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Technical Report 970

How Well Did the Combat Training Centers Prepare Units for Combat?

Questionnaire Results From Desert Storm Participants

S. Delane Keene and Stanley M. Halpin
U.S. Army Research Institute

January 1993



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FOREWORD

The Fort Leavenworth Field Unit of the U.S. Army Research Institute for the Behavioral and Social Sciences supports the Combined Arms Center with research and development on combined arms operations and command group development. An issue relevant to these missions is to provide insights from participants in Operation Desert Storm concerning the adequacy of their preparation for combat.

In the spring of 1991, the Center for Army Lessons Learned (CALL) and the Fort Leavenworth Field Unit developed questionnaires to investigate a number of issues related to soldiers' experiences in Operation Desert Storm. One issue was the combat preparation provided by the Combat Training Centers. This report discusses the participants' responses on this issue. Preliminary feedback was provided to CALL on 12 July 1991. The information provided in this report may be useful to the Army training and material development communities in preparing and equipping the combat units of the future.



EDGAR M. JOHNSON
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HOW WELL DID THE COMBAT TRAINING CENTERS PREPARE UNITS FOR COMBAT?

QUESTIONNAIRE RESULTS FROM DESERT STORM PARTICIPANTS

EXECUTIVE SUMMARY

Requirement:

This report provides the results of questionnaires developed to determine whether participants in Operation Desert Storm experienced "surprises" for which their training experience at the Combat Training Centers (CTCs) had not adequately prepared them.

Procedure:

Three questionnaires were developed for distribution to personnel in Desert Storm units. One questionnaire was designed for commanders of Combat and Combat Support units. A second was designed for commanders of Combat Service Support units, and the third was developed for staff personnel. The three questionnaires were intended to solicit opinions from a broad range of Army personnel on a variety of issues and were customized to focus on the issues expected to be most relevant to members of each of the three groups.

Ten thousand of these questionnaires were distributed from April through June 1991 to Desert Storm participants. Some of them were still located in Saudi Arabia when they received their questionnaires, while others had already redeployed to the continental United States.

Of the 10,000 questionnaires distributed, 2,463 were returned; 1,318 contained a response to the question concerning CTC preparation for combat. Of the 1,318 responses, only 837 of the participants reported having had experience at any of the CTCs. The responses of the 837 who had attended at least one of the CTCs were analyzed and are discussed in this paper. The responses of the 481 who had never attended a CTC were analyzed and are discussed in Appendix A.

Findings:

Participants' responses concerning their CTC preparation for combat were classified into 12 categories, as follows: Methods and procedures, prisoners of war, CTC training-related issues, logistics and supply, weapons and equipment effectiveness, navigation and mobility, morale and attitudes, communications, maintenance, enemy, casualties (friendly), and hazards. Participants' comments and discussion on these topics are provided.

Utilization of Findings:

Recommendations are made for problems that were uncovered. In some instances, training solutions were recommended; for other problems, an equipment acquisition and development solution was recommended.

HOW WELL DID THE COMBAT TRAINING CENTERS PREPARE UNITS FOR COMBAT?

QUESTIONNAIRE RESULTS FROM DESERT STORM PARTICIPANTS

CONTENTS

	Page
INTRODUCTION	1
METHODOLOGY	2
FINDINGS	3
Methods and Procedures	3
POWs/EPWs	6
CTC Training Related Issues	6
Logistics and Supply	8
Weapons and Equipment Effectiveness	9
Mobility and Navigation	11
Morale and Attitudes	12
Communications	13
Maintenance	13
Enemy	14
Casualties - Friendly	15
Hazards	15
SUMMARY AND CONCLUSIONS	16
Positive Themes	16
Negative Themes	16
Conclusions and Recommendations	17
APPENDIX A. "SURPRISES" EXPERIENCED BY DESERT STORM PARTICIPANTS WHO DID NOT HAVE PRIOR CTC TRAINING EXPERIENCE	A-1

HOW WELL DID THE COMBAT TRAINING CENTERS PREPARE UNITS FOR COMBAT?

QUESTIONNAIRE RESULTS FROM DESERT STORM PARTICIPANTS

Introduction

**"No American soldier must ever die in combat because we failed to provide the tough, realistic training demanded by the battlefields of today."
Gen. Carl E. Vuono, CSA, *Army* magazine,
December 1989.**

The pursuit of greater realism in training has led to the development and implementation of the combat training center (CTC) concept, which provides the facility to exercise the synchronization of all elements of the combined arms team in an environment as close to actual combat conditions as possible. The National Training Center (NTC) at Ft. Irwin, California, was developed in the early 1980s and is primarily a force-on-force training center for heavy forces. The Joint Readiness Training Center (JRTC) at Ft. Chaffee, Arkansas, provides the same capability for training light forces. The facility for training heavy units based in Europe is the Combat Maneuver Training Center (CMTTC) at Hohenfels, Germany. The Battle Command Training Program (BCTP) provides mobile training teams to exercise critical command and control skills for division and corps level staff groups and is based at Ft. Leavenworth, Kansas.

**"The value of the CTCs cannot be overstated, and the payoff is measured in the performance of our units in battle." Gen Carl E. Vuono, CSA,
Military Review, January 1991.**

In the spring of 1991, the Center for Army Lessons Learned (CALL) and the U.S. Army Research Institute (ARI) at Fort Leavenworth, Kansas, developed questionnaires to investigate a range of issues related to soldiers' experiences in Operation Desert Storm.¹ One of the issues explored was whether the participants in Desert Storm had encountered any "surprises" for which their CTC training had not prepared them.

¹ See Halpin and Keene, "Desert Storm Challenges: An Overview of Desert Storm Survey Responses" (in preparation) for a general discussion of the surveys and responses.

Three questionnaires were developed for distribution to personnel in Desert Storm units. One version of the questionnaire was designed for commanders of Combat and Combat Support units, a second was designed for commanders of Combat Service Support units, and the third was developed for staff personnel. The three versions of the questionnaire were intended to solicit opinions from a broad range of Army personnel on a variety of issues, and were customized to focus on the issues which were expected to be of most relevance to the three groups.

The following question was asked on all three versions of the questionnaire: **"Describe any major surprises that your previous experience at combat training centers did not prepare you for."** This report contains the results of the analysis of questionnaire responses to this question, and is the second in a series of reports covering key findings from the questionnaires.

Methodology

During the period April through June, 1991, personnel from ARI and CALL distributed approximately 10,000 questionnaires to U. S. Army participants in Operation Desert Storm. Some of the individuals were still located in Saudi Arabia when they received their questionnaires, while others had already redeployed to their CONUS home stations. Of the 10,000 questionnaires distributed, 2,463 were completed and returned. Of these, 1,318 contained a response to the question being discussed in this paper (hereafter referred to as the "surprise" question). However, of the 1,318 responses to this question, only 837 of the respondents reported having had experienced at least one CTC rotation. Responses from the remaining 481 individuals, those who did not report CTC experience, will be handled seperately in appendix A of this report. Of the 837 respondents reporting CTC experience, 85% are officers and 15% are warrant officers, NCOs and enlisted personnel. The frequency distribution, by rank, of the respondents with CTC experience is as follows:

MG	2
BG	3
COL	14
LTC	68
MAJ	138
CPT	387
1LT	84
2LT	12
SGM	40
MSG	25
SFC	28
SSG	16
SGT	7
ENL	1
WARRANT	9
UNKNOWN	<u>3</u>
TOTAL	837

The average number of CTC rotations reported by these respondents for each of the CTCs is as follows:

NTC	2.51
JRTC	1.29
CMTC	1.75
BCTP	1.75

As the questionnaires were returned, the responses were entered into a database for further analysis. The responses to the "surprise" question were entered in narrative form in their entirety as stated on the questionnaire. Next, responses were reviewed and a categorization scheme was developed to enable the analyst to describe the major themes. Each response was then placed into one or more categories. The following is a list of the categories used in the analysis together with the number of responses in each. Since many respondents made comments relevant to more than one category, there are a greater number of responses than respondents.

Methods and Procedures	156
POWs/EPWs	107
CTC Training Related Issues	107
Logistics/Supply	101
Weapons and Equipment	
Effectiveness	100
Mobility and Navigation	94
Morale and Attitudes	84
Communications	78
Maintenance	58
Enemy	35
Casualties - Friendly	34
Hazards	<u>10</u>
Total	964

Findings

Each of the above categories will be discussed concerning the respondents' comments.

Methods and Procedures

The 156 individuals who responded in this category reported having attended the CTCs as follows (some individuals attended more than one of the CTCs):

NTC	80
CMTC	60
BCTP	54
JRTC	17

Almost one-third of the comments in this category were concerned with surprise at the speed of the attack and the distance covered. Respondents who had served during Desert Storm in Battalion level staff positions and as Company Commanders accounted for a majority of comments concerning the speed of operations. However, comments concerning the rapid pace of the advance were made by others as well. (For a more detailed discussion on specific methods and procedures see Halpin and Keene, in preparation.)

The rapid advance necessitated many procedural changes from the way in which units were trained to operate at the CTCs. Units moved so rapidly that they outpaced their planning and created problems with control and coordination activities. For instance, one Aviation Company Commander reported that when support missions were flown to coordinated LZs (landing zones), they found that the units had already departed. A Brigade staff officer reported his surprise at the difficulty of C2 (command and control) while moving constantly, and added that his training had not included how to "fight on the move." A Battalion staff officer made a similar comment as follows:

"We never set up the TOC² as is usually done in any training exercise. We had to operate on the move, which was something we do not do in training....."

The rapid pace also made unit resupply difficult, as explained by one respondent:

"The quick pace of the attack surprised everyone and made resupply of key items difficult. Fuel became scarce mostly as the support elements fell further behind."

Some respondents reported that the pace was so rapid that Corps quickly lost the "feel" of the battle, could not clearly sense the situation, and did not seem to comprehend the speed of the friendly units' movement. Rapid movement also required that units adjust the planning process, with the result that many units operated "mission upon mission with no planning time", without the formal orders process and mostly with FRAGOs (fragmentary orders).

Several respondents commented at their surprise that their sleep/rest plans were ineffective. Again, these comments came principally from individuals at the Battalion level of operations. As one Battalion commander explained his biggest surprise:

"Fatigue, sleep loss, real barriers and obstacles. Catnaps did not provide enough rest. I was near combat ineffective near the ceasefire."

²Tactical Operations Center

Comments, such as the following, were made concerning surprise at the intelligence situation after battle commenced:

".....Lack of information and intel on the move. Prior to the ground campaign, information was accurate and somewhat timely. Once we started moving, we received no intel until the rest halts."

Others commented that their higher headquarters did not seem to be able to effectively use its HUMINT (human intelligence) gathering assets, and that the intel nets were used less frequently than during training at the CMTC. Another noted that they were unable to exploit any intelligence which could have been gained from EPWs because they did not have the trained personnel available for intelligence gathering of that nature.

Other comments made in this category expressed surprise at the fact that units, and individuals, were used during Desert Storm in ways for which they were not trained.

"Being in the 82nd Airborne, our major surprise was not being used on the contingency, LIC³, type of engagement. We covered great distances by vehicle, which is not the way we train."

One CSM (Command Sergeant Major) said that he was surprised because he was trained as ADA (Air Defense Artillery), but used as transportation.

Several comments were made concerning the lack of emphasis placed on NBC (Nuclear, Biological and Chemical warfare) during training events. The following is an example of such comments:

"The almost complete lack of realistic NBC training, not just in this unit but in all I have been assigned to for the last 10 yrs. NBC is viewed as a joke, then when it is a realistic threat, it is too late to make up for lack of training."

Other surprises dealing with methods and procedures concern the lack of training in close air support at the CTCs, availability of water and other resources for effective decontamination procedures, support from DS (direct support) level is not accomplished at training centers at near the same distances and intensity as Iraq, lack of training at CTCs on MSR (main supply route) planning and construction, lack of understanding of the attention that proper field sanitation requires, firing batteries operating adjacent to one another, and lack of timely and accurate information which rendered automated information systems useless.

³ LIC = Low Intensity Conflict

POWs/EPWs

The 107 individuals who made comments in this category expressed great surprise at the number of POWs during Desert Storm. All of the respondents reported being overwhelmed by the numbers for which they had to provide basic necessities, process, and transport. The following are examples of the comments in this category:

" Prisoners of war were a real surprise.

At CTCs a squadron normally processes 5-10 during an entire rotation. We were taking 300-500 prisoners each day"

"EPW processing became a serious problem.

Moving EPWs from the point of capture to the Division processing center took key leaders out of the battle."

"EPWs! We were overwhelmed many times. We had to take Co/TMs from the attack in order to process them."

Some individuals commented that POW/EPW processing is often handled with a "magic wand" at the CTCs, but that this problem requires both more training as well as a workable plan for handling large numbers of POWs.

CTC Training Related Issues

Responses were received in this category from 107 respondents. Among these respondents, the number who reported at least one rotation at each of the CTCs is as follows:

NTC	64
CMTC	36
BTP	31
JRTC	14

Since some respondents had attended more than one CTC, the total number across CTCs is greater than the total number of individuals.

Of the total number responding in this category, 25 (23%) expressed the belief that training at CTCs is more difficult than their combat experience during Operation Desert Storm. The following are examples of such comments:

"NTC is realistic. A rotation there is far more difficult than Saudi ever became."

"NTC rotations are harder than this war."

"The Iraqi army was certainly not as effective as the BCTP OPFOR."⁴

"All systems were great. We fought just as we had trained. Victory was easier than at CMTC."

Eighteen (17%) of the respondents in this category commented that the training they had received at the CTCs was so good that they had not had any surprises during combat. The following are examples:

"No surprises. By tough learning in realistic environments and situations you get surprised very seldom."

"Two NTC rotations prepared me very well for this operation as the fluidity of the battlefield that is trained at the NTC causes one to be able to think on one's feet."

"I experienced no major surprises. We operated very much as we did in training exercises."

Thirty-nine (36%) respondents commented on specific aspects of CTC training which they believe should be changed. The areas covered in these comments include long range communication and transportation, host nation support, OPFOR tactics, long moves, weapons effectiveness, battlefield conditions, boredom, handling and use of OPFOR weapons, limited visibility operations, numbers of EPWs, environmental factors, pace of attack, NBC training, fratricide, FA (Field Artillery) support of the battlefield, stress and fear. The following is a representative sample of such comments:

"Training centersdo not provide sufficient area to understand the immense size of a Corps area of interest. Thus, long range commo and transportation are not addressed or clearly understood."

"Computer simulation, BCTP, does not have host nation support play - credit is given offline - without Saudi transport the Division would have had staging problems."

"The actual combat effectiveness of Warsaw Pact equipment is poor at best. The exchange ratios at NTC are grossly inaccurate.....Our fire control is not accurately represented in the MILES⁵ system."

⁴ Opposition Force

⁵ Multiple Integrated Laser Engagement System - instrumentation system used by the NTC, JRTC, and CMTC.

"Due to the tactical situation, we had to run a split operation - a forward and a rear logistics operation center (24 hr. operations). All out of hide. This was never exercised before. All new stuff."

".....NTC allows you to beef up with other units' radios, etc., so you operate on more radio nets at NTC than you can in combat with only your own organic assets."

"Boredom. A lot of time waiting. CTCs give a rapid pace, keep you occupied. Waiting presents a leadership challenge to keep your soldiers on that edge."

".....I had not been exposed to a situation where target identification was solely based on thermal imagery."

"CMTC doesn't teach us that we kill more of our own than the enemy does."

The remaining comments provided specific suggestions for improving the way in which the CTCs train:

"The enemy used enemy tactics! At NTC the OPFOR does what it wants under the reason that 'only a stupid commander would do.....'. Well, we must have (fought) stupid commanders- they implemented their doctrine and we ate their lunch. OPFOR must implement enemy doctrine regardless."

"I believe that the training centers are an excellent arena to prepare units and soldiers. However, units need to go to CTCs with the expectation to TRAIN, not win. Training your unit/soldiers and preparing them for combat is winning, not beating the OPFOR."

Logistics and Supply

This category received 101 responses, all of which reported, with varying degrees of severity, some negative experience with CSS (Combat Service Support) operations during Operation Desert Storm. Respondents commented on shortages of everything from water to HMMWV (High Mobility Multipurpose Wheeled Vehicle) tires. Although, as some respondents noted, the logistics problem was undoubtedly made worse by the rapid advance of maneuver forces and the large number of POWs requiring transport and supplies, the CSS systems are not stressed during CTC training and deficits are not revealed. The following comments are representative of the responses in this category:

"The sorry state of logistics and medevac systems is not revealed at the CTCs."

"NTC doesn't play Avn logistics. We knew fuel and ammo would be tough but NTC sure didn't prepare us for it."

"CMTC logistic operations did not get close to what occurred here. Most logistic operations occurred on the fly. CMTC doesn't stretch the logistics system."

"CMTC did not prepare FSB or MSB⁶ to support over such great distances."

"BCTP doesn't emphasize maintenance and supply."

"We literally outran logistics. [...] not authorized sufficient transportation assets to haul Class IX⁷, especially when the lines of communication extended rapidly. The FSB has only a truck platoon and no air assets to haul supplies. The FSB wasn't configured for combat. The element literally took forward whatever happened to be in the trucks in the way of Class IX."

"The tremendous fuel consumption of a unit on the move was my biggest surprise. I couldn't believe after NTC how much fuel it actually takes to move a TF⁸ element great distances."

"At CMTC Class IX resupply is always practiced as though it will be there in combat. However, it was just not here for us during this short war."

Weapons and Equipment Effectiveness

One hundred responses were made in this category. Eighty-four of the respondents reported being very pleased with the weapons and equipment effectiveness during Operation Desert Storm, while 16 reported having negative experiences in this area. Many respondents pointed out that weapons effectiveness is greatly underestimated at the CTCs. The following is a representative sample of the responses expressing positive reactions concerning weapon system effectiveness:

"Our equipment - M1A1/M2/M3A2 are awesome - great standoff advantage day and night....."

⁶ FSB = Forward Support Battalion
MSB = Main Support Battalion

⁷ Class IX Supply = repair parts

⁸ TF= Task Force

"M1/M2 weapon effects are greater than Table VIII at the NTC shows."

"Weapons effectiveness.....25mm penetrates T54/T55 tanks. TOWs work - they kill tanks. TOW 2A defeats T72s beyond 3000 meters. Tank 105 defeats T72s at 3000 meters, 25mm effective at 2000+."

"Reliability of the IEW⁹ systems were found to be more reliable than anyone expected."

"Our weapons systems are not given a fair shake at NTC or JRTC. Our aircraft outperformed our JRTC and NTC results by leaps and bounds. The CTCs do not do Attack Helicopter operations justice."

"The effectiveness of special munitions such as the DPICM¹⁰ were phenomenal. The mixed effect of WP and HE in one fire mission was so destructive to one enemy position that the Iraqi infantry refused to crawl from their holes to surrender until they became assured that another fire mission would not be fired on them."

Most of the negative reactions in this category were concerning equipment rather than weapons, however problems with the Squad Automatic Weapon (SAW) were mentioned by two respondents who commented that sand particles caused problems in operability of the SAW, and that the penetrating power of the SAW was disappointing, even against light skinned vehicles. The following is a representative sample of negative comments concerning other weapons and equipment:

"M1008/M1009 CUCV¹¹ was useless. The operator manual describes vehicle as for 'occasional off-road use' We cannot support combat arms as part of a combined arms team with unsuitable vehicles."

"The cooling system on the M1009/992 is inadequate. Too small....."

"The NBC warning system is ineffective and caused a great deal of stress early in the TAA."¹²

"...We experienced a lot of problems with the MICLIC¹³ rocket that should have been resolved at the CTCs prior to deployment."

⁹ IEW = Intelligence/Electronic Warfare

¹⁰ DPICM = Dual Purpose Improved Conventional Munition

WP = White Phosphorous

HE = High Explosive

¹¹ CUCV = Commercial Utility Cargo Vehicle

¹² TAA = Tactical Assembly Area

¹³ MICLIC = Mine Clearing Line Charge

"Thermal failure at critical times hurt both movement and control. IFF¹⁴ was THE biggest problem....."

"2 1/2 ton trucks could not negotiate some of the sandy terrain....."

"Need a third power on Bradley sights."

"M16 rifles were harder to keep clean and maintain."

Mobility and Navigation

Almost one-half of the respondents in this category commented upon the difficulty in navigating in the desert - vastness of terrain, lack of terrain references, limited illumination and visibility. Others commented upon the great distances covered in the advance, the speed of the advance, and the difficulties encountered by some vehicles, especially wheeled vehicles such as the CUCV. The following is a representative sample of comments in this category:

"Flatness, limited visibility made it virtually impossible to navigate with a map."

"The terrain facilitated broad maneuver but the lack of terrain features made navigation difficult. GPS¹⁵ is a must."

"The NTC does not prepare a unit for fighting in Southwest Asia. The distances are multiples. No terrain features...."

"We thought we understood the desert fairly well. We changed our tactics to the new environment. We may have changed them too much based on our inexperience. Navigation without a GPS in an aircraft is extremely difficult in the flat desert. Flying with night vision goggles for a reconnaissance mission in the flat terrain is useless. We had to completely reshape our thinking in that respect."

"If we had not had Magellan GPSs, squads and platoons would have been lost. When illumination is below 20% in a desert environment it's like walking through a closet with the light out. We need more GPSs in the TOE."

"Mobility... CMTC poor substitute for flat open desert operations."

¹⁴ IFF = Identify Friend or Foe

¹⁵ GPS = Global Positioning System

"Mobility by far was the biggest obstacle. NTC doesn't provide the opportunity to travel 50 to 60 km per day."

Morale and Attitudes

Eighty-four respondents chose to make comments in this category. Of these responses, 13 (15%) stated that morale was surprisingly good, 10 (12%) said that morale was low, 30 made comments concerning specific factors which were detrimental to morale (boredom, poor mail service, and uncertainty over length of deployment), and the remainder commented on the general stressors and attitudes of the soldiers.

Approximately 50% of the individuals who commented upon morale being a surprising issue were among the first arrivals in Southwest Asia (SWA). The length of time in country prior to commencement of the ground campaign could account for the emergence of morale issues.

The following is a representative sample of the comments in this category:

"Mail wasn't very good."

"Morale was harder to keep up because of the length of the deployment and the amount of time spent in SWA prior to combat."

"Maintaining morale in 120 degree F. during extended periods with no activity."

"Morale - in a 2-3 week rotation at a CTC, soldiers know when they will go home. Not knowing this in SWA was, at times, detrimental to morale."

"The creativity and volume of the rumor mill was a big surprise to me."

"Counseling soldiers with regard to the psychological/moral impact of killing."

"Real fear "

"Morale was much higher during actual combat than during simulated combat at the NTC."

Communications

There were 78 responses in this category, of these 62 (79%) said that significant communication problems were encountered, two said that communications were surprisingly good. The explanation most often cited for the problems were the extended distances of communication lines and outdated equipment. (For a more detailed discussion of communications issues see Haplin and Keene, in preparation.) The following are examples of the comments in this category:

"Terrible commo. Need for civilian equipment/resource augmentation."

"...The distances during this offensive were far greater than those experienced at CMTC thus straining commo..."

"Communication degradation due to length of our lines of communication and depth of advance."

"I didn't realize how much command and control would be affected given limited radio spread out over 40-60 miles."

"...units train with line units close enough to communicate with FM commo. Our inability to move and communicate effectively was a big surprise."

"Never had as much trouble with commo as during Desert Storm. Also, unit did not have enough commo gear to support all of the required nets."

"Commo stunk. We desperately need an effective secure system that can be used on the move."

Maintenance

This category received 58 responses. Thirty-two respondents (55%) commented that maintenance was a problem during Operation Desert Storm, and 21 (36%) reported that maintenance was surprisingly good. The remainder spoke about the importance of maintenance prior to combat and the lack of realistic maintenance training at the CTCs. The most frequently cited reasons for the maintenance problems that the respondents experienced were environmental factors (sand, heat, etc.) and the difficulty in obtaining repair parts. The following are examples of comments in this category:

"I was pleasantly surprised by our ability to maintain our equipment during the operations. We maintained an honest OR¹⁶ rate of over 90%"

"Maintenance always works at the CTCs because we build huge stockpiles that just didn't exist here. That resulted in hoarding."

"Maintenance was better than expected."

"BCTP doesn't emphasize maintenance and supply."

"Terrain surprised us. Impacted on mobility and maintenance. Sand in weapons a particular problem."

"Maintenance: the desert proved to us that we must train more in that type of environment to test the effectiveness of all the battle systems."

"Maintenance on vehicles, weapons and communication equipment proved crucial to platoon's ability to shoot, move and communicate."

"Lack of direct support maintenance, to include CLASS IX parts....."

Enemy

There were 35 responses in this category and all of them spoke about the respondents' surprise at the enemy's lack of desire to fight and the inadequacy of enemy equipment. The following is a representative sample of the comments in this category:

"The enemy didn't want to fight."

"Poor quality of enemy equipment."

"The major surprise was how our actions (air attack, technology, envelopment maneuver) could break the enemy's will and lead to such an easy victory given our expectation of the difficult fight."

"M1 vs T72 effectiveness - T72 vastly overrated in terms of accuracy, firepower, protection."

"The biggest surprise was the unwillingness or inability of Iraq to attack when we were somewhat vulnerable."

¹⁶ OR = Operational Readiness

Casualties - Friendly

This category received 34 responses. The responses in this category were concerned with failures in casualty reporting and processing systems, and the unexpected low number of friendly casualties. The following comments are examples of responses in this category:

"...The casualty system is broken."

"Casualties - first report is always incorrect. Casualty section of the Division consisted of two EM and one officer - a disgrace - completely underresourced."

"Casualties - procedures were trained but shock effect very hard to train."

"We are not prepared, organized and equipped to handle mass casualties. Only one doctor, no tracked ambulances, etc."

"Far less casualties than expected. Far less than simulated at NTC."

"Losing soldiers in the medical tracking system."

"The casualty processing on the casualty feeder reports was non-existent."

Hazards

Ten respondents commented in this category. All of the comments spoke about the surprise at the high number of unexploded munitions and the threat that they presented for soldiers. Some of the comments from this category are given below:

"Unexploded munitions - friendly and enemy."

"Widespread presence and lethality of unexploded DPICM and CBU¹⁷ submunitions."

"Unexploded ordnance - especially CBU and DPICM."

"Unexploded DPICM was much more of a hazard than realized before."

¹⁷ CBU = Cluster Bomb Units

"DPICM caused many friendly casualties. Soldiers don't know what they look like and pick them up."

"The use of DPICM in a desert environment. The dangers to follow -on units with the undetonated bomblets creating a hazard."

Summary and Conclusions

The themes that emerged from the respondents' comments will be summarized in this section. The positive themes will be discussed first, followed by the negative themes and general conclusions and recommendations.

Positive Themes

Overall, the CTCs have demonstrated their effectiveness in the level of proficiency shown by American combat forces during Operation Desert Storm. The results of this research, and other research as well, indicate that the realism and intensity of CTC training appears to have prepared soldiers well for the "real thing" and paid dividends by way of extremely low casualty rates, higher morale than might have been expected under such difficult conditions, soaring confidence in the effectiveness of weapons systems, and in the ability of soldiers to "think on their feet" and respond creatively to new and demanding situations.¹⁸ However, beneficial as the CTC experience may be, it can always be improved and the following discussion of the negative themes that emerged can help in making a "good thing better."

Negative Themes

One of the major negative themes emerging from this analysis of the "surprise" question is the difficulties the units experienced in association with the long and rapid advance during the ground campaign. The speed and distance of the advance brought up a number of issues for which the CTC had not provided training. The extended communication and supply lines precipitated failures in both systems. The unexpected numbers of POWs to be transported and sustained created an extreme burden for an already overtaxed logistics system. Additionally, soldiers were unprepared for the difficulty of maintaining weapons and equipment in a desert environment. The difficulty in obtaining repair parts also played a part in maintenance problems. Fratricide, the difficulty of IFF and navigation, and the hazards presented by unexploded ordnance were new and alarming dimensions of combat for which soldiers were not well prepared. Maintaining morale under such trying conditions presented a leadership problem that some respondents had not anticipated.

¹⁸ See Evans, Kenneth L. (1992). "The Mobilization of Individual Ready Reserve (IRR) Infantrymen During Operation Desert Storm: Training Performance Analysis." Research Report 1621, U. S. Army Research Institute for the Behavioral and Social Sciences.

and the discovered awareness of the inadequacy of sleep/rest plans, difficulty in obtaining intelligence data, and lack of adequate NBC training were unpleasant surprises to some. In the group which had not had CTC experience, which is discussed in Appendix A, the most significant "new" negative theme uncovered was the problem experienced by many in integrating Reserve soldiers with the Active army soldiers.

Conclusions and Recommendations

The CTCs have proven their worth in the outstanding performance of U.S. forces during Operation Desert Storm. Many of the problem areas which have been identified in this analysis are difficulties associated with this theater of operations and/or associated with the need to update equipment.

Communications problems were probably caused by a combination of those factors - the terrain and theater of operations created the opportunity and necessity for long rapid advances. When this necessity was combined with equipment which was both outdated and in short supply, the result was wide spread failures in the communication systems. Training conditions usually provide for communication facilities adequate for proper command and control - when this proved not to be the condition of combat, soldiers had to adjust. This problem may be handled most appropriately by an equipment development and/or acquisition solution. Although units can be exposed to conditions at the CTCs where the communication is degraded or non-existent, this is probably not the ideal solution or the best use of training time.

The navigation and mobility problems are also byproducts of the theater of operations, and are unlikely to be experienced in such magnitude in other areas. The GPS appears to have been a workable solution to the problems in navigation, but were in short supply. Equipment procurement contingency plans are the most obvious solution. Should U.S. forces ever again be engaged in such terrain, the means to procure navigation aids must be worked out in advance so that they are available when needed in the numbers required.

The shortcomings of the logistics system had the potential for devastating effects should the war have been of longer duration. The unexpected numbers of POWs placed an added drain on the system. Workable contingency plans for handling POWs in such large numbers must be created in advance so that transportation and the combat units are not pulled away from their appropriate duties to process prisoners. The lack of transportation assets appropriate to the terrain also contributed to the breakdown in the logistics/supply system, which in turn contributed to maintenance problems due to the lack of repair parts, and to lowered morale caused by poor supply of basic items. The logistics system must be analyzed and solutions found, either through equipment procurement, contingency planning, more stressful training, or a combination of all of these, as failure in this system has the potential to be a "show stopper" in future battles.

Problem areas which can, and should, be addressed with a training solution are: identification and handling of unexploded ordnance, techniques for identifying friend and foe, NBC training, and sleep/rest discipline. The difficulty experienced by some in integrating Reserve forces with the Active army (discussed in Appendix A) should be addressed through education at every level. The "One Army" concept cannot be successful until attitudes by both Reserve and Active personnel change to accommodate and support ALL soldiers.

APPENDIX A

"SURPRISES" EXPERIENCED BY DESERT STORM PARTICIPANTS WHO DID NOT HAVE PRIOR CTC TRAINING EXPERIENCE

Of the 1,328 Desert Storm participants who responded to the "surprise" question, 481 reported having no training experience at any of the CTCs prior to deployment to SWA. The frequency distribution of these respondents, by rank, is as follows:

COL	5
LTC	38
MAJ	91
CPT	173
1LT	35
2LT	14
SGM	19
MSG	24
SFC	33
SSG	16
SGT	5
WARRANT	15
UNKNOWN	13
TOTAL	481

The responses made by these participants to the "surprise" question were categorized, as explained on page 3 of this paper. The frequency of responses in each category is presented below.

Methods and Procedures	89
Morale and Attitudes	73
Communications	70
Logistics/Supply	67
Maintenance	53
Mobility and Navigation	35
Training Related Issues	35
Weapons and Equipment	
Effectiveness	27
POWs/EPWs	23
Casualties - Friendly	18
Enemy	12
Hazards	7
Total	509

Since some respondents made comments in more than one category, the total number of responses is greater than the number of respondents. Although the largest and smallest categories remain the same as for the group who had CTC experience, the ten remaining categories have different rankings relative to the group with CTC experience.

Since the respondents in this group report having no experience at any of the CTCs prior to Desert Storm, it will be assumed for purposes of discussion that their "surprise" comments refer to training related experience other than CTC.

Each of the above categories will be discussed concerning the comments of this group of respondents.

Methods and Procedures

Many of the 89 comments made in this category are similar to those discussed previously concerning the CTC experienced group - such as surprise at the speed and distance of the attack, difficulties associated with continuous operations, use of personnel in positions other than the specialty for which they were trained, difficulties in intelligence gathering, and lack of preparation in NBC. However, in addition to these themes, this group also observed that operations did not follow doctrine, the difficulty in coordinating with higher, lower and lateral units, and difficulties associated with Reserve and Active soldiers working together as well as soldiers from the different branches of the U.S. military working together. The following is a sample of the comments which appear to be unique to this group.

"No one followed doctrine."

"Lack of knowledge among 06 Reserve officers."

"Poor attitude of Active army towards USAR/NG troops. Active army did not take USAR/NG seriously."

""Too many of the Reserve soldiers were too old for their job duty. The Reserves should strengthen their deployment standards to weed these guys out."

"Uncooperation among military people who are working towards the same goal."

"We had 10 units subordinate to the Bn. Only 3 of them were assigned at home station. Seven units were Reserve. Group HQ was Reserve. Quite a surprise to be working almost exclusively with Reserves."

"Surprised by difficulty sharing a base with the Air Force who made their own rules."

Morale and Attitudes

There were 73 responses to the "surprise" question concerning morale and attitude of soldiers during Desert Storm. Many of the respondents in this group indicated that morale was a problem and gave reasons similar to those stated by the CTC experienced group previously discussed. The most frequently mentioned morale problem was boredom - long waits and not much to do. The next most frequently mentioned morale problem was the lack of a redeployment policy - not knowing when they were going home. As with the group previously discussed, this group also pointed to the problem with the mail as very detrimental to morale for the soldiers. This group, however, pointed out a morale problem which was not mentioned by the CTC experienced group - the problem of integrating the Reserve soldiers into the Active army. Some respondents stated that the attitude of the Active duty soldiers was negative towards the Reserve soldiers. The following is a sample of such comments:

"NG/RC/AC interface"

"Active duty attitude toward Reserve and Guard
(was) negative from the start."

"Poor attitude of Active army towards USAR/NG
soldiers."

Communications

There were 70 responses made by this group concerning communications. All of the comments were negative except for three statements that communications worked better than expected. This group cited the same reasons for the communications problems as the CTC experienced group - extended distances of communication lines and outdated equipment. The sample of comments from the CTC experienced group (page 13) is representative of this group as well.

Logistics/Supply

Sixty-seven respondents in this group commented on logistics and supply operations during Desert Storm. As with the CTC experienced group, these respondents all reported negative experiences with CSS operations during Desert Storm. The most often mentioned problem was the difficulty in obtaining repair parts, and the second most frequently mentioned shortage was hot food and shower facilities.

Maintenance

Fifty-three respondents commented in this category. As with the CTC experienced group discussed previously, this group commented upon the difficulty in maintaining equipment due to harsh environmental conditions and scarcity of repair parts. Example comments from the CTC experienced group provided on page 13 are representative of this group as well.

Navigation and Mobility

Of the 35 responses in this category, 33 commented upon the difficulty in navigation and mobility, and 2 commented that mobility was surprisingly good. The most frequently cited reasons for problems were the terrain, lack of good maps, and immobility of the CUCV in sand.

Training Specific Issues

Although the "surprise" question asked respondents what their CTC experience had not prepared them for, this group commented upon their general training experience since they had never been to any of the CTCs. The overall theme of the 35 responses in this category is that they were not prepared for the realities of war, especially one in SWA. The following is a sample of comments in this category:

"All my training experience was in cold weather.
No experience in desert."

"Scuds."

"The rules aren't different in combat - there are
just a few that really matter."

"It was easy - that was the surprise."

"Realism of war."

"No previous experience at training centers. However,
I don't think specialized training (except logic and decision
processes) can effectively train you for combat because daily
events are too fluid and often 'day to day'....."

Weapons and Equipment Effectiveness

The 27 comments made in this category closely parallel the comments made by the CTC experienced group discussed on page 9. Most respondents were pleasantly surprised at the effectiveness of the U.S. weapons, but some reported failures. Specific failures mentioned were the SAW, the M16 and the MJQ 32/33 generators.

POWs/EPWs

Like the CTC experienced group, the 23 comments in this group emphasized their surprise at the vast numbers of POWs that were taken in such a short period of time during the ground campaign. The sample comments provided on page 6 are representative of this group as well.

Casualties - Friendly

There were 18 responses in this category. As with the CTC experienced group discussed on page 15, this group commented upon the unexpectedly low number of casualties and problems with the casualty reporting/tracking system. One respondent mentioned the mass casualties which arose as a result of the scud attack in a rear area, and a Chemical Officer commented upon the fact that he had not been trained in chemical casualty care and suggested that the subject be covered in the Officer Basic Course.

Enemy

The 12 comments in this category concerned surprise at the lack of will to fight on the part of the enemy. As one Captain commented:

"My previous combat experience in Panama prepared me to effectively engage an enemy at close range who was fighting back. In the Persian Gulf, long range weapons engaged an enemy mostly interested in surrendering."

Hazards

As with the CTC experienced group, the 7 responses in this category commented upon the abundance of unexploded munitions and the difficulty in preventing soldiers from "playing" with them.