Guard (ARNG) brigades—the 48th Mechanized Infantry Brigade in Georgia and the 116th Armored Cavalry Brigade in Idaho (and elements in Oregon, Montana, and Utah).

We gratefully acknowledge the contributions of many people in our SIMITAR assessment effort: Colonel Michael Shaler (USA, Ret.) and Colonel Bennett Dixon (USA, Ret.) provided advice in structuring our evaluation of SIMITAR during 48th Brigade field exercises at the National Training Center (NTC) and then acted as observer-evaluators during the NTC exercises. Major Keith Johnson, Major Kevin Miller, and Sergeant Major John Webb, all of the ARNG, were also important observer-evaluators of SIMITAR training at the NTC. Arthur (A1) Fracker and Peter Grundvig, SIMITAR Program liaison officers with the 48th Brigade and 116th Brigade, respectively, provided information on training activities and simulator usage in the two SIMITAR test brigades. These individuals plus the following SIMITAR Program personnel provided information about who was trained and what tasks were trained on 25 interventions (devices or procedures in the SIMITAR Program) and reviewed our assessment: ARNG officers Colonel Randall Krug (SIMITAR Program Manager), Lieutenant Colonel Larry Headley, Sergeant Major Draper Bowne, Major Sean Donahue, Major Jeff Grant, Captain Steve Knutzen, Master Sergeant Roger McCullough, Major Dennis Ratashak, Captain Bradley Wolfing, and Douglas Dilday, Michael Hayes, and John Wasson. "Tarantula" observer-controllers at the NTC evaluated task performance by the 48th Brigade's Task Force 2-121. Joseph Hagman and Monte Smith, Army Research Institute researchers, provided preliminary tank gunnery performance information from an ongoing

assessment of tank gunnery training in the ARNG. Chief Warrant Officer Larry Shue, of the ARNG Readiness Center, furnished Standard Installation/Division Personnel System (SIDPERS) data runs that enabled us to identify numbers of personnel targeted for training by the various SIMITAR interventions in the test brigades. Anthea DeVaughan, Lee Ann Gehman (nee Miller), and Susan Taylor of IDA typed the report. John (Chuck) Everett did the editing. Numerous officers and staff noncommissioned officers of units of both SIMITAR brigades identified audiences and session length of training events where training records were incomplete or not available.

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SUMMARY

This report describes progress in evaluating the effectiveness of Simulation in Training for Advanced Readiness (SIMITAR) training technology to improve the performance of Army National Guard (ARNG) brigades. Our evaluation focuses first on the 48th Infantry Brigade training at the National Training Center (NTC) in 1996 and second on the 116th Cavalry Brigade at annual training (AT) and home station training. This report also describes our plan for completing the SIMITAR evaluation.

To accomplish our evaluation objective, we want to compare training *accomplishment* (measures of training effort such as hours of training, number of personnel trained, number of rounds fired, and so forth) and training *achievement* (measures of training results, such as performance to standard, loss-exchange ratios in exercises, tank firing scores, and so forth) of SIMITAR units with training accomplishment and achievement of non-SIMITAR units. In our study effort, training achievement is to be based, if possible, on task performance in field exercises at the NTC and/or at AT.

We adopted a list of Army Training and Evaluation Program (ARTEP)-derived tasks, which are included in the Army Research Institute's recently developed critical combat functions (CCFs) and which, in turn, are included in the Army's seven battlefield operating systems. Since it was impracticable to consider all 39 CCFs and well over 1,000 included tasks, we considered 14 CCFs in which ARNG units were deficient in past rotations at the NTC. The 14 CCFs include 518 tasks (see Table III-1). We wanted to use training performance of non-SIMITAR units to benchmark training performance of SIMITAR units; however, since no ARNG units had recently trained at the NTC, there was no such benchmark for the 48th Brigade at NTC 96.

The fact that some of the 518 tasks are trainable by SIMTAR devices and courses while other tasks are not gives us an alternative benchmarking option: performance on tasks *not* trained by SIMTAR benchmarks the performance on tasks trained by SIMTAR.

48th Brigade. Results from our assessment of the 48th Brigade's field exercises at NTC 96 (see Tables III-5 and III-6) follow:

- For the Task Force that used SIMTAR often:
Significantly better performance ($p < .05$) on tasks trained by Janus and Simulation Networking (SIMNET)
- For the Task Force that used SIMTAR less often:
Similar, but not statistically significant, trends for Janus
- For the Brigade HQ that did not use SIMTAR:

No performance differences between SIMTAR and non-SIMTAR tasks.

116th Brigade. During the 1993–1996 period in which SIMTAR became an increasingly major part of 116th Brigade tank battalions' training programs, achievements in gunnery, maneuver, and battle staff training improved notably (see Tables IV-7 and IV-8). In proportions of tank crews qualifying in first-run firing Tank Table (TT) VIII (crew gunnery qualification), 116th Brigade tank crews were inferior to tank crews of other Enhanced Readiness Brigades (ERBs) (see Table IV-9). However, in eventual TT VIII qualifications (mostly second attempts), the proportions favor the 116th tank crews. Thus, if we equate first-run firing to a live-fire tank crew proficiency course, there is no reason to believe that 116th tank crew performance is inferior. Moreover, no other ERB tank crews even attempt to fire TT XII (platoon gunnery qualification), which 116th tank crews did with some success (see Tables IV-7 and IV-8).

Different Focuses. The NTC training evaluation focuses on the large collectives at higher organization levels (brigade, battalion) whereas most SIMTAR devices and courses train individuals and

small collectives (crew, squad, platoon). Additional observer-controllers (OCs) are needed for the 116th Brigade at NTC 98 (than were involved at NTC 96) if we are to evaluate SIMITAR devices and courses other than Janus, SIMNET, Advanced Research Projects Agency Reconfigurable Simulator Initiative (ARSI), and perhaps Battle Staff Training System (BSTS) and Combat Service Support Interactive Courseware (CSS ICW). AT 97 presents an opportunity to assess task performance in the field by 116th Brigade units. Task performance by non-SIMITAR units could be assessed in field exercises at AT 97 and/or AT 98. With OCs to observe and assess the lower organizational levels, most of the SIMITAR devices and courses that are overlooked at the NTC could be evaluated (see Chapter VI).

User Acceptance. A group of officers who left the 116th Brigade after AT 96 expressed strong acceptance of SIMITAR training (see Chapter V).

Closing Observation. While many SIMITAR interventions (devices, courses, procedures, and strategies) remain to be evaluated, there is statistical evidence—in addition to users' testimony—that the SIMITAR training evaluated so far *does significantly improve training performance*.

I. INTRODUCTION

A. BACKGROUND

Three Army National Guard (ARNG) combat brigades were called up in 1990 for participation in the Persian Gulf War. These brigades underwent postmobilization training during Desert Shield (the operation that blocked Iraqi forces from moving into Saudi Arabia) but were not deployed with their parent active Army divisions because the Army considered them insufficiently trained. Reports of the training performance of these brigades identified three general training deficiencies: (1) individual skill proficiency, particularly in combat support (CS) and combat service support (CSS) (maintenance, supply, medical, communications); (2) collective combat proficiency at company or team level and below (particularly gunnery and technical and tactical proficiency of small unit leaders); and (3) battle staff synchronization by battalion and brigade commanders and staffs.

Army reluctance to deploy the Guard brigades to "roundout" their parent divisions spurred Congress to mandate and fund advanced technology training for Guard roundout brigades. Thus, the Simulation in Training for Advanced Readiness (SIMITAR) Program was formulated to use technology to improve ARNG training. Program managers and leaders are active duty Guardsmen under the administration of the Defense Advanced Research Projects Agency (DARPA). Two roundout brigades—the 48th Mechanized Infantry Brigade in Georgia and the 116th Armored Cavalry Brigade in Idaho (some elements in Oregon, Montana, and Utah) are test units for the SIMITAR Program.

B. OBJECTIVE

Our task objective is to evaluate the effectiveness of SIMITAR technology to improve the performance of ARNG brigades in exercises at the National Training Center (NTC) and in other training-related measures.

C. INTERVENTIONS

The SIMITAR Program currently consists of 26 devices, courses, and procedures that are being used or will soon be used in training programs of one or both SIMITAR test brigades. Table I-1 identifies these "interventions," and Table I-2 describes their functions. Twenty-one interventions train specific duty positions and/or military occupational specialties (MOSs) associated with deficiencies noted in postmobilization training of ARNG brigades during Desert Shield. Training devices and courses for individual skills include:

- Bradley Fighting Vehicle System (BFVS) Gunner Course
- Battle Staff Training System (BSTS)
- Combat Service Support (CSS) Interactive Courseware (ICW)
- Digital Systems Test and Training Simulator (DSTATS)
- Guard Unit Armory Device Full-Crew Interactive Simulator II (GFIST II)
- Staff Linkage Trainer (SLT)
- S2 Trainer
- Tank Commander Course
- Tank Gunner Course
- Voice-Operated Medical Triage Trainer (Triage)

Visual Reality Maintenance Trainer (VMAT).

Training devices for small unit and collective training include:

- Abrams Full-Crew Interactive Simulator (AFIST)
- Advanced Research Projects Agency Reconfigurable Simulator Initiative (ARSI)
- Conduct of Fire Trainer (COFT)
- Deployable Force-on-Force Instrumented Range System (D-FIRST)
- Engagement Skills Trainer (EST)
- Mobile Simulation Networking (SIMNET).

For training battlefield synchronization, SIMITAR has:

- Janus Battle Staff Trainer (Janus)¹
- Reserve Component Virtual Training Program (RCVTP)
- Simulation-Based Mounted Brigade Training Program (SIMBART)
- Simulation-Based Multiechelon Training Program for Armor Units (SIMUTA)

Two interventions are training *facilitators* as opposed to training devices: Automated Training Analysis and Feedback System (ATAFS) provides fast, comprehensive post-exercise feedback for SIMNET and Pen-Based Electronic Network for Command Information Linking (PENCIL) expedites communication of tactical information, including map overlays, before and during training exercises among geographically dispersed elements of ARNG units.

¹ Janus for a brigade staff and Janus for a battalion staff are considered different interventions.

Two interventions, Compressed Gunnery and Pile-on Training, are *strategies* to achieve training synergism. Compressed Gunnery mixes live fire and simulation throughout the year to maximize use of available training time. Pile-on weekends involve integrated usage of gunnery simulators (COFT, AFIST) and maneuver simulators (ARSI, SIMNET) to use inactive duty training (IDT) periods more effectively.

The SIMBART and SIMUTA trainers are structured exercises that provide training in brigade and battalion battle staff coordination, respectively. They are also strategic interventions in the sense that trainees spend more time and effort on execution and multiple iterations since much of the planning required for training exercises is built in. SIMUTA, which contains structured company- and platoon-level maneuver exercises, is also a training facilitator since it integrates battalion-level (Janus) and company-level (SIMNET) simulation scenarios.

D. ASSESSMENT METHOD

Evaluating SIMITAR involves comparing training accomplishment (amount of training conducted) and training achievement (level of demonstrated performance) of the 48th and 116th Brigades in SIMITAR-related tasks with the accomplishment and achievement of other ARNG units in the same tasks. Training accomplishment includes, for example, hours of training, number of personnel trained, number of rounds fired, and number of tank miles driven. Training achievement includes such measures as Tank Table (TT) VIII scores, percentage qualification in TT XII, force exchange ratio in exercises, and performance to standard. SIMITAR assessment opportunities occur in training at home station, at Annual Training (AT), and at the NTC.

1. Home Station

While we have collected substantial data on the amount of training conducted on various SIMITAR devices at home station, we are unable to find data, except for tank gunnery, on corresponding training performance. We ultimately want to compare training accomplishment and achievement in the SIMITAR

brigades, which are Enhanced Readiness Brigades (ERBs), with training accomplishment and achievement in other ERBs that do not have SIMITAR.

2. Annual Training (AT)

We initially expected to use Training Assessment Model (TAM)² evaluations to assess the effect of SIMITAR on AT performance. However, evidence so far indicates that performance standards are not uniform among evaluation teams, thus reducing prospects for comparing TAM evaluations of SIMITAR brigades with those of other ERBs. Also, changes in evaluation standards and in task complexity preclude using TAM evaluation trends in the SIMITAR brigades (see Chapter IV).

3. National Training Center (NTC)

Most of our assessment effort has focused on the 48th Brigade's NTC rotation in June 1996. As in the assessment opportunities at home station and AT, we want to compare NTC training performance of the 48th Brigade and other non-SIMITAR ARNG units. However, we have not been successful in finding NTC training performance baselines for ARNG units that have previously trained at the NTC. In the absence of external baselines, we have adopted an internal 48th Brigade baseline: tasks not trained by SIMITAR. Our assessment compares NTC performance of tasks trained by SIMITAR with performance of tasks not trained by SIMITAR (see Chapter III).

E. REPORT PRESENTATION

Chapter II identifies the training targets by duty position or MOS of the various SIMITAR training devices and courses. It also provides usage (training accomplishment) information for the SIMITAR

² A standard for commanders to assess training performance of Reserve Component units. Guidance to evaluator personnel and instructions for preparing TAM Form 1049-R are provided in FORSCOM Regulation 220-3.

brigades. Chapter III describes the framework for assessing SIMITAR at NTC 96, and it gives a statistical description of the training performance of the 48th Brigade. Chapter IV describes training trends in tank battalions of the 116th Brigade during the period in which SIMITAR has become a major factor in their training program. Chapter V provides assessments of SIMITAR interventions by 116th Brigade officers and RTD officers who have recently transferred or retired. Chapter VI describes work to be done.

Table I-1. SIMITAR Interventions

AFIST	Abrams Full-Crew Interactive Simulator
ARSI	Advanced Research Projects Agency Reconfigurable Simulator Initiative
ATAFS	Automated Training Analysis and Feedback System
BFVS Gunner Course	Bradley Fighting Vehicle System Gunner's Course
BSTS	Battle Staff Training System
COFT	Conduct of Fire Trainer
Compressed Gunnery	Time-Compressed, Technology-Based Tank Gunnery Training Strategy
CSS ICW	Combat Service Support Interactive Courseware
D-FIRST	Deployable Force-on-Force Instrumented Range System
DSTATS	Digital Systems Test and Training Simulator
EST	Engagement Skills Trainer
GFIST II	Guard Unit Army Device Full-Crew Interactive Simulator, Field Artillery
Janus (Bde and Bn)	Battle Staff Trainer
Mobile SIMNET	Mobile Simulation Networking
PENCIL	Pen-Based Electronic Network for Command Information Linking
Pile-On Training	Multi-Echelon Training in Several Simulators in a Single Drill Weekend
RCVTP	Reserve Component Virtual Training Program
S-2 Trainer	Intelligence Staff Officer Trainer
SIMBART	Simulation-Based Mounted Brigade Training Program
SIMUTA	Simulation-Based Multiechelon Training Program for Armor Units
SLT	Staff Linkage Trainer
Tank Commander Course	Abrams Tank Commander's Course
Tank Gunner Course	Abrams Tank Gunner's Course
Triage	Voice-Operated Medical Triage Trainer
VMAT	Virtual Reality Maintenance Trainer

Table I-2. SIMITAR Interventions: Functional Descriptions

AFIST	Improvements to an existing low-cost, transportable multimedia tank gunnery simulator that is attached to a stationary tank located in a training area.
ARSI	Reconfigurable simulation platform capable of emulating Abrams and Bradley armored vehicles and High Mobility Maneuverable Wheeled Vehicles (HMMWVs).
ATAFS	Computer-based aid for delivering after action reviews for SIMNET and ARSI exercises.
BFVS Gunner Course	Complete course of instruction for Bradley gunners. The course is designed to last no more than 6 days.
BSTS	Multimedia courseware for training individual battalion and brigade battle staff officers.
COFT	Existing gunnery training device for Abrams tanks and Bradley Fighting Vehicles.
Compressed Gunnery	Training strategy prescribing the appropriate sequence and mixture of device-based and live-fire gunnery training over an ARNG training year.
CSS ICW	Multimedia-based interactive courseware for training individuals in medical, supply, maintenance, and transport companies and for training support battalion staff members.
D-FIRST	A transportable instrumented range system, based on existing Global Positioning System (GPS), that allows tracking and real-time casualty assessment of up to 78 vehicles in a 20 X 30 km area.
DSTATS	Tactical device communications simulator that provides the user the ability to interact with field artillery systems [e.g., Multiple Launch Rocket System (MLRS), Joint Surveillance Target Attack Radar System (JSTARS)] and receive/transmit messages according to standard formats.
EST	Computer-based simulation for providing dismounted squads training on coordination and firepower distribution; it also provides limited training and feedback on squad marksmanship.
GFIST II	Device for training Fire Support Specialists (MOS 13F) and other personnel to call for artillery fire.

Table I-2. SIMITAR Interventions: Functional Descriptions (Continued)

Janus (Bde and Bn)	Enhancements to the Janus system significantly reduce its cost, add CS and CSS functions, and provide distributed interactive simulation (DIS) capabilities.
Mobile SIMNET	Existing mobile simulator for training company and platoon maneuver. Enhancements allow it to be used on long-haul network for executing battalion and brigade exercises.
PENCIL	Laptop computers designed to facilitate development and communication of tactical planning products.
Pile-On Training	Training strategy for maximizing the use of gunnery and tactical simulators during an IDT weekend drill.
RCVTP	Program for implementing SIMUTA and SIMBART materials that are located at the Fort Knox Mounted Warfare Simulation Training.
S-2 Trainer	Theory-based courseware for training the intelligence officer (S2) in battalions and brigades.
SIMBART	Structured SIMUTA-like program for training Reserve Component (RC) armor brigades.
SIMUTA	Simulation-based structured program for training RC armor battalions, companies, and platoons on Janus and SIMNET.
SLT	Multimedia computer-based program for training staff dyads and triads in the support battalions that are organic to heavy brigades.
Tank Commander Course	Complete course of instruction for Abrams tank commanders designed to last up to 10 days.
Tank Gunner Course	Complete course of instruction for Abrams tank gunners designed to last up to 6 days.
Triage	Multimedia simulation designed to train medics in combat triage. It uses speaker-independent speech recognition, which allows the user to talk with casualties and obtain information.
VMAT	PC-based 3D virtual environment, allowing the student to enter a tank or a BFV and diagnose electrical faults using a virtual version of the Army's simplified test equipment.

II. SIMITAR USAGE

In this chapter, we identify who is trained by the SIMITAR interventions, and then we estimate the number of SIMITAR training hours in the test brigades.

A. TRAINING TARGETS

Table II-1 identifies the MOSs and duty positions that the 22 SIMITAR devices and courses are designed to train. Appendix A has a more complete tabulation of the training targets along with the number of personnel holding the various MOSs and duty positions.¹ Table II-2 shows the number of personnel who are training targets for each of the 22 SIMITAR interventions.² If we exclude GFIST II (call-for-fire simulator), which trains a task common to all MOSs, the other 21 interventions train 31 MOSs, which include 1,880 people in the 48th Brigade and 1,522 people in the 116th Brigade. These interventions also train 92 duty positions among the brigade and battalion staffs and the support battalions. If we divide the total number of personnel who can be trained in all 22 interventions in Table II-2 by the number of personnel who are MOS qualified (MOSQ) (SIMITAR training is designed for MOSQ personnel), we get 2.3 interventions per MOSQ individual. However, SIMITAR training is focused not on all MOSQ personnel but on slightly over half of that population. Table II-3 shows that on average a SIMITAR trainee is targeted by over four interventions. In Table II-3, the 22 percent and 26 percent of

1 Source: SIDPERS (Standard Installation/Division Personnel System), 1 January 1997 data run showing assigned personnel who are MOS qualified.

2 If a staff noncommissioned officer (NCO) with the specified skill level is not available for Janus battle staff exercises, we assume the next lower skill level with the same MOS will participate.

assigned personnel who are not MOSQ in the 48th Brigade and the 116th Brigade, respectively, are undergoing or awaiting basic training and MOS training.

B. PRE-NTC 96 SIMITAR TRAINING

In this phase of the SIMITAR assessment, we focused our effort on SIMITAR usage before the 48th Brigade went to the NTC in June 1996. Little training was accomplished in May, as the 48th Brigade prepared for its movement to the NTC, so usage is shown through April 1996. Table II-4 indicates dates that interventions were first used in both brigades. Although COFT was available before October 1992, the lack of training records and the dimness of people's memories make estimates for usage before FY93 unreliable. Table II-5 shows man-hours spent training on the 10 interventions used through April 1996. SIMITAR training hours as a percent of total available training man-hours (M) per year are calculated by the following algorithm:

$$M = (H)(T)(P)$$

where H = hours available per inactive duty training (IDT) period,

T = number of IDTs per year, and

P = number of personnel to be trained by an intervention.

Thus, for one intervention,

$$M = (16)(11)P \text{ man-hours,}$$

and for n interventions,

$$M = (16)(11) \sum_{i=1}^n P_i \text{ man-hours.}$$

Appendix B shows the computation of cumulative training hours available and SIMITAR training hours.

The following rules and comment apply to counting training hours for the SIMITAR interventions:

- Training time includes briefings or preparatory activity immediately before the training exercise and post-exercise feedback discussions.
- Any training on COFT, SIMNET, or any other SIMITAR intervention away from home station is counted.
- Training time on any SIMITAR device during AT is not counted.
- Because of fragmentary training records, most device usage times in FYs 93 and 94 are based on those years' training event calendars and personnel (on hand then and now) identifying MOSs, duty positions, number of trainees, and length of training session.

For total man-hours of SIMITAR training or percentage of total available training hours, the 48th Brigade used SIMITAR interventions much less than did the 116th Brigade. Among 48th Brigade units, which faced a 1996 NTC rotation, there was a general unwillingness to accept "unproven" training technology. Of necessity, several of the interventions were products of fast-paced developments and were delivered to the test brigades on a test-fix-test basis. With its scheduled NTC rotation a year later (and then moved back to 1998), the 116th Brigade fully embraced SIMITAR and made it the core of its training program.

The percentage of available training time devoted to SIMITAR is small in both test brigades. A review of training schedules shows that a wide range of non-tactical activities and briefings, such as those noted below, use IDT hours, which have been informally estimated to take 25 to 50 percent of an IDT weekend.

Activities

- Awards
 - Clean Facility
 - Closing Formation
 - Commanders' Time
 - Family Support Group
 - Family Wellness
 - HIV Test
 - Holiday Dinner
 - Inspections
 - Morning Formation
 - Physical Fitness
 - Records Review
- Code of Conduct
 - Education Benefits
 - Family Support
 - Human Immunodeficiency Virus (HIV)
 - Legal/Uniform Code of Military Justice (UCMJ)
 - Medical Benefits
 - Mobilization
 - NCO Education System Requirements
 - Non-Discrimination
 - Operational Security
 - Reemployment Rights
 - Safety

Briefings

Requirements to pass gunnery qualification "gates" to certify tank and Bradley Fighting Vehicle (BFV) crews for live fire at the NTC reduced the time available for SIMITAR training in the 48th Brigade. In the next section, we show that non-SIMITAR tactical training also uses available training time.

The 1-108 and 2-121 Battalions of the 48th Brigade were transformed into task forces (TFs) for the field exercises at the NTC. In the transformation, some companies were shuffled within the brigade, and other companies did not rotate. Since the NTC evaluates TF performance, we need to measure SIMITAR usage by TF rather than battalion in training-hour accounting. Table II-6 shows training man-hours in battle staff synchronization (Janus), maneuver (SIMNET and ARSI), and gunnery (COFT and AFIST) for

the two TFs. Appendix C shows the battalion-to-task force transformation and the training hour calculations.

C. TANK BATTALIONS OF 116TH BRIGADE

The preceding section focused on SIMITAR training through April 1996 as part of our plan to relate NTC performance by the 48th Brigade to pre-NTC training. This section focuses on training the 2-116 and 3-116 Battalions of the 116th Brigade in the 4-year period FY93 through FY96 (the whole year). Later, we will examine AT performance of these tank battalions during the period in which SIMITAR became a major factor in their training programs.

Tables II-7 and II-8 show home station training hours for 2-116 and 3-116, respectively, in gunnery, maneuver, and battle staff training.³ Gunnery hours include those spent in COFT and ARSI simulators and those spent in the tank. Maneuver time includes hours spent in SIMNET simulators and hours in tanks in home station training. Battle staff time shows hours in Janus exercises and hours in other simulations. The tables show that total training hours increased from FY93 to FY96 in both battalions—by 20 percent for 2-116 and by about 50 percent for 3-116. While non-SIMITAR training hours show no uniform trends among the three training areas—gunnery, maneuver, and battle staff—SIMITAR training hours increased in all three areas.

The same rules and comment presented earlier for counting training hours for SIMITAR interventions in the 48th Brigade apply to SIMITAR training hours in Tables II-7 and II-8. For non-SIMITAR training in the gunnery, maneuver, and battle staff areas, training time in every year is based on those years' training event calendars. Veteran personnel identified MOSSs, duty positions, number of trainees, and length of training session.

³ "Battle staff training" means training in battle staff synchronization or battlefield synchronization.

Table II-9 shows that over 75 percent of assigned personnel in the 2-116 and 3-116 battalions are MOSQ and over 80 percent of the latter receive training by one or more SIMITAR interventions. Table II-8 also shows that SIMITAR training in gunnery, maneuver, and battle staff account for about 20 percent of total IDT training hours; gunnery training in tanks and maneuver training in the field account for another 20 percent. Because of increasing usage of simulators by the 116th Brigade tank battalions in FY96, the percentage of total training hours available devoted to SIMITAR training is much greater than the 0.9 percent and 3.5 percent rates for the 48th Brigade and 116th Brigade, respectively, in Table II-5, which reflects simulator usage in FYs 93, 94, 95, and the first months of FY96.

Table II-1. MOSSs and Duty Positions Trained by SIMITAR Interventions, as of November 1996

INTERVENTION	MOSSs and DUTY POSITIONS
AFIST	12AO, 12BO, 12CO, 19D10-19D40, 19K10-19K40
ARSI	11AO, 12AO, 12BO, 12CO, 11M10-11M40, 19D10-19D40, 19K10-19K40
BFVS GNR Course	11M20-11M40
BSTS	Bn Staff: XO, S1, S1, S3, S3Air, S4, FSO, Chem O, Engr O, Air Def O, Chaplain
COFT	12AO, 12BO, 12CO, 19D10-19D40, 19K10-19K40
CSS ICW	Sup Bn: CO, XO, S1, S2, S3, S4, BMMO, Co COs, Co XOs, Platoon Ldrs, First Sergeants, 27E, 29E, 45K, 55B, 63H, 63Z, 76J, 77F, 88M
D-FIRST	11AO, 12AO, 12BO, 12CO, 11M10-11M40, 19D10-19D40, 19K10-19K40
DSTATS	13A, 13E, 13F, 63H, 91B, 92A
EST	11M10-11M40
GFIST II	13F and all other MOSSs (common task trainer)
Janus (Bn)	Bn Staff: CO, XO, S1, S2, S3, Asst S3, S3 Air, S4, BICC, FSO, Eng Co CO, Comm O, Scout Plt Ldr, Mortar Plt Ldr, Co COs, Main CP Crew, CTCP Crew, Field Trains CP
Janus (Bde)	Bde Staff: CO, XO, S1, S2, S3, S4, FSO, Engr
Mobile SIMNET	11AO, 12AO, 12BO, 12CO, 11M10-11M40, 19D10-19D40, 19K10-19K40
RCVTP	Same as Janus, plus Mobile SIMNET
SIMBART	Bde Staff: CO, XO, S1, S2, S3, S4, FSO, Engr
SIMUTA	Bn Staff: CO, XO, S1, S2, S3, S4, FSO
S-2 Trainer	S2, 96B
SLT	Sup Bn: Maint Mgt O, Material Control O, Maint Support Team Chief, Maint Co CO, Bn Maint O, Repair Parts Technician, Supply and Service O, Petrol O, Ammo O
Tank CDR Course	12AO, 12BO, 12CO, 19D20-19D40, 19K20-19K40
TANK GNR Course	19D20-19D40, 19K20-19K40
Triage	91B
VMAT	27E, 45K, 45T, 63H, 63T

Table II-2. Number of Personnel Who Are Training Targets for SIMITAR Interventions

INTERVENTION	BRIGADE	
	48 In	116 Cav
AFIST	306	568
ARSI	972	779
BFVS GNR Course	274	94
BSTS	36	36
COFT	972	779
CSS ICW	414	358
D-FIRST	972	779
DSTATS	62	75
EST	1,265	968
GFIST II ^a	54	47
Janus (Bn)	85	85
Janus (Bde)	17	17
Mobile SIMNET	972	779
RCVTP	1,057	864
S-2 Trainer	11	13
SIMBART	8	8
SIMUTA	21	21
SLT	12	12
Tank Commander Course	29	71
TANK Gunner Course	156	267
Triage	162	154
VMAT	34	63
Total	7,891	6,837
N (MOSQ) ^b	3,468	2,918
Total ÷ N (MOSQ)	2.3	2.3

^a Numbers are 13F Fire Support Specialists; GFIST II trains call for fire, a task common to all MOSs.

^b Number of personnel who are MOS qualified.

Table II-3. SIMITAR Training in the Two Test Brigades

PARAMETER	BRIGADE	
	48 In	116 Cav
Personnel assigned	4,440	3,957
Personnel MOSQ:		
• Number	3,468	2,918
• Percent of assigned	78	74
Personnel who are targets of one or more SIMITAR interventions:		
• Number	1,880	1,522
• Percent of MOSQ	54	52
Total trainees, all interventions	7,891	6,837
Average interventions per trainee targeted by one or more interventions	4.2	4.5

Table II-4. Date of First Use of SIMITAR Interventions

INTERVENTION	48th BDE	116th BDE
AFIST	July 95	Mar. 95
ARSI	July 95	Jan. 96
BFVS Gunner Course		
BSTS		Mar. 96
COFT	Oct. 92	Oct. 92
CSS ICW		
D-FIRST		
DSTATS	Oct. 95	Nov. 95
EST	Oct. 95	Jan. 96
GFIST II	Oct. 95	Jan. 96
Janus	Mar. 95	Dec. 94
Mobile SIMNET	Dec. 93	Oct. 93
RCVTP		
SIMBART		
SIMUTA	Mar. 95	Dec. 94
S-2 Trainer		
SLT		
Tank Commander Course		
Tank Gunner Course		
Triage		
VMAT	Jan. 96	Jan. 96

Table II-5. Man-hours Spent Training on SIMITAR Interventions From Start to NTC 96

INTERVENTION	48th IN BDE	116th CAV BDE
AFIST	534	9,384
ARSI	208	444
BSTS	0	186
COFT	5,117	4,086
DSTATS	940	400
EST	1,192	592
GFIST II	115	864
Janus	4,928	13,918
SIMNET	3,440	12,452
VMAT	37	149
Total	16,511 Man-Hrs	42,475 Man Hrs
Percent of Available Man-Hours	0.9%	3.5%

Table II-6. Training Man-hours, Through April 1996

INTERVENTION	TF 2-121	TF 1-108
Janus	2,560	1,936
SIMNET	880	608
ARSI	52	104
COFT	1,649	1,225
AFIST	134	262

Table II-7. Man-hours of Home Station Training in the 2-116 Battalion

YEAR	TRAINING AREA								TOTAL	
	GUNNERY		MANEUVER		BATTLE STAFF		OTHER SIMULATION	SIMITAR	NON-SIMITAR	
	SIMITAR	IN THE TANK	SIMITAR	IN THE FIELD	SIMITAR	OTHER SIMULATION				
FY93	2,064	11,717	1,376	1,408	0	1,476	3,440	14,597		
FY94	1,344	13,440	1,344	2,208	0	1,888	2,688	17,536		
FY95	2,048	6,240	3,584	1,872	1,568	0	7,200	8,112		
FY96	3,952	8,200	4,416	1,968	3,216	0	11,584	10,168		

Table II-8. Man-Hours of Home Station Training in the 3-116 Battalion

YEAR	TRAINING AREA							TOTAL	
	GUNNERY		MANEUVER		BATTLE STAFF		OTHER SIMULA- TION	SIMITAR	NON- SIMITAR
	SIMITAR	IN THE TANK	SIMITAR	IN THE FIELD	SIMITAR				
FY93	256	10,096	512	3,072	0	960	768	14,128	
FY94	422	6,304	1,456	1,088	0	2,008	1,878	9,400	
FY95	2,048	6,984	3,072	1,584	1,056	0	6176	8,568	
FY96	1,728	10,864	6,464	0 ^a	2,800	0	10,992	10,864	

^a Maneuver training was done at AT.

Table II-9. FY96 SIMITAR Training in the Tank Battalions of the 116 Cavalry Brigade

PARAMETER	BRIGADE	
	2-116	3-116
Personnel assigned	498	462
Personnel MOSQ:		
• Number	380	374
• Percent of assigned	76	81
Personnel receiving training in one or more SIMITAR interventions:		
• Number	311	342
• Percent of MOSQ	82	91
Total IDT training hours available in FY96: 11 IDTs x 16 hrs / IDT x N (MOSQ) ^a	54,736	60,192
SIMITAR training hours: ^b		
• Number	11,584	10,992
• Percent of total available	21	18
Related training hours: ^b		
• Number	10,168	10,864
• Percent of total available	19	18

^a Number of personnel who are MOSQ.

^b From Tables II-6 and II-7.

III. SIMITAR AND NTC 96

After describing the framework for assessing SIMITAR training evidenced by the 48th Brigade's field exercises at the NTC in June 1996, this chapter then discusses tasks trained by SIMITAR interventions and task performance at the NTC.

A. ASSESSMENT FRAMEWORK

We used the Battlefield Operating System (BOS)¹ and Critical Combat Function (CCF)² systems to describe capabilities that SIMITAR is designed to improve. The 7 BOSs below are divided into the 39 CCFs identified in Appendix D.

- Intelligence
- Maneuver
- Fire Support
- Air Defense
- Command and Control (C2)
- Mobility and Survivability
- Combat Service Support (CSS).

1 The BOSs are functions that help commanders build and sustain combat power.

2 Within the BOSs, CCFs are a set of collective activities that units must perform successfully to survive and win battles.

The CCFs, which were developed by the Army Research Institute (ARI), incorporate information from the Army Training and Evaluation Program (ARTEP) Mission Training Plans (MTPs) and information from other sources of task documentation, such as Field and Technical Manuals.

We directed our evaluation at 14 CCFs in which ARNG units were most deficient in past performance at the NTC. Table III-1 identifies these 14 CCFs. SIMITAR interventions train at the task level; they do not train collective functions at the BOS or CCF levels. Therefore, we focused our evaluation on 518 individual, small unit collective, and battle staff tasks that are included under the BOSS and CCFs. Our objective at the NTC was to assess 48th Brigade performance on these tasks.

B. ASSESSMENT DESIGN

We had no task performance results from previous rotations of ARNG units at the NTC. So we adopted an alternative benchmark: we compared performance on SIMITAR-trained tasks with performance on tasks not trained by SIMITAR. The SIMITAR staff identified tasks that were trained by the various SIMITAR devices and courses. The results are a 518 task-by-15 intervention³ computer file, which is illustrated in Table III-2. An "X" indicates that training on an intervention should improve performance on the related tasks.

Table III-3 summarizes the results of the BOS analysis. The results suggest that the following seven interventions should have the greatest effect on NTC performance: ARSI, BSTS, CSS-ICW, Janus, SIMNET, SIMBART, and SIMUTA. The remaining interventions are focused on crew- and individual-level performance; consequently, their effects could not be observed or assessed at the NTC. Furthermore, the usage data cited in Chapter II indicate that, of the seven interventions expected to affect

³ We did not include 6 interventions in this analysis (BFVS Gunner Course, D-FIRST, RCVTP, S-2 Trainer, Tank Gunner Course, and Tank Commander Course) because units had not used them (other than for demonstration) and the SIMITAR staff was less familiar with their capabilities.

NTC performance, only three were actually used by the 48th Brigade before its rotation: Janus, SIMNET, and ARSI.

Many factors besides training determine unit performance at NTC. One group of factors include intelligence, education, experience, physical fitness, and morale of a unit's personnel. Another group includes unit leadership, stability, and cohesion. Performance of the NTC's opposing force (OPFOR) is a factor. The competence and/or bias of the OCs affect recorded performance if not actual performance. The training determinant includes the training methods, unit operating tempo (OPTEMPO), and the similarity of NTC conditions (terrain, weather, and so forth) to those at home station training. All of these factors simultaneously affect in varying degrees the performance of tasks necessary for accomplishment of a unit's objective. Our analysis concerns a single factor: training methods. We focus on performance of SIMITAR trainable tasks versus performance of SIMITAR non-trainable tasks. Specifically, we seek answers to two questions: First, does SIMITAR aid task performance? Second, does task performance improve with increased SIMITAR training time? Training hours—our independent variable—is easy to measure. The diligence that students apply during their training sessions—another independent variable—is difficult to measure, and we did not attempt to measure it.

C. TASK PERFORMANCE

Task performance was assessed by a team of military experts and research analysts. The assessment team observed performance at the NTC from four vantage points: at brigade, at two task forces, and at the support battalion. The assessment team based its performance ratings on both their own observations and information provided by the NTC OCs. The ratings were guided by scoring books that listed, by CCF and BOS, all 518 tasks to be assessed on a standard Army 3-point scale: Trained (T), Needs Practice (P), and Untrained (U). These ratings were made without the knowledge of which tasks were trainable or not trainable by SIMITAR interventions. Later, these assessments were coded on a simple linear scale, where $T = 2$, $P = 1$, and $U = 0$.

Table III-4 illustrates how the assessment data were coded for analysis. This table shows only a portion of the beginning and end of the matrix. Note that some cells in the matrix have no entries. Missing entries indicate that the unit did not perform the corresponding task or that the assessment team was not able to observe performance of that task.

Table III-5 summarizes average performance scores by BOS for the four observed units: brigade, TFs 2-121 and 1-108, and the 148th Support Battalion (SB). For example, TF 2-121 scored 0.50 on C2, indicating that the unit's average performance on tasks in the C2 BOS was at the midpoint between ratings of 0 (Untrained) and 1 (Needs Practice). Note that entries in the "Totals" rows and columns are not averages of the groups. Rather, they are based on all observations within each BOS or unit. Thus, the Totals are more heavily weighted by entries with the greater number of observations. For more details, refer to the Appendix E, which provides a breakdown of the frequency and percent for each rating. As can be seen in both tables, performance was generally best on the Combat Service Support BOS, followed by Maneuver and C2. Performance was generally poorest in Air-Defense-related tasks.

1. SIMITAR Training Versus Non-SIMITAR Training

To determine the effects of SIMITAR interventions, we sorted the 518 tasks into two categories according to whether the tasks could be trained by SIMITAR interventions. This sorting process was performed separately for three interventions: Janus, SIMNET, and ARSI. Recall from Chapter II and the previous section that these interventions were used by the 48th Brigade and were most relevant to NTC performance. We then compared average performance on tasks that are trainable on these three interventions with tasks that are not trainable on these interventions. Table III-6 shows the averages and also includes the results from *t* tests for independent samples. We performed these statistical analyses to determine whether the differences in average performance on SIMITAR trainable vs. SIMITAR non-trainable tasks were significant (i.e., not due to chance). We tested directional hypotheses (i.e., one-tailed tests) using the following formula:

$$t = (M_t - M_n) / S_{\text{diff}}$$

where M_t = mean or average for SIMITAR trainable tasks,

M_n = mean or average for SIMITAR non-trainable tasks, and

S_{diff} = estimated standard error of the difference between means.

According to this formula, positive t values indicate better performance on SIMITAR trainable, as compared with SIMITAR non-trainable, tasks. Note that the t test statistic considers not only the absolute difference between means of the two sets of task but also the variability and sample size of those two sets. We then determined the probability (p) of obtaining a t value as large or larger than the calculated value by chance alone. For a given sample size, larger values of t (bigger differences) are associated with smaller p values (probability of results because of chance). According to statistical conventions, a t value is "significant" if the probability of obtaining the result by chance is less than .05 (5 in 100).

As illustrated in Figure III-1, the t distribution is bell-shaped with a mean of zero, corresponding to no difference between the means of the two types of tasks. This figure shows the relations between t and p for two comparisons between Janus trainable and Janus non-trainable tasks for the 48th Brigade HQ and for TF 2-121. In one case, the performance difference in Janus-trainable and Janus non-trainable tasks is not significant. In the other case, the TF 2-121 performed significantly better on Janus trainable tasks than on other Janus tasks.

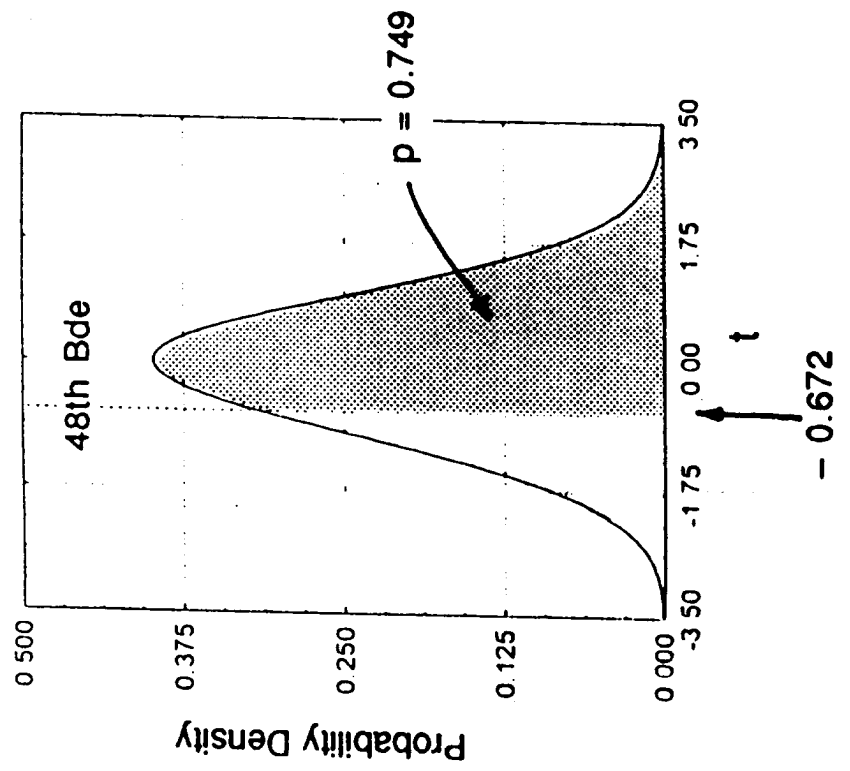
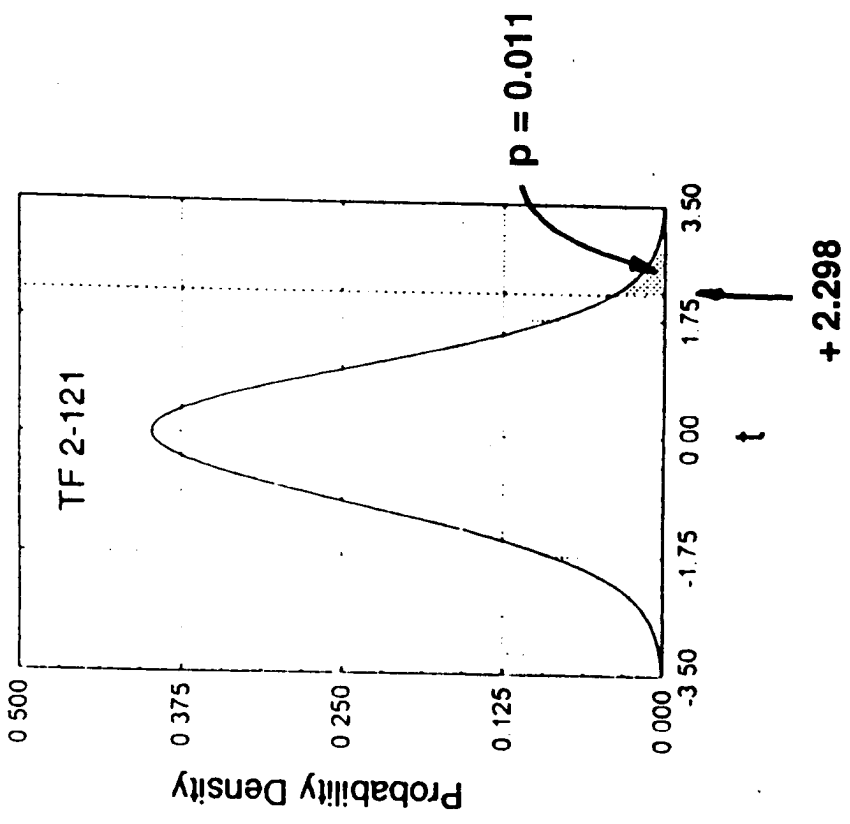


Figure III-1. t Distributions for Two Example Comparisons: Differences Between Janus Trainable and Other Tasks for the 48th Brigade Staff and for TF 2-121

Table III-6 shows that the 48th Brigade HQ staff, which had very little Janus training, performed slightly worse on SIMITAR trainable tasks than on other tasks. In evaluating the performance of the two TFs, we recall the training-hour data from Table II-6.

Intervention	TF 2-121	TF 1-108
Janus	2,560 hours	1,936 hours
SIMNET	880	608
ARSI	52	104

TF 2-121, which used Janus and SIMNET more than TF 1-108, showed significant performance difference—between SIMITAR trainable tasks and tasks SIMITAR non-trainable—by conventional statistical standards (i.e., $p < .05$ that the results are due to chance). TF 1-108 showed a small difference in performance from its Janus training and no difference from its SIMNET training. In neither case is the difference statistically significant. For ARSI, there are too few training hours to observe a relationship between performance and training time for both TFs.

2. Validity

There is no a priori reason to believe that any of the non-training variables are systematically correlated with the differences between SIMITAR trainable and SIMITAR non-trainable tasks. To that extent, they may be regarded as sources of random variability. Random variability does not invalidate these comparisons; it can, however, reduce the sensitivity of the analysis to detect actual effects in the data. While the effect of random variability increases the probability of making a false negative decision (declaring a difference not significant when the actual difference is actually significant), it reduces the probability of a false positive decision (declaring a difference significant when there is no actual difference). In short, the effect of these sources of variability was to make the analyses more conservative but not invalid.

A second, and perhaps more serious, threat to the validity of these analyses is variables that are correlated or confounded with differences between SIMITAR trainable and other tasks. Perhaps the most obvious confound is the possibility that SIMITAR trainable tasks are inherently easier than other tasks. This could explain why task performance of TF 2-121 was better on SIMITAR trainable tasks than on SIMITAR non-trainable tasks. However, the results from TF 1-108 and the brigade staff do not support this argument: they show no significant differences between SIMITAR trainable and non-trainable tasks. In other words, the lack of differences in the other two brigade elements argue against this source of confounding and in favor of the conclusion that SIMITAR training improves NTC task performance.

Table III-1. BOSSs, CCFs, and Tasks

BOS	CCF	No. of Tasks	
Intelligence	2 Collect Information	5	
	3 Process Information	3	
	4 Disseminate Information	4	
	Subtotal		12
Maneuver	5 Conduct Tactical Movement	103	
	6 Engage Enemy with Direct Fire and Maneuver	69	
	Subtotal		172
Fire Support	7 Employ Mortars	57	
	15 Coordinate, Synchronize, and Integrate Fire Support	33	
	Subtotal		90
Air Defense	16 Take Active Air Defense Measures	33	
	Subtotal		33
C2	18 Plan for Combat Operations	13	
	19 Direct and Lead Unit During Preparation	5	
	20 Direct and Lead Unit in Execution	6	
	Subtotal		24
Mobility and Survivability	21 Overcome Obstacles	88	
	27 Provide Decontamination	61	
	Subtotal		149
CSS	29 Conduct Supply Operations	38	
	Subtotal		38
7 BOSSs	14 CCFs		518 Tasks

Table III-2. Portion of Task vs. Intervention Matrix

BOS	CCF	Task	SIMITAR Interventions			
			AFIST	ARSI	BSTS	VMAT
Intel	2	1. Analyze TF Order and R&S Plan			X	
Intel	2	2. Prepare for Intelligence Collection			X	

(Other Tasks)

CSS	29	36. Conduct Immediate/ Emergency Resupply					
CSS	29	37. Consolidate and Resupply					
CSS	29	38. Prepare to Continue or Change Mission					

Table III-3. Number (Percent) of Tasks Trained by Interventions

	Battlefield Operating Systems								Totals	
	Intelligence	Maneuver	Fire Support	Air Defense	C2	Mobility/Survivability	CSS	Numbers of Tasks		
Intervention	12	172	90	33	24	149	38	518		
AFIST	2 (17%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (0%)		
ARSI	5 (42%)	113 (66%)	0 (0%)	0 (0%)	0 (0%)	21 (14%)	0 (0%)	139 (27%)		
BSTS	5 (42%)	20 (12%)	15 (17%)	13 (39%)	4 (17%)	32 (21%)	6 (16%)	95 (18%)		
COFT	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)		
CSS ICW	4 (33%)	40 (23%)	0 (0%)	0 (0%)	8 (33%)	0 (0%)	21 (55%)	73 (14%)		
DSTATS	1 (8%)	2 (1%)	8 (9%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	11 (2%)		
EST	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)		
GFIST II*	0 (0%)	1 (1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (0%)		
Janus	11 (92%)	147 (85%)	73 (81%)	25 (76%)	18 (75%)	90 (60%)	29 (76%)	393 (76%)		
M-SIMNET	5 (42%)	109 (63%)	0 (0%)	0 (0%)	0 (0%)	19 (13%)	0 (0%)	133 (26%)		
SIMBART	2 (17%)	49 (28%)	46 (51%)	17 (52%)	15 (63%)	30 (20%)	14 (37%)	173 (33%)		
SIMUTA	2 (17%)	67 (39%)	53 (59%)	17 (52%)	15 (63%)	32 (21%)	16 (42%)	202 (39%)		
SLT	0 (0%)	2 (1%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (0%)		
TRIAGE	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)		
VMAT	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)		

* Does not train brigade- and battalion-level tasks in Fire Support; trains only one task (develop Fire Support plan) at lower echelons.

Table III-4. Portion of Performance Data Matrix

BOS	CCF	Task	Score*			
			48 Bde	TF 2-121	TF 1-108	148 SB
Intel	2	1. Analyze TF Order and R&S Plan	0	0	1	
Intel	2	2. Prepare for Intelligence Collection	0	0	1	

(Other Tasks)

CSS	29	36. Conduct Immediate/ Emergency Resupply		1		1
CSS	29	37. Consolidate and Resupply		1	1	0
CSS	29	38. Prepare to Continue or Change Mission		1	1	

* Score: Trained (T) = 2
 Needs Practice (P) = 1
 Untrained (U) = 0

Table III-5. Summary of Performance at NTC

BOS	Average Score*					Total
	Bde HQ	TF 2-121	TF 1-108	148th SB		
Intelligence	0.33	0.67	0.42			0.47
Maneuver	0.40	0.79	0.68			0.64
Fire Support	0.26	0.64	0.61			0.54
Air Defense	0.25	0.00	0.75			0.29
C2	0.54	0.50	0.67	0.63		0.59
Mobility and Survivability	0.21	0.53	0.56			0.47
CSS	0.17	1.00	0.84	0.77		0.75
Total	0.32	0.68	0.63	0.71		0.57

* Score: Trained = 2
 Needs Practice = 1
 Untrained = 0

Table III-6. Performance on Trainable vs. Not Trainable Tasks on SIMITAR Interventions

Intervention	Average Scores*		t	p
	Trainable	Not Trainable		
Brigade Staff				
Janus	0.31 (189)	0.36 (58)	-0.672	.749
Task Force 2-121				
Janus	0.72 (268)	0.54 (74)	+ 2.298	.011
M-SIMNET	0.78 (81)	0.65 (261)	+ 1.664	.049
ARSI	0.79 (81)	0.65 (261)	+ 1.880	.030
Task Force 1-108				
Janus	0.64 (321)	0.60 (80)	+ 0.597	.275
M-SIMNET	0.63 (89)	0.63 (312)	- 0.080	.532
ARSI	0.66 (92)	0.62 (309)	+ 0.578	.282

* Average scores for SIMITAR trainable and SIMITAR non-trainable tasks. Number of tasks on which averages are based is shown in parentheses.

IV. SIMITAR AND ANNUAL TRAINING

This chapter focuses on AT performance of two tank battalions, 2-116 and 3-116, of the 116th Brigade during the years in which SIMITAR became a major factor in home station training.

A. TAM EVALUATIONS

Performance trends are difficult to discern in Tables IV-1 and IV-2, which show commanders' and evaluators' assessments for AT periods in the 5 years FY92 through FY96 for 2-116 and 3-116, respectively. We transformed these assessments into numerical evaluations by adopting a linear scoring system in which evaluations of Trained (T), Needs Practice (P), and Untrained (U) were scored 2, 1, and 0, respectively. Tables IV-3 and IV-4 show that trends in commanders' assessments were relatively flat over the 5-year period. Eyeball trends show an average score of about 1.0 for 2-116 and 0.9 for 3-116.

For evaluator assessments, Table IV-5 shows that average scores decreased steadily from 1.8 to 1.0 throughout the period. Table IV-6 shows a flat trend—average scores of 1.4 and 1.3—in the 4 years FY92 through FY95 with a sharp drop to 0.9 in FY96. The negative TAM assessment trends are counterintuitive when we consider (1) the significant increases in SIMITAR and non-SIMITAR training hours (see Tables II-6 and II-7) and (2) the positive user endorsement of SIMITAR interventions and training (see the following chapter).

When shown these trends, veteran 116th Brigade officers say the lower TAM assessment scores are caused by (1) more complex tasks being performed and evaluated and (2) tougher assessment standards being used. Review of the FY92–FY96 TAM reports confirms that maneuver and battle staff training at AT has progressed from platoon-level lanes to company—and battalion-level—lanes, where tasks are

indeed more complex. Discussion with an active Army evaluator also confirmed that tougher standards were used in latter AT periods.

B. COMPRESSED GUNNERY

The centerpiece of SIMITAR training for the two tank battalions has been the Compressed Gunnery Program, whose objective is to achieve in a single training year (1) proficiency in maneuver skills, (2) individual crew qualification in TT VIII, and (3) platoon qualification in TT XII. The Compressed Gunnery Program mixes hands-on tank training with heavy use of simulators. A "pile-on" strategy for IDT periods focuses on tank crew training in a company setting by utilizing four AFIST systems at one location for gunnery training and (at the same location) SIMNET for maneuver training. In a Multiple Unit Training Assembly-4 (MUTA-4) IDT period, platoons rotate through AFIST training, SIMNET training, individual skills training, and more gunnery training on COFT and/or maintenance training on live tanks.

C. AT PERFORMANCE

Although TAM trends are not useful for evaluating SIMITAR, an examination of AT results for both tank battalions indicate that SIMITAR training could be the reason for improved AT performance. Table IV-7 shows AT results for 2-116 in three training areas—gunnery, maneuver, and battle staff—for FY93-FY96. In gunnery, 2-116 now regularly achieves 100 percent qualification in TT VIII, and qualifies most platoons in a modified TT XII, which non-SIMITAR units do not even attempt. In maneuver, 2-116 has progressed from platoon lanes to company lanes and to battalion lanes in FY96. In battle staff training, battalion-level C2 involved routine administrative and logistical support in FY93. By FY96, battle staff C2 was concerned with battalion-level exercises, including CSS.

While Table IV-8 shows improvement in gunnery, maneuver, and battle staff performance for 3-116, an Oregon battalion, the AT results are not as impressive as those for 2-116, an Idaho battalion, in the

preceding table. The differences in AT performance of the two battalions appears attributable to different training circumstances, which favor 2-116:

- AFIST was available in 2-116 over a year before 3-116 got AFIST.
- While 2-116 has four AFISTs to train its four companies, 3-116 has five companies plus the 116th Brigade Cavalry Troop to train on its four AFISTs; one of the tank companies was converted from a field artillery battery five years ago without the benefit of new equipment training.
- All 2-116 armories can accommodate four AFISTs, whereas no 3-116 armory is large enough to fit four.
- While all 2-116 companies are within two hours of the Orchard Training Area in Boise, ID, for live tank gunnery and maneuver training, no such range is so accessible to the more geographically dispersed companies of 3-116.

As a consequence of these differences, 3-116 receives fewer AFIST training hours per tank crew and fewer range hours also.

The ARI has been collecting TT VIII scores of tank crews in several ERBs, including the 116th Brigade, for an ongoing assessment of ARNG gunnery training. From a related ARI briefing, Table IV-9 compares TT VIII scores for the 116th Brigade and other ERBs over the past 4 years. The proportion of 116th Brigade tank crews achieving first-run qualification has declined to 27 percent in FYs 1995-96 from 44 percent in FYs 1993-94. In the same periods, the first-run qualification of tank crews in other ERBs has increased from 33 percent to 39 percent. The proportion of 116th Brigade tank crews eventually qualifying, in a second (usually) or succeeding attempt, has declined from 96 percent to 92 percent, which remains superior to eventual qualification of other ERBs' tank crews. A review of ARI firing records for FYs 1993 through 1996 shows that 116th Brigade tank crews had 36 percent first-run qualification (Q1) and 53 percent second-run qualification (Q2) for a total of 89 percent Q1 or Q2; the comparable performance for other ERB's tank crews was 53 percent Q1 and 35 percent Q2 for a total of 88 percent Q1 or Q2.

Several officers and staff NCOs in SIMITAR tank units and in their Resident Training Detachments attribute the relative decline of the 116th Brigade in TT VIII qualification to less time in tanks and more time in gunnery simulators. Increased dependence on simulators for home station training is of course the essence of the SIMITAR training program, which trains both gunnery and maneuver every year whereas other ERBs reportedly focus on gunnery training one year and maneuver training the next. An investigation of gunnery training and maneuver training in the non-SIMITAR ERBs is necessary to make quantitative comparisons of their training programs and those of the 116th Brigade (see Tables II-7 and II-8) (see Chapter VI).

We end this chapter with two observations about the 116th Brigade tank gunnery. First, a short (say one day) tank-firing tank crew proficiency course (TCPC) prior to firing TT VIII should boost first-run qualification scores; the fact that the 116th Brigade still leads non-SIMITAR ERBs in eventual qualification suggests that this is a reasonable expectation. Second, while no other ERB even attempted to fire TT XII, the 116th Brigade had some success firing modified TT XII (see Tables IV-7 and IV-8).

Table IV-1. Five Years of TAM Evaluations for the 2-116 Battalion

Number (N) and Percentage of Evaluations		Assessments by									
		Commanders					Evaluators				
		T	P	U	T	P	U	T	P	U	
1992	N 37	79	44	65	7	2	0	78	22	0	
	% 20			36							
1993	N 16	39	58	12	31	13	1	69	29	2	
	% 24			18							
1994	N 55	227	70	44	69	144	9	31	65	4	
	% 17			13							
1995	N 19	211	75	53	24	165	4	12	85	2	
	% 7			19							
1996	N 50	289	74	50	12	145	17	7	83	10	
	% 13			13							

* T = trained; P = needs practice; U = untrained

Table IV-2. Five Years of TAM Evaluations for the 3-116 Battalion

Number (N) and Percentage of Evaluations		Assessments by									
		Commanders					Evaluators				
		Evaluations*									
		T	P	U	T	P	U	T	P	U	
1992	N %	3 7	33 80	5 12	3 38	5 63	0 0				
1993	N %	8 3	183 78	44 19	53 33	97 61	9 6				
1994	N %	12 4	259 77	67 20	63 31	127 63	11 5				
1995	N %	3 3	104 88	11 9	28 41	40 59	0 0				
1996	N %	3 2	126 82	25 16	2 2	69 82	13 15				

* T = trained; P = needs practice; U = untrained

Table IV-3. TAM Scores Derived From Commander's Assessments for the 2-116 Battalion
 [Trained (T) = 2; Needs Practice (P) = 1; Untrained (U) = 0]

	Number (N) and Scores of Tasks	Evaluation (Score)			ΣN	Σ Scores	Average Score per Task
		T (2)	P (1)	U (0)			
1992	N Score	37 74	79 79	65 0	181	153	0.8
1993	N Score	16 32	39 39	12 0	67	71	1.1
1994	N Score	55 110	227 227	44 0	326	337	1.0
1995	N Score	19 38	211 211	53 0	283	249	0.9
1996	N Score	50 100	289 289	50 0	389	389	1.0

**Table IV-4. TAM Scores Derived From Commander's Assessments for the 3-116 Battalion
[Trained (T) = 2; Needs Practice (P) = 1; Untrained (U) = 0]**

	Number (N) and Scores of Tasks	Evaluation (Score)			Σ N	Σ Scores	Average Score per Task
		T (2)	P (1)	U (0)			
1992	N Score	3 6	33 33	5 0	41	39	1.0
1993	N Score	8 16	183 183	44 0	235	199	0.8
1994	N Score	12 24	259 259	67 0	338	283	0.8
1995	N Score	3 6	104 104	11 0	118	110	0.9
1996	N Score	3 6	126 126	25 0	154	132	0.9

**Table IV-5. TAM Scores Derived From Evaluators' Assessments for the 2-116 Battalion
[Trained (T) = 2; Needs Practice (P) = 1; Untrained (U) = 0]**

	Number (N) and Scores of Tasks	Evaluation (Score)			Σ N	Σ Scores	Average Score per Task
		T (2)	P (1)	U (0)			
1992	N Score	7 14	2 2	0 0	9	16	1.8
1993	N Score	31 62	13 13	1 0	45	75	1.7
1994	N Score	69 138	144 144	9 0	222	282	1.3
1995	N Score	24 48	165 165	4 0	194	213	1.1
1996	N Score	12 24	145 145	17 0	174	169	1.0

Table IV-6. TAM Scores Derived From Evaluators' Assessments for the 3-116 Battalion
[Trained (T) = 2; Needs Practice (P) = 1; Untrained (U) = 0]

	Number (N) and Scores of Tasks	Evaluation (Score)			ΣN	Σ Scores	Average Score per Task
		T (2)	P (1)	U (0)			
1992	N Score	3 6	5 5	0 0	8	11	1.4
1993	N Score	53 106	97 97	9 0	159	203	1.3
1994	N Score	63 126	127 127	11 0	201	253	1.3
1995	N Score	28 56	40 40	0 0	78	106	1.4
1996	N Score	2 4	69 69	13 0	84	73	0.9

Table IV-7. Annual Training Results for the 2-116 Tank Battalion

TRAINING AREA			
YEAR	GUNNERY	MANEUVER	BATTLE STAFF
FY93	32 of 37 crews (86%) qualified TT VIII	8 platoons executed <i>platoon</i> deliberate attack and defend lanes; 98% T/P	Battalion C2 concerned with administration and logistics support
FY94	36 of 36 crews qualified TT VIII; 7 of 8 platoons qualified TT XII (defense only)	3 companies executed <i>company-level</i> deliberate attack lane; 96% T/P	Battalion C2 concerned with administration and logistics support and some tactical operations
FY95	33 of 33 crews qualified TT VIII; 4 of 6 platoons qualified TT XII (modified—fewer than prescribed number of targets presented)	4 companies executed <i>company-level</i> attack lane; 3 companies executed <i>company-level</i> defense lane; 98% T/P	Battalion TOC exercised C2 in company tactical exercises and in TT XII
FY96	32 of 32 crews qualified TT VIII; 8 of 8 platoons qualified in modified company LFX	<i>Battalion-level</i> defend STX; 90% T/P	Battalion-level C2 for STX involving CSS and defend exercises and company LFX

Glossary

- C2 command and control
- CSS combat service support
- LFX live-fire exercise
- P needs practice
- STX situational training exercise
- T trained
- TOC tactical operations center
- TT tank table

Table IV-8. Annual Training Results for the 3-116 Tank Battalion

TRAINING AREA			
YEAR	GUNNERY	MANEUVER	BATTLE STAFF
FY93	23 of 29 crews (79%) qualified TT VIII	7 platoons executed <i>platoon</i> deliberate attack lane; 6 platoons executed <i>platoon</i> deliberate defend lane; 94% T/P	Battalion C2 concerned with administration and logistics support
FY94	36 of 38 crews (95%) qualified TT VIII; 3 of 4 platoons qualified TT XII (defense only)	4 companies executed <i>company-level</i> deliberate attack lane; 95% T/P	Battalion C2 concerned with administration and logistics support and some tactical operations
FY95	24 of 31 crews (77%) qualified TT VIII; 2 of 5 platoons qualified TT XII (defense only)	4 companies executed <i>company-level</i> attack and defend lanes; 100% T/P	Battalion staff integrated into tactical operations; CSS elements involved
FY96	20 of 31 crews (65%) qualified TT VIII; 3 of 5 platoons qualified TT XII (modified— fewer than prescribed number of targets presented)	3 companies executed <i>company-level</i> attack and defend lanes; 2 companies executed <i>platoon-level</i> attack and defend lanes; 85% T/P	Battalion C2 involved with tactical training at platoon and company levels and several battalion-level training events

Glossary

C2	command and control	STX	situational training exercise
CSS	combat service support	T	trained
LFX	live-fire exercise	TOC	tactical operations center
P	needs practice	TT	tank table

Table IV-9. Proportion of Tank Crews in Selected ERBs Qualifying in TT VIII*

Brigade(s)	FYs 93-94	FYs 95-96
First-Run Qualification		
116 Cavalry	44 %	27 %
Other ERBs	33 %	39 %
Eventual Qualification		
116 Cavalry	96 %	92 %
Other ERBs	82 %	84 %

* Source: Ongoing ARI study of ARNG tank gunnery training.

V. USER ACCEPTANCE

Appendix F contains a survey questionnaire for members of both SIMITAR brigades after they had opportunities to spend substantial time training or observing training on SIMITAR devices and courses. Questionnaires were completed by seven 116th Brigade officers (ARNG members of the brigade or active Army members of the attached Resident Training Detachment) who transferred following AT in 1996. The survey results are shown in this chapter.

Part 1 of the two-part questionnaire sought level of agreement with tenets of the SIMITAR program. Table V-1 shows good agreement with the tenets. Had the meaning of the first tenet, "Train at Home Station Whenever Possible" (and avoid lost training time traveling to another facility) been made clearer, it seems reasonable to expect everyone would have strongly agreed.

Part 2 elicited open-end comments about the impact, value, and broad ARNG applicability of 14 SIMITAR interventions. Table V-2 contains a condensed form of the 7 officers' comments. With very few exceptions, the SIMITAR devices, courses, procedures, and strategies were praised for their training effectiveness.

**Table V-1. User Survey in the 116th Brigade:
Do You Agree With Tenets of the SIMITAR Program?**

TENETS	LEVEL OF AGREEMENT				
	Strongly Agree	Somewhat Agree	Neither Agree Nor Disagree	Somewhat Disagree	Strongly Disagree
Train At Home Station Whenever Possible	3	3	1		
Practice Important Tasks For At Least Four Repetitions	4	3			
Train In Simulation Before Live Settings	6	1			

**Table V-2. Comments From 116th Brigade
About SIMITAR Interventions**

AFISI

- Prepares crews for live-fire training
- Cost insignificant compared to live-fire maneuver-gunnery exercises
- Realistic training that enhances combat capability and readiness
- Maximizes use of available training time
- Allows integrated training of 4-man tank crew
- Allows cross training
- Can quickly train "re-built" crews; a top score achieved in AT 96 by a 3-day re-built crew
- Soldiers like it
- Better than COFT
- Can train at home station; saves a lot of "on-the-road" time
- Easy to move and set up
- Saves OPTEMPO dollars, tank wear and tear
- Viable training tool that other Guard units should use
- Training quality lacking for drivers and loaders
- Allows multiple repetitions of an exercise

**Table V-2. Comments From 116th Brigade
About SIMITAR Interventions (Continued)**

BSTS

- Enhances individual performance of battle staff members
- Lot of redundancy included (good)
- Minimal cost
- Teaches all operational functions
- Teaches coordination with other staff members
- As a result of AT 96, all new staff officers will take BSTS
- RTD officers will use it
- Great potential
- Wish I could have had it to prepare for Asst S3 position, my former position
- Logical training program
- Improves staff performance

COFI

- Redundant capability
- Always available
- Reliable
- Maintenance problems
- Good complementary tool, especially on Pile-on weekends

**Table V-2. Comments From 116th Brigade
About SIMITAR Interventions (Continued)**

COMPRESSED GUNNERY

- Fully integrated devices and simulations
- Mixes live fire and simulation
- Enables crews and platoons to qualify in same training year
- Enables more maneuver training to be done, especially in AT
- Optimal use of crew training time
- Accelerates readiness
- Maximizes available training time
- Provides ability to fire and qualify tank crews on TT VIII during IDT or first few days of AT; gives more time for remedial training and qualification of weak crews and more time in AT for company live fire and company/task force maneuver training
- Improves ability to revise roster crews and qualify them instead of writing off crews when key members are not available
- Difficult being 120 miles from a range to execute TT VIII on an IDT; units have to put in a lot of energy to make it work
- Accomplished TTVIII and TT XII in 5 IDT periods and 5 days at AT; without compressed gunnery, it took 6 IDT periods and half of AT to complete TT VIII
- Allows units to shoot and maneuver in the same year as opposed to alternating annually between gunnery and maneuver training
- Increases the ability of a unit to train up to 100 percent
- Guard units must shoot compressed gunnery to keep up with active component units

**Table V-2. Comments From 116th Brigade
About SIMITAR Interventions (Continued)**

CSS ICW

- Generically applicable to all CSS MOSS
- Can be used to train any time
- Always available
- Saves school dollars
- Good for learning MOSS and for sustainment training

DSTATS

- Provides the interface among Initial Fire Support Automation System (IFSAS), fire support units, and higher headquarters systems
- Useful for all Guard units because of its ability to replicate higher and lower units

GFIST II

- Improves call-to-fire training of personnel who are not MOS trained
- Provides training at home station, which Training Set Forward Observer (TSFO) does not

**Table V-2. Comments From 116th Brigade
About SIMTAR Interventions (Continued)**

Janus

- Has absolutely improved battle staff training
- All staff decisions are recorded and reviewed; good and bad decisions are identified
- Analysis shows outcomes of all Red and Blue BOS actions
- Can re-fight a battle
- Enhances individual and collective staff proficiency
- Multi-echelon device that allows task force and company level training
- A time saver
- Allows multiple iterations during an IDT
- We have effectively integrated CSS play into battle staff training
- Battalion staff is now proficient enough to conduct task force command and control, as demonstrated in AT 96
- Has improved staff coordination and staff skills—a great asset
- Needs better Engineer play and CSS modules
- Best simulation for staff training available
- User friendly; easy to set up
- Enables staff to (1) process information faster and more accurately, (2) conduct rock drills more accurately, (3) write the order that the battalion fights, (4) improve enlisted staff members' proficiency, and (5) improve with each fight
- In a 6-hour timeline, a unit can write an order that can be briefed and fought—first time I have observed that in 7 years

**Table V-2. Comments From 116th Brigade
About SIMITAR Interventions (Continued)**

Janus (continued)

- Better order process and C2 training; good integration of BOSs
- Can conduct task force maneuver training without the soldiers
- Allows a battalion staff to fight an NTC battle in the Central Corridor up to four times in one IDT; cost of doing this on the ground is unimaginable
- Makes staff simplify and improve orders drill
- Enables unit to fight actual task force order rather than a canned product
- Improves battle tracking and synchronization
- Improves TOC and combat trains command post (CTCP) integration and communications
- The best, most realistic battle staff trainer I have ever seen

**Table V-2. Comments From 116th Brigade
About SIMITAR Interventions (Continued)**

MOBILE SIMNET

- Saves time and money
- Trains more soldiers faster
- Simultaneously trains leaders
- Enhances command and control
- After action review (AAR) playback is excellent
- Flexible enough for units to work on numerous collective and mission essential task list (METL) tasks
- All tank platoons used it prior to TT XII and company live fire in ATs 94, 95, and 96
- Other Guard units should use it to improve performance of platoons and companies
- Can train at home station
- The only true maneuver simulator I know of

**Table V-2. Comments From 116th Brigade
About SIMITAR Interventions (Continued)**

PENCIL

- Provides a constant, non-interfering, convenient communications link among battalion commanding officer (CO), company COs, and staff
- Great portable training management tool
- Simultaneous message traffic saves time and money
- Increases leader interactions and reduces response time without disrupting civilian employment and/or important family events
- Greatest utility is in planning; information is being passed faster and more accurately than ever before
- Janus orders passed without special command and staff meeting before an exercise
- Uses include (1) communications between commanders and staff during the month; (2) preparation of operations order (OPORD) between drills; (3) preparation for Janus exercises
- Very valuable tool to help coordinate the staff and assist the commander in meeting training needs; our battalion needs more PENCILS

**Table V-2. Comments From 116th Brigade
About SIMITAR Interventions (Continued)**

PILE-ON

- AT 96 showed that soldiers seem to be better able to integrate the gunnery and maneuver pieces into combat-effective crews, platoons, and companies—all four of my companies qualified on TT XII
- Enables master gunners to provide more effective mentoring and remedial training
- Expands the "real" training hours available
- More effective use of time
- Commander can easily monitor and influence training
- Provides feedback on training quality and effectiveness
- Gunnery skills have improved faster than they would have by using the tank only, which limits repetitions
- May be too hard for other Guard units
- Better prepares tank crew for live fire
- Increases the quality and frequency of training for "good" companies; poorly trained companies get confused by doing gunnery and maneuver in one IDT period
- Improves gunnery skills
- Decreases time needed to platoon level in pre-mobilization
- Reinforces crew drill, TCPC, and individual crew member skills

**Table V-2. Comments From 116th Brigade
About SIMITAR Interventions (Continued)**

SIMUTA

- Learning occurs more rapidly with less cost
- More iterations in less time
- Commander can get feedback more quickly with less "filtering" from troops
- Transfer and retention of knowledge, doctrinal concepts, and experience are enhanced by more iterations, more exercises, and the AARs
- The result of platoon, company, and battalion exercises: vast improvement in battle tracking, synchronization of BOSSs, individual skill levels, and standard operating procedure (SOP) refinement
- Benefits "team building"
- Flexibility and ability to use self-generated orders make it attractive to other Guard units
- During AT 96, a company executive officer (XO) was able to replace the unit CO with less than 10 minutes' notice and then command and control the tank company to qualification on TT XII
- Easy to use self-contained package
- Unit has not paid attention to the vertical platoon-company-battalion-brigade linkage of missions and terrain
- Provides immediate expert advice to units and allows multiple iterations, which increases prospects for success

**Table V-2. Comments From 116th Brigade
About SIMITAR Interventions (Continued)**

S-2 TRAINER

- A captain, who was not a military intelligence (MI) officer, used the compact disc course and is "pretty good now"
- Good S2 preparation

VMAT

- Easy to use
- Good pre-training for soldiers going to entry-level training
- Good sustainment for soldiers already trained
- Great trainer for the new mechanic or the mechanic who does not work on equipment every day

VI. WORK TO BE DONE

In the remainder of FY97 and in FY98, our SIMITAR-evaluation effort will focus on three venues: the NTC in FY98, AT in FYs 97 and 98, and home station training (HST) in FYs 97 and 98.

A. NTC 98

We will observe the 116th Brigade rotation at the NTC; we hope arrangements can be made for NTC OCs to do the task evaluations with the CCF scorebooks used at NTC 96. Following the 116th Brigade's NTC field exercises, we will compare performance of SIMITAR-trained tasks with performance of other tasks. We will use the 48th Brigade training performance at NTC 96 as a benchmark for evaluating SIMITAR training at NTC 98. Because NTC training evaluation focuses on brigade, battalion, and company-level performance, we expect to evaluate these SIMITAR interventions: Janus, SIMNET, ARSI, BSTS, and CSS ICW.

The NTC's focus on large collectives misses most SIMITAR training devices and courses, which target individuals, crews, squads, and platoons. The work plan below is first directed at evaluating most of these SIMITAR interventions:

AFIST	Mobile SIMNET
ARSI	Pile-on Training
BFVS Gunner Course	S-2 Trainer
COFT	SLT
Compressed Gunnery	Tank Commander Course

CSS ICW
DSTATS
EST
GFIST II

Tank Gunner Course
Triage
VMAT

The plan goes beyond individual SIMITAR interventions to evaluate SIMITAR training strategy. This involves establishing a baseline for training *achievement* (training results) at AT 97 and AT 98 and a baseline for training *accomplishment* (training effort). The baselines will be training achievement and training accomplishment data for units of non-SIMITAR ERBs.

B. AT 97, 98

We will evaluate the training performance of the 116th Brigade's maneuver battalions and support battalion at AT 97. The training performance of counterpart units of non-SIMITAR ERBs would be evaluated at AT 97 and/or AT 98 (maybe AT 99). The ERBs would be those for which ARI has tank gunnery results in its ARNG gunnery training database:

155 Armored Brigade	Mississippi
218 Infantry Brigade	South Carolina
256 Infantry Brigade	Louisiana
278 Armored Cavalry Regiment	Tennessee

The logical observers to assess task performance at the small unit level are the Regional Training Brigade observer-controllers, who know Army performance standards and who train Guard units in the field during annual training periods.

The data from ATs 97 and 98 will enable us to compare SIMITAR units and non-SIMITAR units in field exercises.

C. HST

We will collect HST hour data from the 163 Mechanized Infantry Battalion. These data, which are similar to SIMITAR and non-SIMITAR training hour data for the 2-116 and 3-116 tank battalions in Tables II-7 and II-8, will complete our training accomplishment collection for the 116th Brigade.

We will also collect data on HST hours devoted to gunnery, maneuver, battle staff, and CSS at units of the non-SIMITAR ERBs indicated above. These data will enable us to compare SIMITAR and non-SIMITAR training programs.

GLOSSARY

AAR	after action review
AFIST	Abrams Full-Crew Interactive Simulator
ammo	ammunition
ARI	Army Research Institute
ARNG	Army National Guard
ARSI	Advanced Research Projects Agency Reconfigurable Simulator Initiative
ARTEP	Army Training and Evaluation Program
AT	Annual Training
ATAFS	Automated Training Analysis and Feedback System
BCF	battlefield combat function
bde	brigade
BFV	Bradley Fighting Vehicle
BFVS	Bradley Fighting Vehicle System
BICC	battalion information control center
BMMO	brigade material management officer
BMO	battalion motor officer

BMT	battalion maintenance technician
bn	battalion
BOS	Battlefield Operating System
BSTS	Battle Staff Training System
C2	command and control
Cav	cavalry
CCF	Critical Combat Function
chem	chemical
CO	commanding officer
co	company
COFT	Conduct of Fire Trainer
comm	communications
Compressed Gunnery	time-compressed, technology-based tank gunnery training strategy
CS	combat support
CSS	combat service support
CSS ICW	Combat Service Support Interactive Courseware
CTCP	combat trains command post
D-FIRST	Deployable Force-on-Force Instrumented Range System
DARPA	Defense Advanced Research Projects Agency
DIS	distributed interactive simulation

DSTATS	Digital Systems Test and Training Simulator
enr	engineer
ERB	Enhanced Readiness Brigade
EST	Engagement Skills Trainer
FSO	fire support officer
FY	fiscal year
GFIST II	Guard Unit Armory Device Full-Crew Interactive Simulator
GPS	Global Positioning System
HHC	headquarters and headquarters company
HIV	Human Immunodeficiency Virus
HMMWV	High Mobility Maneuverable Wheeled Vehicle
HST	home station training
IDT	inactive duty training
IFSAS	Initial Fire Support Automation System
INF	infantry
Janus	Battle Staff Trainer
JSTARS	Joint Surveillance Target Attack Radar System
ldr	leader
LFX	live-fire exercise
maint	maintenance

mat contr	material control
METL	mission essential task list
MILES	multiple integrated laser engagement system
MLRS	Multiple Launch Rocket System
Mobile SIMNET	mobile simulation networking
MOS	military occupational specialty
MOSQ	MOS qualified
MTP	Mission Training Plan
MUTA	multiple unit training assembly
NCO	noncommissioned officer
NTC	National Training Center
O	officer
OC	observer-controller
OPFOR	opposing force
OPORD	operations order
OPTEMPO	operating tempo
PENCIL	Pen-Based Electronic Network for Command Information Linking
petrol	petroleum
Pile-On Training	multiechelon training on several simulators in a single drill weekend
plt	platoon

Q1	first-run gunnery qualification
Q2	second-run gunnery qualification
RC	Reserve Component
RCVTP	Reserve Component Virtual Training Program
RTB	regional training brigade
RTD	resident training detachment
S1	adjutant
S2	intelligence officer
S3	operations and training officer
S4	supply officer
SB	support battalion
serv	service
SIMBART	Simulation-Based Mounted Brigade Training Program
SIMITAR	Simulation in Training for Advanced Readiness
SIMNET	Simulation Networking
SIMUTA	Simulation-Based Multiechelon Training Program for Armor Units
SLT	Staff Linkage Trainer
SOP	standard operating procedure
SPO	support plans and operations
SPT	support platoon

STX	situational training exercise
supp	supply
T/P/U	trained/needs practice/untrained
TAM	Training Assessment Model
Tank CDR Course	Abrams tank commander's course
Tank GNR Course	Abrams tank gunner's course
TCPC	tank crew proficiency course
tech	technician
TF	task force
TO&E	tables of organization and equipment
TOC	tactical operations center
TRADOC	Training and Doctrine Command
Triage	voice-operated medical triage trainer
TSFO	Training Set Forward Observer
TT	Tank Table
UCMJ	Uniform Code of Military Justice
VMAT	Virtual Reality Maintenance Trainer
XO	executive officer

APPENDIX A
Training Targets for SIMITAR Interventions

Table A-1. Number of Personnel Who Can Be Trained by 19 SIMITAR Interventions, by MOS and Duty Position

Intervention	Personnel		Number in Brigade	
	Duty Position	MOS	48 In	116 Cav
AFIST		12A0	3	6
		12B0	24	63
		12C0	2	2
		19D10-19D40 19K10-19K40	104 173	97 400
ARSI		11A0	58	25
		12A0	3	6
		12B0	24	63
		12C0 11M10-11M40 19D10-19D40 19K10-19K40	2 608 104 173	2 186 97 400
BFVS Gunner's Course		274	94	

Table A-1. Number of Personnel Who Can Be Trained by 19 SIMITAR Interventions, by MOS and Duty Position (Continued)

Intervention	Personnel		Number in Brigade	
	Duty Position	MOS	48 In	116 Cav
BSTS (Bn Staff)	XO		3	3
	S1		3	3
	S2		3	3
	S3		3	3
	S3 Air		3	3
	S4		3	3
	FS0		3	3
	Eng 0		3	3
	Air Def 0		3	3
	Chem 0		3	3
	Signal 0		3	3
	Chaplain		3	3
	COFT		11A0	58
		12A0	3	6
		12B0	24	63
		12C0	2	2
		11M10-11M40	608	186
		19D10-19D40	104	97
		19K10-19K40	173	400
CSS ICW (Support Bn)	XO		1	1
	S1		1	1
	S2		1	1
	S3		1	1
	S4		1	1
	BMMO		1	1
	Company COs		3	3
	Company XO's		3	3

Table A-1. Number of Personnel Who Can Be Trained by 19 SIMITAR Interventions, by MOS and Duty Position (Continued)

Intervention	Personnel		Number in Brigade	
	Duty Position	MOS	48 In	116 Cav
CSS ICW (Support Bn)	Platoon Leaders First Sergeants	27E10-27E20	9	9
		29E10-29E20	4	4
		45K10-45K20	4	3
		55B10-55B30	0	0
		63H10-63H40	5	6
		63Z50	7	4
		76J10-76J20	41	40
		77F10-77F30	3	2
		88M10-88M20	2	2
		91B10-91B30	67	45
			97	76
			162	154
D-FIRST		11A0	58	25
		12A0	3	6
		12B0	24	63
		12C0	2	2
		11M10-11M40	608	186
		19D10-19D40	104	97
D STATS		19K10-19K40	173	400
		13A10-12A40	0	0
		13E10-13E40	23	35
		13F10-13F40	39	40

Table A-1. Number of Personnel Who Can Be Trained by 19 SIMITAR Interventions, by MOS and Duty Position (Continued)

Intervention	Training Targets		Number in Brigade		
	Duty Position	MOS	48 In	116 Cav	
EST		11B10-11B40	11	0	
		11M10-11M40	608	186	
		19D10-19D40	104	97	
		19K10-19K40	173	400	
		27E10-27E40	4	3	
		45E10-45E40	11	12	
		54E10-54E40	0	0	
		63B10-63B40	96	80	
		63E10-63E40	32	45	
		63T10-63T40	103	45	
		88M10-88M40	123	100	
	Janus (Bn Staff)	CO		3	3
		XO		3	3
		S1		3	3
S2			3	3	
S3			3	3	
Asst S3			3	3	
S4			3	3	
BICC			3	3	
FSO			3	3	
Engr Co CO			3	3	
Comm O			3	3	
Company COs			12	12	
Scout Plt Ldr			3	3	
Mortar Plt Ldr			3	3	
	19D40	4	4		
	11C50	6	3		

Table A-1. Number of Personnel Who Can Be Trained by 19 SIMITAR Interventions, by MOS and Duty Position (Continued)

Intervention	Training Targets		Number in Brigade	
	Duty Position	MOS	48 In	116 Cav
Janus (Main CP)		1 11M50 (M) ¹	10	4
		1 11M40 (M)	33	14
		1 19K50 (AR) ²	0	0
		5 19K40 (AR)	21	42
		1 96B20	6	6
		2 11M20 (M)	135	43
		2 19K20 (AR)	56	121
		1 19E50	0	0
		1 31V40	5	5
		1 62B00	2	3
Janus (Combat Trains CP)		1 75B30	0	1
		1 91B40	5	5
		5 92A20	35	31
		1 92Y40	10	8
Janus (Field Trains CP)	HHC CO	2 11M20 (M)	135	43
	HHC XO	2 19K20 (AR)	56	121
	SPT Ldr	1 12B00	24	63
	BMT	1 63B50	5	5
		1 88M40	4	5

1 M = mechanized infantry battalion

2 AR = armored battalion

Table A-1. Number of Personnel Who Can Be Trained by 19 SIMITAR Interventions, by MOS and Duty Position (Continued)

Intervention	Personnel		Number in Brigade	
	Duty Position	MOS	48 In	116 Cav
(Bde Staff)	CO			
	XO			
	S1			
	S2			
	S3			
	S4			
Mobile SIMNET	FSO	1 11M50	10	4
	Engr O	3 11M40	33	14
		1 19K50	0	0
		3 19K40	21	42
		1 96B20	6	6
		11A0	58	25
	11M10-11M40	608	186	
	12A0	3	6	
	12B0	24	63	
	12C0	2	2	
	19D10-19D40	104	97	
	19K10-19D40	173	400	

Table A-1. Number of Personnel Who Can Be Trained by 19 SIMITAR Interventions, by MOS and Duty Position (Continued)

Intervention	Personnel		Number in Brigade		
	Duty Position	MOS	48 In	116 Cav	
RCVTP	CO		3	3	
	XO		3	3	
	S1		3	3	
	S2		3	3	
	S3		3	3	
	Asst S3		3	3	
	S4		3	3	
	BICC		3	3	
	FSO		3	3	
	Engr Co CO		3	3	
	Comm O		3	3	
	Company Cos		12	12	
	Scout Plt Ldr		3	3	
	Mortar Plt Ldr		3	3	
		11A0		58	25
		11M10-11M40		608	186
		12A0		3	6
		12B0		24	63
		12C0		2	2
		19D10-19D40		104	97
	19K10-19D40		173	400	

Table A-1. Number of Personnel Who Can Be Trained by 19 SIMITAR Interventions, by MOS and Duty Position (Continued)

Intervention	Personnel		Number in Brigade		
	Duty Position	MOS	48 In	116 Cav	
SIMBART (Bde Staff)	CO		1	1	
	XO		1	1	
	S1		1	1	
	S2		1	1	
	S3		1	1	
	S4		1	1	
	FSO		1	1	
	Engr O		1	1	
	SIMUTA (BN Staff)	CO		3	3
		XO		3	3
S1			3	3	
S2			3	3	
S3			3	3	
S4			3	3	
FSO			3	3	
S-2 Trainer	S2		4	4	
		96B10 - 96B40	11	13	
SLT (Support Bn)	Maint Mgr O		1	1	
	Mat Contr O		1	1	
	Maint Supp Tm Ch		1	1	
	Maint Co CO		1	1	
	Bn Maint O		4	4	
	Repair Parts Tech		1	1	
	Supp and Serv O		1	1	
	Petrol O		1	1	
Ammo O		1	1		

Table A-1. Number of Personnel Who Can Be Trained by 19 SIMITAR Interventions, by MOS and Duty Position (Continued)

Intervention	Personnel		Number In Brigade	
	Duty Position	MOS	48 In	116 Cav
Tank Commander's Course		12A0	3	6
		12B0	24	63
		12C0	2	2
Tank Gunner's Course		19D20-19D40	49	49
		19K20-19K40	107	218
TRIAGE		91B10-91B30	162	154
VMAT		27E10-27E20	4	3
		45K10-45K20	5	6
		45T10-45T20	23	5
		63H10-63H20	27	17
		63T10-63T20	75	32

APPENDIX B

Cumulative Training Hours

Table B-1. Available Man-Hours for Training by SIMITAR Interventions in the 48th In Bde

Intervention	A		B	C	D	B × C × D
	First Use of Intervention	Number of IDT Periods Through April 1996 ^a	Hours per IDT period	Number of Personnel to be Trained	Man-Hours Available for Home Station Training	
AFIST	July 95	10	16	400	64,000	
ARSI	July 95	10	16	1,240	198,400	
BSTS			16	36		
COFT	Oct. 92	40	16	1,240	793,600	
DSTATS	Oct. 95	7	16	503	56,336	
EST	Oct. 95	7	16	769	86,128	
GF II	Oct. 95	7	16	54	6,048	
JANUS	Mar. 95	14	16	279	62,496	
SIMNET	Dec. 93	27	16	1,240	535,680	
VMAT	Jan. 96	4	16	244	15,616	

^a 3 in FY93; 11 each in FYs 94 and 95; 4 in FY96.

Table B-2. Available Man-Hours for Training by SIMITAR Interventions in the 116th Cav Bde

Intervention	A	B	C	D	B × C × D
	First Use of Intervention	Number of IDT Periods Through April 1996 ^a	Hours per IDT period	Number of Personnel to be Trained	Man-Hours Available for Home Station Training
AFIST	Mar. 95	13	16	590	122,720
ARSI	Jan. 96	4	16	847	54,208
BSTS	Mar. 96	2	16	36	1,152
COFT	Oct. 92	40	16	847	542,080
DSTATS	Nov. 95	6	16	422	40,512
EST	Jan. 96	4	16	217	13,888
GF II	Jan. 96	4	16	47	3,008
JANUS	Dec. 94	15	16	132	31,680
SIMNET	Oct. 93	29	16	847	393,008
VMAT	Jan. 96	4	16	127	8,128

^a 3 in FY93; 11 each in FYs 94 and 95; 4 in FY96.

Table B-3. SIMITAR Training at Home Station, FY93 - FY96

Intervention	Man-Hours of Training					
	48th INF Brigade			116th CAV Brigade		
	Actual	Available	Percent	Actual	Available	Percent
AFIST	534	64,000	0.8	9,384	122,700	7.6
ARSI	208	198,400	0.1	444	54,208	0.8
BSTS				186	1,152	16.1
COFT	5,117	793,600	0.6	4,086	542,080	0.8
DSTATS	940	56,336	1.7	400	40,512	1.0
EST	1,192	86,128	1.4	592	13,888	4.3
GF II	115	6,048	1.9	864	3,008	28.7
JANUS	4,928	62,496	4.6	13,918	31,680	43.9
SIMNET	3,440	535,680	0.6	12,452	393,008	3.2
VMAT	37	15,616	0.2	149	8,128	1.8
Totals	16,511	1,818,304	0.9	42,425	1,210,364	3.5

APPENDIX C

Battalion-to-Task Force Transformation

ACCOUNTING FOR SIMITAR USAGE

- Train by battalions at home station
- Evaluate by task forces at NTC
- Need to account for SIMITAR usage by task force
- Battalions transformed into task forces
 - Some companies were shuffled
 - Other companies did not go to NTC

Table C-1. Battalions at Home Station and Task Forces at NTC

HOME STATION BATTALIONS	TASK FORCES AT NTC
<p>1-108 Bn 4 Tank Cos</p>	<p>TF 1-108 2 Tank Cos from 1-108 Bn 1 Bradley Co from 1-121 Bn 1 Bradley Co from 2-121 Bn</p>
<p>2-121 Bn 4 Bradley Cos</p>	<p>TF 2-121 2 Bradley Cos from 2-121 Bn 1 Tank Co from 1-108 Bn</p>

Table C-2. Transformation of SIMITAR Usage by Battalions at Home Station to Task Forces

Intervention	Battalion	Usage, Training Man-Hours	TF 1-108 Usage, Man-Hours	TF 2-121 Usage, Man-Hours
SIMNET	1-121	672	1/4 (672) = 168	
	2-121	1,760	1/4 (1,760) = 440	1/2 (1,760) = 880
ARSI	1-108	208	1/2 (208) = 104	1/4 (208) = 52
	1-108	2,105	1/2 (2,105) = 1,053	1/4 (2,105) = 526
COFT	1-121	686	1/4 (686) = 172	
	2-121	2,246		1/2 (2,246) = 1,123
AFIST	1-108	534	1/2 (534) = 267	1/4 (534) = 134

APPENDIX D

Critical Combat Functions

Table D-1. Thirty-nine Critical Combat Functions in Seven Battlefield Operating Systems

INTELLIGENCE	
(1) Conduct Intelligence Planning	
(2) Collect Information	
(3) Process Information	
(4) Disseminate Intelligence	
MANEUVER	
(5) Conduct Tactical Movement	
(6) Engage with Direct Fire and Maneuver	
FIRE SUPPORT	
(7) Employ Mortars	
(8) Employ Field Artillery	
(9) Employ Close Air Support	
(10) Conduct Electronic Collection and Jamming	
(11) Conduct Battlefield PsyOps	
(12) Employ Chemical Weapons	
(13) Conduct Target Acquisition Operations	
(14) Employ Naval Gunfire	
(15) Coord, Synch, and Integrate Fire Support	
AIR DEFENSE	
(16) Take Active Air Defense	
(17) Take Passive Air Defense	
C 2	
(18) Plan for Combat Operations	
	(19) Direct and Lead Unit During Preparation
	(20) Direct and Lead Unit in Execution
	MOBILITY & SURVIVABILITY
	(21) Overcome Obstacles
	(22) Enhance Movement
	(23) Provide Countermobility
	(24) Enhance Physical Protection
	(25) Provide Operations Security
	(26) Conduct Deception Operations
	(27) Provide Decontamination
	C S S
	(28) Provide Transport Service
	(29) Conduct Supply Operations
	(30) Provide Personnel Services
	(31) Maintain Weapons and Equipment
	(32) Provide Health Services
	(33) Treat and Evacuate Battlefield Casualties
	(34) Conduct Enemy POW Operations
	(35) Conduct Law and Order Operations
	(36) Provide Health Services
	(37) Treat and Evacuate Battlefield Casualties
	(38) Evacuate Non-combatants from Area of Operations
	(39) Provide Field Services

APPENDIX E

Performance Scores at NTC 96

Table E-1. Mean Performance Score at the NTC Per Task by BOS, With Frequency of Ratings

Battlefield Operating System	No. of Ratings	Frequency (Percent) of Ratings			Mean Score per Task*
		Trained (T)	Needs Practice (P)	Untrained (U)	
48th Brigade					
Intelligence	12	0 (0)	4 (33)	8 (67)	0.33
Maneuver	92	0 (0)	37 (40)	55 (60)	0.40
Fire Support	23	1 (4)	4 (17)	18 (78)	0.26
Air Defense	16	1 (6)	2 (13)	13 (81)	0.25
C2	24	0 (0)	13 (54)	11 (46)	0.54
Mobility and Survivability	57	1 (2)	10 (18)	46 (81)	0.21
CSS	23	0 (0)	4 (17)	19 (83)	0.17
Totals	247	3 (1)	74 (30)	170 (69)	0.32
Task Force 2-121					
Intelligence	12	0 (0)	8 (67)	4 (33)	0.67
Maneuver	107	13 (12)	59 (55)	35 (33)	0.79
Fire Support	59	2 (3)	34 (58)	23 (39)	0.64
Air Defense	4	0 (0)	0 (0)	4 (100)	0.00
C2	22	2 (9)	7 (32)	13 (59)	0.50
Mobility and Survivability	100	7 (7)	39 (39)	54 (54)	0.53
CSS	38	0 (0)	38 (100)	0 (0)	1.00
Totals	342	24 (7)	185 (54)	133 (39)	0.68

*2 = Trained; 1 = Needs Practice; 0 = Untrained

**Table E-1. Mean Performance Score at the NTC Per Task by BOS, With Frequency of Ratings
(Continued)**

Battlefield Operating System	No. of Ratings	Frequency (Percent) of Ratings			Mean Score per Task*
		Trained (T)	Needs Practice (P)	Untrained (U)	
Task Force 1-108					
Intelligence	12	0 (0)	5 (42)	7 (58)	0.42
Maneuver	125	9 (7)	67 (54)	49 (39)	0.68
Fire Support	87	4 (5)	45 (52)	38 (44)	0.61
Air Defense	4	0 (0)	3 (75)	1 (25)	0.75
C2	24	1 (4)	14 (58)	9 (38)	0.67
Mobility and Survivability	118	2 (2)	62 (53)	54 (46)	0.56
CSS	31	0 (0)	26 (84)	5 (16)	0.84
Totals	401	16 (4)	222 (55)	163 (41)	0.63
148th Support Battalion					
C2	24	0 (0)	15 (63)	9 (38)	0.63
CSS	31	0 (0)	24 (77)	7 (23)	0.77
Totals	55	0 (0)	39 (71)	16 (29)	0.71

* 2 = Trained; 1 = Needs Practice; 0 = Untrained

APPENDIX F
SIMITAR Questionnaire

SIMITAR Questionnaire

1. Name: _____
2. Rank: _____
3. Unit that you are responsible for: _____
4. How long have you been with your unit? _____
5. Indicate the extent to which you are familiar with the SIMITAR program

	1	2	3	4	5	
	Not Familiar at All		Somewhat Familiar			Very Familiar
6. The following statements are tenets of the SIMITAR program. Indicate the extent to which you agree or disagree with each. (For those tenets with which you disagree, please indicate why you disagree on the back of this page.)
 - a. Train at home station whenever possible

	1	2	3	4	5	
	Strongly Agree	Somewhat Agree	Neither Agree Nor Disagree	Somewhat Disagree	Strongly Disagree	
 - b. Practice important task for at least four repetitions.

	1	2	3	4	5	
	Strongly Agree	Somewhat Agree	Neither Agree Nor Disagree	Somewhat Disagree	Strongly Disagree	
 - c. Train in simulation before live settings.

	1	2	3	4	5	
	Strongly Agree	Somewhat Agree	Neither Agree Nor Disagree	Somewhat Disagree	Strongly Disagree	
7. We ask for your name on this page in case we would want to discuss your responses with you.

INSTRUCTIONS FOR THE FOLLOWING PAGES

While providing your opinions about specific SIMITAR interventions, please be specific and use numbers wherever appropriate. We ask that, if possible, you talk about improvements in training effectiveness, as measured by exercises in the field vis-à-vis simulators, and training productivity in terms of measurable parameters such as those in the following examples:

- Unit A fired Tank Table VIII in X days and Tank Table XII in Y days during its 1995 Annual Training.
- Training that formerly took X IDTs is now done in Y IDTs.
- Training that was previously done in a MUTA X is now accomplished in a MUTA Y.
- Trainees get X times more practice, rehearsal, or repetitions before a field exercises than they did previously.
- Planning and preparation for training exercises, which formerly took X hours (or several hours) of home station training (HST) time, can now be accomplished without using any HST time.

If you and your unit have had no experience with a particular intervention, simply skip that page and proceed to the next intervention. If you need more room to write, please use the reverse sides of the following pages.

Abrams Full-Crew Interactive Simulator (AFIST)

1. Describe the impact that AFIST has had on your unit.
 - a. How many times has your unit used AFIST? (Provide dates if possible.)
 - b. How did your unit train gunnery skills without AFIST?
2. Should other Army National Guard units use AFIST? Why or why not?
3. Describe any anecdotes that reveal the unique value of the AFIST to training in your unit. (Be as specific as possible.)

ARPA Reconfigurable Simulator Initiative (ARSI)

1. Describe the impact that ARSI has had on your unit.
 - a. How many times has your unit used ARSI? (Provide dates if possible.)
 - b. What tasks has the ARSI been used to train?
 - c. Has the unit used the SIMUTA tables to train?
 - d. How did your unit train maneuver skills without ARSI?
2. Should other Army National Guard units use ARSI? Why or why not?
3. Describe any anecdotes that reveal the unique value of ARSI to training in your unit. (Be as specific as possible.)

Automated Training Analysis and Feedback System (ATAFS)

1. Describe the impact that ATAFS has had on your unit.
 - a. How many times has your unit used ATAFS? (Provide dates if possible)
 - b. How do AARs produced by ATAFS compare to previous AARs?
 - c. Is there potential value in ATAFS AAR products as training aids for those who might not have been players in simulation exercises on which they are based?
2. Should other Army National Guard units use ATAFS? Why or why not?
3. Describe any anecdotes that reveal the unique value of ATAFS to training in your unit. (Be as specific as possible.)

Battle Staff Training System (BSTS)

1. Describe the impact that BSTS has had on your unit.
 - a. How has your unit used BSTS so far?
 - b. What impact has it had on battle staff performance?
 - c. How did your unit train battle staff skills without BSTS?
2. Should other Army National Guard units use BSTS? Why or why not?
3. Describe any anecdotes that reveal the unique value of BSTS to training in your unit. (Be as specific as possible.)

Bradley Commander ICW

1. Describe the impact that Bradley Commander ICW has had on your unit.
 - a. How has your unit used Bradley Commander ICW so far?
 - b. What impact has it had on the performance of Bradley Commanders?
 - c. How did your unit train Bradley Commanders without Bradley Commander ICW?
2. Should other Army National Guard units use Bradley Commander ICW? Why or why not?
3. Describe any anecdotes that reveal the unique value of Bradley Commander ICW to training in your unit. (Be as specific as possible.)

Conduct of Fire Trainer (COFT)

1. Describe the impact that COFT has had on your unit.
 - a. How has times has your unit used COFT? (Provide dates if possible.)
 - b. How did your unit train gunnery skills without COFT?
2. Should other Army National Guard units use COFT? Why or why not?
3. Describe any anecdotes that reveal the unique value of the COFT to training in your unit. (Be as specific as possible.)

Combat Service Support Interactive Courseware (CSS ICW)

1. Describe the impact that CSS ICW has had on your unit.
 - a. How many times has your unit used CSS ICW? (Provide dates if possible.)
 - b. What skills or knowledge have your unit personnel acquired as a result of using CSS ICW?
 - c. How did they learn these skills or knowledge without CSS ICW?

2. Should other Army National Guard units use CSS ICW? Why or why not?

3. Describe any anecdotes that reveal the unique value of CSS ICW to training in your unit. (Be as specific as possible.)

Compressed Gunnery

1. Describe the impact that Compressed Gunnery has had on your unit.
 - a. Give statistical evidence of performance improvements, if any, in Tank Gunnery Tables VIII and XII.
 - b. Compare frequency (e.g., annually, biannually) that your unit conducts Tts VIII and XII with and without Compressed Gunnery training.
 - c. Compare yearly tank gunnery training for your unit in terms of number of IDT periods and days in AT with and without Compressed Gunnery training.
2. Should other Army National Guard units use Compressed Gunnery strategy? Why or why not?
3. Describe any anecdotes that reveal the unique value of the Compressed Gunnery to training in your unit. (Be as specific as possible.)

Digital Systems Test and Training Simulator (DSTATS)

1. Describe the impact that the DSTATS has had on your unit.
 - a. How many times has your unit used DSTATS? (Provide dates if possible.)
 - b. What skills or knowledge have your unit personnel acquired as a result of using DSTATS?
 - c. How did they learn these skills or knowledge without DSTATS?
2. Should other Army National Guard units use the DSTATS? Why or why not?
3. Describe any anecdotes that reveal the unique value of DSTATS to training in your unit. (Be as specific as possible.)

Engagement Skills Trainer (EST)

1. Describe the impact that EST has had on your unit.
 - a. How many times has your unit used EST? (Provide dates if possible.)
 - b. How has your unit used EST? What has it been used to train?
 - c. How did your unit train without EST?
2. Should other Army National Guard units use EST? Why or why not?
3. Describe any anecdotes that reveal the unique value of EST to training in your unit. (Be as specific as possible.)

Forward Support Battalion (FSB) Training Packages

1. Describe the impact that FSB Training Packages has had on your unit.
 - a. How has your unit used FSB Battle Staff training courseware? FSB Lanes?
 - b. What impact has it had on battle staff performance?
 - c. How did your unit train battle staff skills without the FSB training packages?
2. Should other Army National Guard units use FSB Training Packages? Why or why not?
3. Describe any anecdotes that reveal the unique value of FSB Training Packages to training in your unit.
(Be as specific as possible.)

**Guard Unit Armory Device, Full-Crew Interactive Simulation Trainer, Field Artillery
(GUARDFIST II)**

1. Describe the impact that GUARDFIST II as had on your unit.
 - a. How many times has your unit used GUARDFIST II? (Provide dates if possible.)
 - b. What skills or knowledge have your unit personnel acquired as a result of using GUARDFIST II?
 - c. How did they learn these skills or knowledge without the GUARDFIST II?
2. Should other Army National Guard units use the GUARDFIST II? Why or why not?
3. Describe any anecdotes that reveal the unique value of GUARDFIST II to training in your unit. (Be as specific as possible.).

Janus

1. Describe the impact Janus technology has had on your unit.
 - a. How often has your unit used Janus? (Provide dates, if possible.)
 - b. How has Janus improved Battle Staff training in your unit?
 - c. How did your unit do Battle Staff training without Janus?
2. Should Janus be provided to other Army National Guard units to train Battle Staff skills? Why or why not?
3. Describe any anecdotes that reveal the unique value of Janus to training in your unit. (Be as specific as possible.)

Mobile SIMNET

1. Describe the impact that Mobile SIMNET has had on your unit.
 - a. How many times has your unit used Mobile SIMNET? (Provide dates if possible.)
 - b. What tasks has the Mobile SIMNET been used to train?
 - c. Has the unit used the SIMUTA tables to train?
 - d. How did your unit train maneuver skills without Mobile SIMNET?
2. Should other Army National Guard units use Mobile SIMNET? Why or why not?
3. Describe any anecdotes that reveal the unique value of Mobile SIMNET to training in your unit. (Be as specific as possible.)

Pen-Based Electronic Network for Command Information Linking (PENCIL)

1. How has your unit used PENCIL?
2. How did your unit function previously without PENCIL?
3. Where do you think PENCIL has its greatest application?
4. Should other Army National Guard units be provided PENCILs? Why or why not?
5. Describe any anecdotes that reveal the unique value of PENCIL to training in your unit. (Be as specific as possible.)

Pile On

1. Describe the impact that Pile-On IDTs has had on your unit.
 - a. How many times has your unit participated in a Pile-On IDT? (Provide dates if possible.)
 - b. How has the strategy of training gunnery and maneuver on the same IDT weekend affected performance? (Be as specific as possible.)
 - c. Has firing TT IV and TT VII on AFIST impacted your unit's tank gunnery program? (Again, be as specific as possible.)
2. Is it important for your unit to shoot BT/TT XII? Why or why not?
3. Should other Army National Guard units use the Pile-On Strategy to train gunnery and maneuver? Why or why not?
4. Describe any anecdotes that reveal the unique value of Pile-On Strategy to training in your unit. (Be as specific as possible.)

Reserve Component Virtual Training Program (RCVTP)

1. Describe the impact that RCVTP has had on your unit.
 - a. How many times has your unit used the RCVTP? (Provide dates if possible.)
 - b. How has RCVTP improved Battle Staff training in your unit?
 - c. How did your unit do Battle Staff training without RCVTP?
2. Should RCVTP be provided to other Army National Guard units to train Battle Staff skills? Why or why not?
3. Describe any anecdotes that reveal the unique value of RCVTP to training in your unit. (Be as specific as possible.)

S-2 Trainer

1. Describe the impact that the S-2 Trainer has had on your unit.
 - a. How has your unit used the S-2 Trainer so far?
 - b. What impact has it had on performance of S-2?
 - c. How did your unit train S-2 skills without the S-2 Trainer?
2. Should other Army National Guard units use the S-2 Trainer? Why or why not?
3. Describe any anecdotes that reveal the unique value of the S-2 Trainer to training in your unit. (Be as specific as possible.)

Simulation-Based Mounted Brigade Training Program (SIMBART)

1. Describe the impact that the SIMBART tables have had on your unit.
 - a. How many times has your unit used the SIMBART tables on either SIMNET or ARSI? (Provide dates if possible.)
 - b. How have the SIMBART tables affected performance? (Be as specific as possible.)
 - c. How did your unit do maneuver training without SIMBART tables?
2. Discuss the importance of O/C and AAR processes in SIMBART in terms of your unit's performance?
3. Discuss the impact on performance of the vertical plt-co-bn-bde linkage of missions and terrain through SIMBART exercises on SIMNET, ARSI, and Janus.
4. Should other Army National Guard units use the SIMBART tables? Why or why not?
5. Describe any anecdotes that reveal the unique value of SIMBART to training in your unit. (Be as specific as possible.)

Staff Linkage Trainer (SLT)

1. Describe the impact that the SLT has had on your unit.
 - a. How has your unit used the SLT?
 - b. What impact has it had on the performance of Support Battalion personnel?
 - c. How did your unit train Support Battalion dyads and triads without the SLT?
2. Should other Army National Guard units use SLT? Why or why not?
3. Describe any anecdotes that reveal the unique value of SLT to training in your unit. (Be as specific as possible.)

Tank Commander ICW

1. Describe the impact that Tank Commander ICW has had on your unit.
 - a. How has your unit used Tank Commander ICW so far?
 - b. What impact has it had on the performance of tank commanders?
 - c. How did your unit train tank commanders without Tank Commander ICW?
2. Should other Army National Guard units use Tank Commander ICW? Why or why not?
3. Describe any anecdotes that reveal the unique value of Tank Commander ICW to training in your unit.
(Be as specific as possible.)

Voice-Operated Medical Triage Trainer (TRIAGE)

1. Describe the impact that the Triage Trainer has had on your unit.
 - a. How many times has your unit used the Triage Trainer? (Provide dates if possible.)
 - b. What skills or knowledge have your unit personnel acquired as a result of using Triage Trainer?
 - c. How did they learn these skills or knowledge without the Triage Trainer?
2. Should other Army National Guard units use the Triage Trainer? Why or why not?
3. Describe any anecdotes that reveal the unique value of the Triage Trainer to training in your unit. (Be as specific as possible.)

Virtual Reality Maintenance Trainer (VMAT)

1. Describe the impact that VMAT has had on your unit.
 - a. How many times has your unit used VMAT? (Provide dates if possible.)
 - b. What skills or knowledge have your unit personnel acquired as a result of using VMAT?
 - c. How did they learn these skills or knowledge without VMAT?
2. Should other Army National Guard units use VMAT? Why or why not?
3. Describe any anecdotes that reveal the unique value of VMAT to training in your unit. (Be as specific as possible.)

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13. ABSTRACT (Maximum 180 words) This report describes progress in evaluating the effectiveness of SIMITAR (Simulation in Training for Advanced Readiness) training technology to improve the performance of Army National Guard (ARNG) brigades. The evaluation focuses first on the 48th Infantry Brigade training at the National Training Center (NTC) in 1996 and second on the 116th Cavalry Brigade at annual training (AT) and home station training. The report also describes the plan for completing the SIMITAR evaluation. SIMITAR involves about 25 interventions (devices, courses, procedures, and strategies) for training numerous ARTEP (Army Training and Evaluation Program)-derived tasks. The SIMITAR evaluation involves measuring performance of those tasks in NTC and AT field exercises. Since no ARNG units had recently trained at the NTC, there was no training performance benchmark for the 48th Brigade at NTC 96. However, the fact that some of over 500 tasks considered at NTC 96 are trainable by SIMITAR devices and courses while other tasks are not provides an alternative benchmarking option: performance on tasks not trained by SIMITAR benchmarks the performance of SIMITAR-trained tasks. The NTC training evaluation focuses on large collectives (brigade, battalion) whereas most SIMITAR devices and courses train individuals and small collectives (crew, squad, platoon). Field exercises at AT are better suited for evaluating lower organizational level performance. There is statistical evidence—in addition to users' testimony—that SIMITAR training evaluated so far improves training performance.				
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