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Recognition of Combatants-Improvised Explosive Devices (ROC-IED) Training Effectiveness Evaluation

by Rodger A. Pettitt, Elizabeth S. Redden, Daniel D. Turner, and Christian B. Carstens

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14. ABSTRACT

This evaluation assessed the effectiveness of the Recognition of Combatants-Improvised Explosive Devices (ROC-IED) computer-based training program as a stand-alone training aid and as a training aid that can supplement the training given by the unit's trainer who attended the Counter Explosives Hazard Center Train the Trainer (CEHC-T3) course. It was conducted at the Camp Shelby MS Joint Forces Training Center with assistance from the 177th Armor Brigade's IED Defeat Team. The 177th Armor Brigade conducts mobilization assistance team operations at the Camp Shelby Joint Forces Training Center to deploying units. Eighty-one Soldiers from the 1186th Transportation Terminal battalion participated in the 3-day evaluation. Each day, 27 Soldiers were divided into three groups of nine each. Each group received one of three training conditions. One group received training using only ROC-IED. Another received instructor-based IED familiarization training from a graduate of the CEHC-T3 course. The third group received both ROC-IED training and the instructor-based course (combination training). Upon completion of training, each group was evaluated using three tests designed to assess the effectiveness of the training they received. The overall effectiveness of the training was analyzed based on objective performance data, data collector observations, and Soldier questionnaires.

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1. Introduction

1.1 Statement of the Problem

Although the Pentagon does not release the number of U.S. casualties caused by improvised explosive devices (IEDs), educated estimates by the news media indicate that IEDs are responsible for over half of the total U.S. casualties during the war in Iraq. Thousands of Soldiers have also been wounded by them, many of them seriously. In 2006, the Joint IED Defeat Organization (JIEDDO) was established as a joint entity and a jointly manned activity of the Department of Defense, operating under the authority, direction, and control of the Deputy Secretary of Defense to serve as the Department of Defense (DOD) proponent for Joint IED Defeat. The JIEDDO mission is to focus (lead, advocate, coordinate) all Department of Defense actions in support of the Combatant Commanders' and their respective Joint Task Forces' efforts to defeat IEDs as weapons of strategic influence. The success of a training program called Recognition of Combat Vehicles (ROC-V) led JIEDDO to sponsor Communications Electronics Research, Development, and Engineering Center (CERDEC) Night Vision & Electronic Sensors Directorate (NVESD) to develop a training program with a similar approach for warfighters to learn basic information concerning IEDs.

The ROC-V training is a training program for day optics and thermal sights developed by the CERDEC NVESD in support of 2nd generation Forward Looking Infrared (FLIR) programs. ROC-V helps Soldiers learn to identify the thermal signatures of combat vehicles through the use of an interactive curriculum that teaches the unique patterns and shapes of vehicle "hotspots" and overall vehicle shapes and characteristics. ROC-V also provides Soldiers with practical experience in the use of their thermal sensor image controls. Using virtual sight controls, Soldiers learn to effectively adjust their thermal image to find targets and bring out their thermal identification (ID) cues. Joint Forces Command, Joint Combat Identification Evaluation Team (JCIET) (now the Joint Fires Integration and Interoperability Team) evaluated ROC-V as a joint training aid during numerous field experiments. Results led JCIET to recommend ROC-V as a joint service combat ID tool.

JIEDDO contacted the U.S. Army Research Laboratory's (ARL's) Human Research and Engineering Directorate (HRED) Fort Benning Field Element and requested that they evaluate the training effectiveness of the computer based individual self training course developed by CERDEC NVESD which is called Recognition of Combatants-Improvised Explosive Devices (ROC-IED) version 2.0. The curriculum for ROC-IED is based on the Fort Leonard Wood Counter Explosive Hazards Center (CEHC) Train the Trainer (T3) program of instruction (POI). The purpose of ROC-IED is to train U.S. forces to recognize covert enemy combatants and behavioral indicators of IEDs, and to effectively counter the IED threat. Each joint forces

training center (JFTC) conducts counter IED and new equipment integration training to bridge the training gap between home station training and the current IED threat in theater. Units send trainers to the CEHC-T3 course to become counter IED subject matter experts (SMEs) so they can conduct individual IED training at their home station before the unit deploys to a JFTC for mobilization training. In many cases, Soldiers in units preparing for deployment do not receive any formal IED training until they arrive at the training centers. This is especially true for reserve and guard units whose home station training time is limited. The CONUS Replacement Centers (CRC's) also provide individual IED training to individual replacements, government civilians, and contractors prior to deploying. ROC-IED was developed as an initial counter IED individual training program that can be easily accessed as a computer based program by individuals before pre-mobility training allowing for more collective training time at the training centers. ROC-IED can also be used to augment IED familiarization home station and CRC training programs.

1.2   Overview of Experiment

This evaluation assessed the effectiveness of the ROC-IED computer based training program as a stand-alone training aid and as a training aid that can supplement the training given by the unit's trainer who attended the CEHC-T3 course. It was conducted at the Camp Shelby MS Joint Forces Training Center with assistance from the 177th Armor Brigade's IED - Defeat Team. The 177th Armor Brigade conducts mobilization assistance team (MAT) operations at the Camp Shelby Joint Forces Training Center to deploying units. Their IED Program of Instruction (POI) is the most up-to-date POI available in the U.S. and is based upon current intelligence from theaters of operation.

The test Soldier sample consisted of 81 Soldiers from the 1186th Transportation Terminal Company, Jacksonville, FL. The evaluation was conducted over a 3-day period prior to their mobilization training. Each day, 27 Soldiers were divided into three groups of nine each. Each group received one of three training conditions. One group received training using only ROC-IED. Another received instructor-based IED familiarization training from a graduate of the CEHC-T3 course. The third group received both ROC-IED training and the instructor based course (combination training). Upon completion of training, each group was evaluated using three tests designed to assess the effectiveness of the training they received. The first two tests were practical exercises designed to evaluate the Soldiers' ability to apply the knowledge they gained from training. These exercises consisted of dismounted and mounted patrol lanes with simulated IEDs concealed along their routes and were designed to assess the Soldiers' ability to recognize IED indicators and to detect and recognize IEDs. The third test was a written test that was used to assess their knowledge of IED components, emplacement techniques, and other IED principles. The overall effectiveness of the training was analyzed based on objective performance data, data collector observations, and Soldier questionnaires.

1.3   Objectives

The objective of the evaluation was to determine the effectiveness of the ROC-IED computer based training program when it is administered to individual Soldiers as a stand-alone program of instruction and when used to augment training by a CEHC-T3 trained instructor. The ROC-IED POI was also compared to the program of instruction taught at the JFTC by SMEs to ensure the ROC-IED POI information was current and relevant.

2.   Method

2.1   Participants

Eighty-one Soldiers (three groups of 27 each, per day) from the 1186th Transportation Company participated in the evaluation. Twenty-five of the Soldiers were officers, ranging in rank from first lieutenant (O-2) to lieutenant-colonel (O-5). The rest were enlisted, ranging in rank from private first class (E-3) to master sergeant (E-8). Their time in service averaged 162 months. Thirty-nine had served in combat or a hostile fire zone (primarily in Iraq). Fifty-eight of the Soldiers had received some type of IED training (primarily unit training).

2.1.1 Pretest Orientation and Volunteer Agreement

The Soldiers were given an orientation on the purpose of the study and their participation. They were briefed on the objectives and procedures. They were also told how the results would be used and the benefits the military could expect from this investigation. Any questions the subjects had regarding the study were answered. It was made clear that Soldier participation in the experimentation was voluntary. The Volunteer Agreement Affidavit was explained and its contents verbally presented. The Soldiers were given the Volunteer Agreement Affidavit to read and sign if they decided to volunteer. All recruited participants agreed to volunteer.

2.1.2 Medical Review and Screening

The Soldiers were given a medical status form to determine if any of them had a medical profile or history that would jeopardize them if they participated in the study. No recruited participant needed to be excused for medical reasons.

2.2   Instruments and Apparatus

2.2.1 ROC-IED Course Description

ROC-IED version 2.0.0, dated 30 January 2008, is a computer based individual self training course which teaches the basic concepts of IED Warfare. The course is self-paced and most soldiers completed it within two hours. Because of time limitations, the Soldiers in this

evaluation were asked to complete the ROC-IED modules in a 2 1/2 hr time block. This program provides the user with an introduction to the subject of IED warfare as it is being conducted in the Iraqi theater. The goal of the training is to increase the situational awareness of service members to the threat posed by IEDs. Because it is CD based, consistent delivery is guaranteed for each presentation. Since it is an individualized self training course, it affords units the opportunity to place a greater focus of effort on collective training events during the time they have available with the Soldiers. It also eliminates the need for a human instructor for each training event and this eases the training burden for small units, U.S. Army Reserve, and National Guard units. Training can be taken as a refresher, or as an introduction to IED Warfare.

The training program is divided into three sections; Core, Supplemental, and Practical Exercises. The Supplemental and Practical Exercise sections were not evaluated during the assessment. The Core section consists of eight units that cover IED basics and is based on the content of the U.S. Army Engineer School CEHC-T3 IED Course. The training objectives for each unit follow.

Unit 1 Overview:

Chapter 1 IED Basics:

- Explain what an IED is

- Know why IEDs are insurgents' weapon of choice

- Identify the basic types of IEDs currently in use

- Understand how widespread IEDs are

- Become familiar with recent trends in IED usage

Chapter 2 How IEDs Work:

- Identify the main components of IEDs

- Understand how IEDs work

Unit 2 The Enemy Network:

Chapter 1 Enemy Networks

- Understand why the network exists

- Recognize who is in the network and what they do

Unit 3 Emplaced Devices

Chapter 1 Initiation Devices

- Recognize the two most common IED initiation systems

- Understand how the initiation systems are used

Chapter 2 Home Made Explosives (HME)

- Understand why HME are being used

- Identify what kinds of containers are used to make HME

- Identify where you may find HME being assembled

Chapter 3 Explosively Formed Penetrators (EFPs)

- Understand why EFPs are a significant threat

- Know how EFPs work

- Identify the difference between EFPs and shaped charges

- Know how EFPs are made

- Identify an EFP attack by post-blast damage inspection

Chapter 4 Mines and Unexploded Ordinance (UXO)

- Identify the two basic types of land mines

- Know how land mines are emplaced

- Identify the four basic kinds of UXO

Unit 4 Emplaced IED Tactics

Chapter 1 Concealment-Emplacement

- Identify where IEDs are emplaced

- Understand when IEDs are emplaced

- Know how IEDs are emplaced

- Know how IEDs are concealed

Chapter 2 Attack Strategies

- Understand which of our vulnerabilities the enemy exploits the most when plotting IED attacks

- Recognize the enemy's most common IED attack strategies

Unit 5 Vehicle-Borne IED (VBIED) Attacks

Chapter 1 VBIED Recognition

- Recognize the general and specific characteristics of a VBIED

- Distinguish a VBIED from the Suicide-VBIED (SVBIED)

- Identify characteristics of the SVBIED driver

- Identify situational indicators of a VBIED

Chapter 2 VBIED Attack Strategies

- Recognize the four different types of VBIEDs

- Understand the different characteristics of VBIEDs of various sizes

- Identify the best defense options against VBIEDs

Unit 6 Situational Awareness

Chapter 1 Danger Zones

- Identify features of likely IED sites

Chapter 2 Search Techniques

- Identify five basic searches

- Recognize the proper techniques for each search

Unit 7 Immediate Responses

Chapter 1 IED Encounter

- Understand the first action to take upon discovering a potential IED

- Know where to focus during an IED encounter

- Know how to communicate near an IED site

- Know the type of search to perform following an IED encounter

- Understand the five steps to be taken to control a potential IED site

Chapter 2 Incident Reporting

- Identify the proper procedure for a suspected IED

- Describe the format in which IED incidents should be reported

Unit 8 Preventative Measures

Chapter 1 Patrol Preparations

- Identify the tasks to complete prior to a patrol

Chapter 2 Routes and Schedules

- Recognize the intelligence assets you need before planning routes and schedules
- Identify the most important feature of well planned routes and schedules
- Understand how to perform route analysis
- Understand how to perform schedule analysis

Chapter 3 Counter Measures

- Identify what a Remotely Controlled IED (RCIED) is
- Define Counter RCIED Electronic Warfare (CREW)
- Recognize basic types of CREW
- Identify route clearance CREW tactics, techniques, and procedures (TTPs)

Chapter 4 Patrol Movement

- Identify proper vehicle movements and driving techniques
- Recognize correct tactical considerations
- Define crew responsibilities

Chapter 5 Control Points

- Recognize defense options
- Identify an Entry Control Point (ECP)
- Understand the basics and special duties of an ECP
- Recognize defensive options
- Understand the actions necessary in confirming potential VBIEDs

2.2.2 Instructor-Based IED Familiarization Course Description

The instructor-based IED familiarization course is a 2 1/2 hr block of instruction presented in a classroom environment that is taught by instructors who have attended the CEHC-T3 course. It is a viewgraph-based course developed by the Camp Shelby Counter IED Team using course material distributed by the CEHC. The viewgraph slides used to present the instruction are

referred to as the Maneuver Support Center (MANSCEN) Brief and are the CEHC approved program of instruction for IED Familiarization.

2.2.3 Combination ROC-IED/Instructor-Based Course Description

Under the combination ROC-IED/Instructor-based course condition; Soldiers received the ROC-IED training and then attended the instructor-based IED familiarization course.

2.2.4 Dismounted Patrol Lane Description

The dismounted patrol lane is located at Camp Shelby adjacent to the counter IED training facility. The patrol lane is a circular paved road approximately 400 m in length, divided into three sections. Soldiers were instructed to move along the dismounted route and report IED indicators and IEDs to the data collector who accompanied them. Inert simulated IEDs were emplaced along the route and each IED had a minimum of four indicators. For example, the indicators for the Explosively Formed Penetrator (EFP) IED were:

- Pile of debris on right side of road

- Aiming pole marked with orange tape on left side of road

- Choke point on bend in road

- Abandoned vehicle to channel traffic

Six actors dressed in Middle Eastern clothing and acting as civilians on the battlefield were stationed at different locations on the lane. Some of the actors were engaging in behaviors that could indicate the presence of an IED and others were performing everyday tasks.

Soldiers were allowed four minutes to complete each section of the route. Figure 1 is a diagram of the dismounted patrol lane with the start points and IED locations marked.
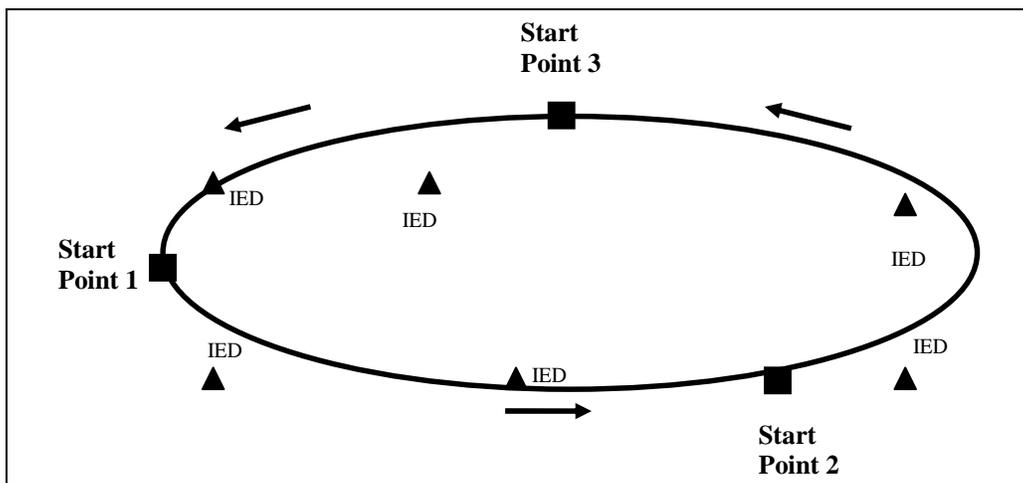
Figure 1. Dismounted patrol lane.

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2.2.5 Mounted Patrol Lane Description

The mounted patrol lane is located at Camp Shelby along a route called Safari Lane Alpha. On the mounted patrol lane, a vehicle driver drove each test Soldier along the route at about 15 mph. The experiment Soldier was instructed to perform a visual reconnaissance of the route and to report IED indicators and IEDs to a data collector who accompanied the Soldier. Inert simulated IEDs were emplaced along the route and each IED had a minimum of four indicators. For example, the first IED was a command wire 152-mm artillery round. The indicators for this IED were:

- Orange aiming marker on left

- Exposed wire on right side of road

- Fresh dirt from IED on right

- Coming up on curve (danger area)

Six actors dressed in middle eastern clothing and acting as civilians on the battlefield were stationed at different locations on the lane. Some of the actors were engaging in behaviors that could indicate the presence of an IED and others were performing everyday tasks.

Figure 2 shows the mounted patrol lane and the placement of the IEDs along the route.
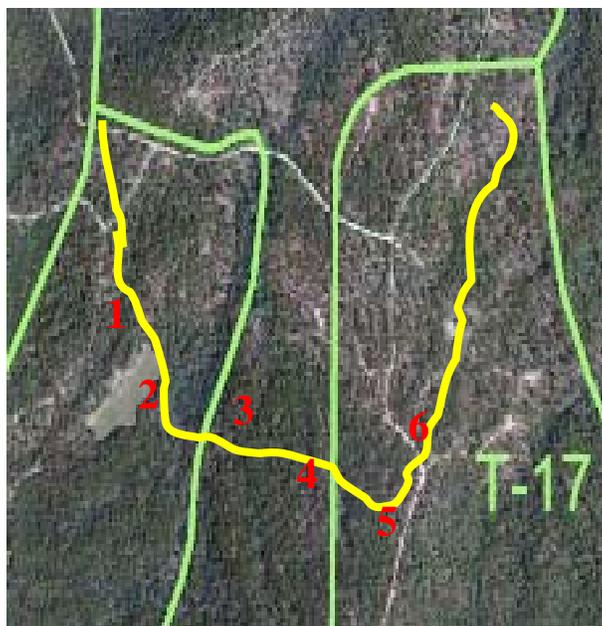
Figure 2. Mounted patrol lane.

2.2.6 Written Exam Description

The written exam was pilot tested on two sample Soldier groups before it was finalized. The initial version contained 86 items, each a five-option multiple-choice question. Some of the items were developed by members of the ARL-HRED Field Element using both the ROC-IED computer-based training course and the MANSCEN brief as references and some came from a 1st Army examination. This initial version was administered to a sample of 10 Soldiers assigned to the Infantry Training Brigade, Fort Benning, GA. The Soldiers received the ROC-IED training and were then given the written test. Based on an item analysis of this data set, 58 of the questions were identified as potential "good" items in that they contributed some variability to total scores, and they had a positive correlation with the total score. The remaining 28 items were revised, and 21 new questions were generated, yielding a second iteration test containing 107 questions. This second iteration test was administered to a sample of 10 Soldiers from the Officer Candidate School at Fort Benning, GA. Based on this data set, questions were selected for inclusion in the final test. The selection criteria were that the question contributed some variability to total scores, and that it had a positive correlation with the total score.

The final written exam contains information used in both training courses. It is a 48-question multiple-choice test that requires the Soldiers to apply the information they have learned to hypothetical real world situations and to identify types and parts of IEDs.

2.2.7 Questionnaires

The questionnaires were designed to elicit Soldiers' opinions about the training they received and their confidence in performing the tasks based on the level of training received. The questionnaires asked the Soldiers to rate the training on a seven-point Likert scale ranging from "extremely good/easy" to "extremely bad/difficult."

2.3 Procedures

Before training, the Soldiers received a roster number, which was used to identify them throughout the evaluation. Stratification was used to group members of the population of available Soldiers in the unit into relatively homogeneous subgroups before sampling. The strata were mutually exclusive. Then random sampling was applied within each stratum. The strata used included rank, previous IED training, previous IED experience, and sex. The proportionally stratified groups were then assigned to one of the three training conditions. Each training condition group was further divided in half so that one half of each group started on the dismounted lane and one half of each group started on the mounted lane. Groups were rotated until each Soldier completed both lanes.

2.3.1 Training

Each day, the Soldiers in the three groups were administered a different course of instruction. The first group was given the combination course that consisted of the ROC-IED course and the

instructor based IED familiarization training provided by a trained instructor. The second group received the instructor based IED familiarization training only. The third group received only the ROC-IED training. Both the ROC-IED and the instructor based training required ~2 1/2 hr. The combination group that received both types of training received a total of five hours of training. All training ended at approximately the same time so that each group had a similar amount of time between training and the beginning of the lane evaluations.

The schedule for each of the three days of the experiment is shown in table 1. In the first training session, the nine Soldiers in the combination training condition received ROC-IED training. In the second training session, 18 of the participants received the instructor based IED familiarization training, while the other nine Soldiers received the ROC-IED training.

Table 1. Training matrix.

Time	Training Group		
	Combo	Instructor Based	ROC-IED
0700–0800	Overview and Volunteer Affidavit		
0800–1000	ROC-IED training	Break	Break
1000–1200	Instructor based	Instructor based	ROC-IED training
1200–1230	Lunch		
1230–1530	Mounted and dismounted lanes		
1530–1630	Written test and questionnaire		

2.3.2 Training Assessment

2.3.2.1 Dismounted Course. Approximately half of the Soldiers each day started with the dismounted course after their training was complete. Soldiers were given 4 min per leg to find and identify as many indicators and IEDs as possible along each of the three legs before a horn blew signaling the end of the 4 min. Soldiers moved to the start point of the next leg after the horn blew. This process continued until each Soldier completed all three legs of the course. Data collectors followed each Soldier throughout the course and recorded the indicators identified and IEDs detected. Participants in the dismounted course group were transported to the mounted course when they completed the dismounted course.

2.3.2.2 Mounted Course. The other half of the Soldiers started on the mounted course after completing their training. Three HMMWVs driven by observer/controllers (OCs) were used to transport the Soldiers through the course. A data collector was assigned to each vehicle to record the indicators and IEDs detected by the Soldier participant who was positioned in the HMMWV cupola. When the Soldier spotted an indicator or an IED, he notified the data collector who recorded it on a data collection form. Participants were transported to the dismounted course upon completion of the mounted course.

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2.3.2.3 Written Exam. After Soldiers completed both the dismounted and the mounted courses, they were administered the written test and completed the end of course questionnaire.

2.3.3 Questionnaire Administration

Questionnaires were administered to each Soldier at the end of the evaluation, after completion of all the lanes and the written test.

2.4 Experimental Design

This experiment used a between-subject design.

2.4.1 Independent Variable

The independent variable is the training condition: Instructor Based vs. ROC-IED vs. Combination Training (Instructor Based plus ROC-IED).

2.4.2 Dependent Variables

- Number of IED indicators (cues) identified on the dismounted course

- Number of IED indicators (cues) detected on the mounted course

- Number of IEDs detected on the dismounted course

- Number of IEDs detected on the mounted course

- Written test score

3. Results

3.1 Training Assessment Results

An item analysis was conducted on the data from the mounted and dismounted lanes and the written examination. For the written examination and the mounted lane, reliability was not substantially enhanced by deleting any of the items. For the dismounted lane, the initial Cronbach's alpha for detecting the 54 IEDs and IED indicators on the dismounted lane was 0.62. Fourteen items with zero or negative correlations with the total detection score were deleted, resulting in a modified dismounted lane measure with a Cronbach's alpha of 0.68. This modified 41-item dismounted lane measure was used in all analyses reported here.

The Cronbach's alpha values for the three dependent variables are shown in table 2.

Table 2. Internal consistency reliability coefficients.

Measure	Cronbach's Alpha
Written exam	0.64
Dismounted lane, IEDs plus indicators	0.68
Mounted lane, IEDs plus indicators	0.74

The correlations among the three dependent measures are shown in table 3. For the mounted and dismounted lanes, the figures used in the calculation were the total signals detected (IEDs plus IED indicators.) The correlation between the mounted lane and the written exam was statistically significant.

Table 3. Correlations among dependent variables.

	Written Exam	Mounted Lane
Dismounted lane	0.09 $p = 0.447$	0.14 $p = 0.204$
Mounted lane	0.25[a] $p = 0.024$	—

[a]$p < 0.05$, two-tailed.

Table 4 shows the summary statistics for each of the dependent measures. It is clear from the average percent correct figures that the experimental tasks were very challenging. The average percentage score for the written examination was just over 50%. For the dismounted and mounted lanes signal detection measures, the means were in the 25% to 35% range.

Table 4. Mean percent correct.

Measure	ROC-IED		Instructor Based		Combination	
	Mean	SD	Mean	SD	Mean	SD
Correct, written exam	55.8%	9.9%	49.1%	10.3%	55.5%	10.0%
IEDs plus indicators detected, dismounted lane	32.4%	10.1%	35.4%	11.7%	33.7%	10.3%
IEDs plus indicators detected, mounted lane	26.1%	11.5%	25.2%	8.5%	24.5%	7.8%

A one-way analysis of variance (ANOVA) indicates that there was a statistically significant difference among the training conditions on scores on the written exam: $F(2,85) = 3.81$, $p = 0.026$, $\eta_p^2 = 0.089$. Follow-on comparisons were done using Holm's Bonferroni correction for family-wise error rate. As shown in table 5, none of the follow-on paired comparisons were significant, although the difference between the instructor-based group and the other two conditions approached statistical significance (0.025 when it had to be less than 0.025).

Table 5. Follow-on paired comparisons, percent correct, written exam.

Comparison	t	df	Obtained p	Threshold p
ROC-IED vs. instructor based	2.43	52	0.018	0.0167
ROC-IED vs. combination	0.11	52	0.910	0.05
Instructor based vs. combination	2.31	52	0.025	0.025

The means for each training group, bracketed by 95% confidence intervals, are shown in figure 3.
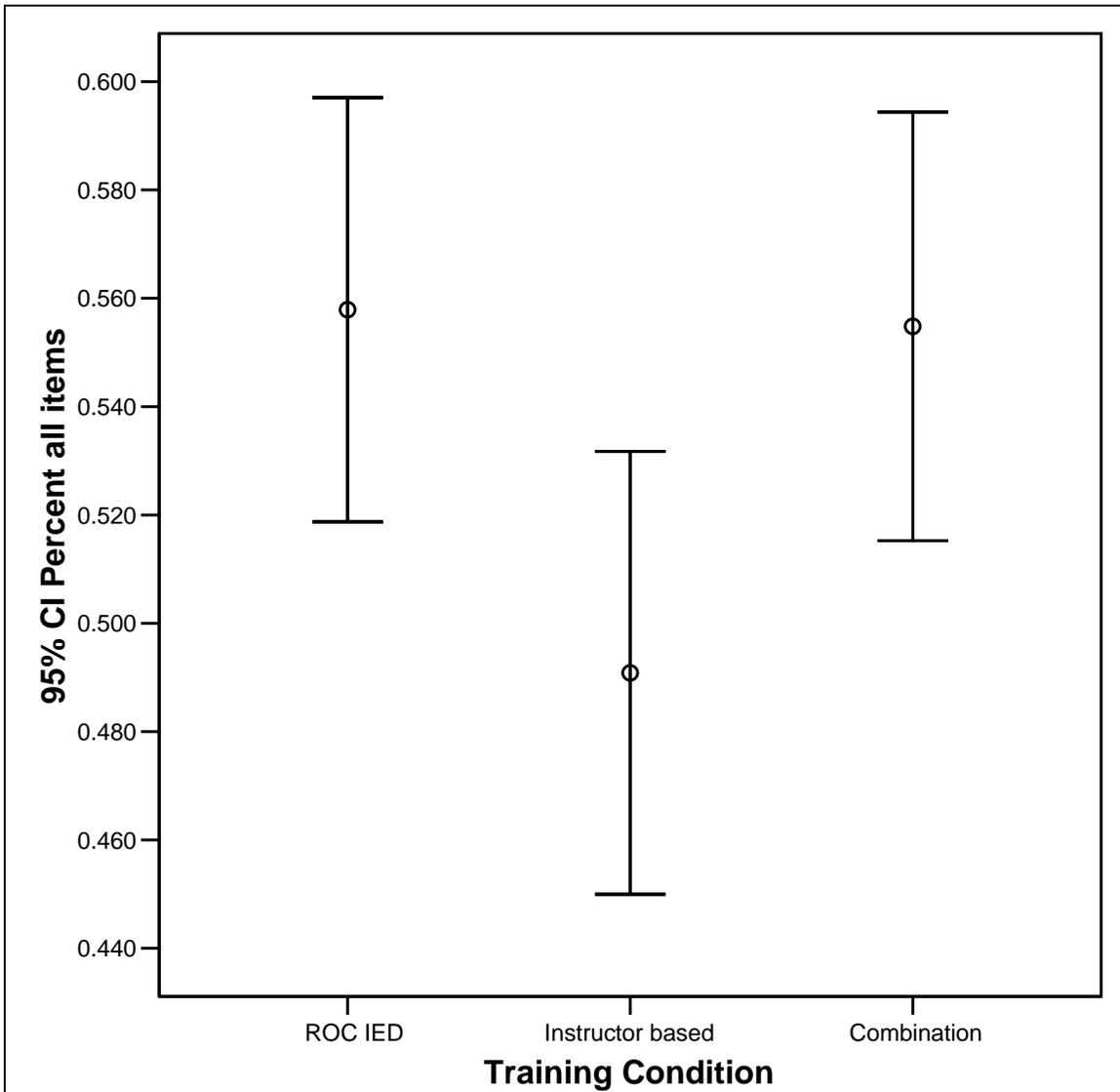
Figure 3. Percent correct on the written exam with 95% CI.

We also analyzed the scores on the written exam as a function of the source of the questions. Twenty of the 48 questions were derived directly from the ROC-IED computer training program. The remainder of the questions were developed from the PowerPoint slides used in the Instructor based training. A breakdown of test scores by the source of the questions is shown in table 6.

Table 6. Percent correct on the written exam as a function of the source of questions.

| Condition | Source of Questions | | | |
| | PowerPoint Slides | | Computer Presentation | |
	Mean	SD	Mean	SD
ROC-IED	51.1%	12.6%	62.4%	12.6%
Instructor based	51.2%	13.0%	46.1%	11.5%
Combination	53.6%	13.5%	58.1%	9.9%

For the questions derived from the PowerPoint slides, there was no statistically significant difference among the training conditions in percent correct: $F(2,78) = 0.32$, $p = 0.718$, $\eta_p^2 = 0.008$. For the questions directly derived from the ROC-IED program, however, there was a statistically significant difference among the training conditions: $F(2,78) = 14.8$, $p < 0.001$, $\eta_p^2 = 0.276$. As shown in table 7, follow-on comparisons indicate that performance on these questions was significantly better for the ROC-IED training group and the combination training group as compared with the instructor-based training group.

Table 7. Follow-on paired comparisons, percent correct, written exam questions derived from ROC-IED.

Comparison	t	df	Obtained p	Threshold p
ROC-IED vs. instructor based	4.96	52	< 0.001[a]	0.0167
ROC-IED vs. combination	1.38	52	0.055	0.05
Instructor based vs. combination	4.11	52	< 0.001[a]	0.025

[a]$p < 0.05$, two-tailed.

We also analyzed the written test scores as a function of the specific ROC-IED module to which the questions were related. There were eight modules in the ROC-IED computer based instructional program:

1. Overview

2. The Enemy Network

3. Emplaced Devices

4. Emplaced IED Tactics

5. Vehicle-Borne Attacks

6. Situational Awareness

7. Immediate Responses

8. Preventative Measures

The results of the written test broken out by modules are shown in figure 4. Across training conditions, Soldiers did best on questions bearing on Emplaced Devices, Situational Awareness, and Immediate Responses. Soldiers tended to do poorly across training conditions on Prevention questions. On two modules, Emplaced Devices and Emplaced IED tactics, scores were lower in the instructor based training group than in the ROC-IED and combined groups.
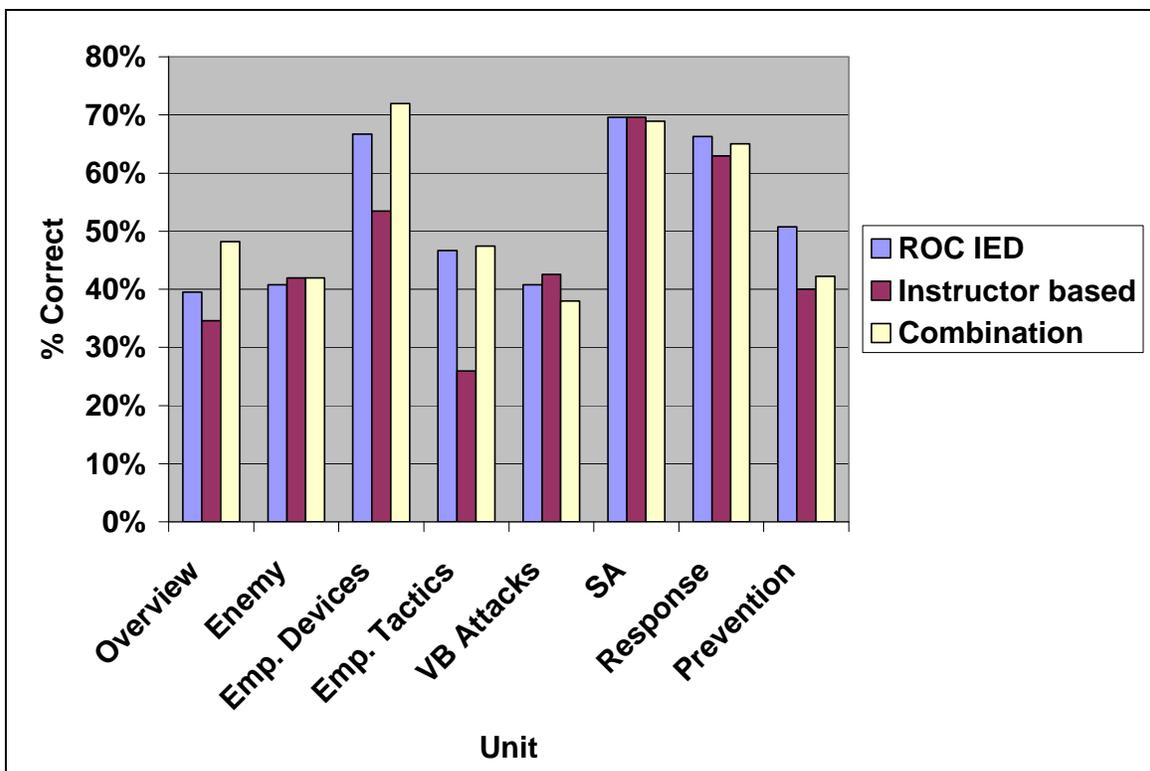
Figure 4. Percent correct by module, written examination.

A one-way ANOVA on the number of IEDs and IED indicators detected on the dismounted lane showed that there was no significant difference among the three training conditions: $F(2,78) = 0.53$, $p = 0.592$, $\eta_p^2 = 0.013$. Nor was there any significant difference among the training conditions in terms of number of IEDs and indicators detected on the mounted lane: $F(2,78) = 0.20$ $p = 0.821$, $\eta_p^2 = 0.005$.

The means for each training condition on the mounted and dismounted lanes, with 95% confidence intervals, are shown in figures 5 and 6.
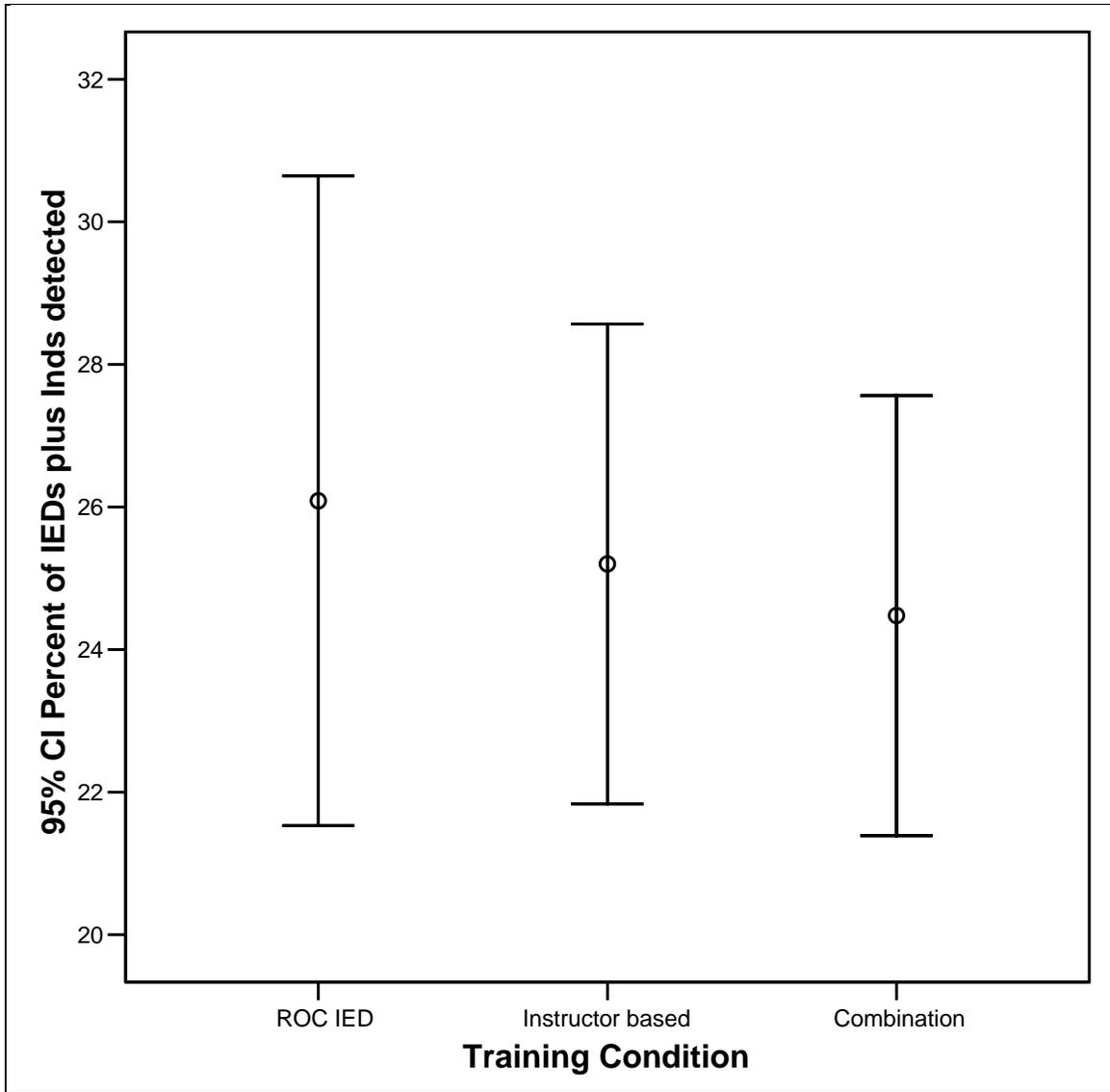
Figure 5. Percent IEDs and IED indicators detected, mounted lane.
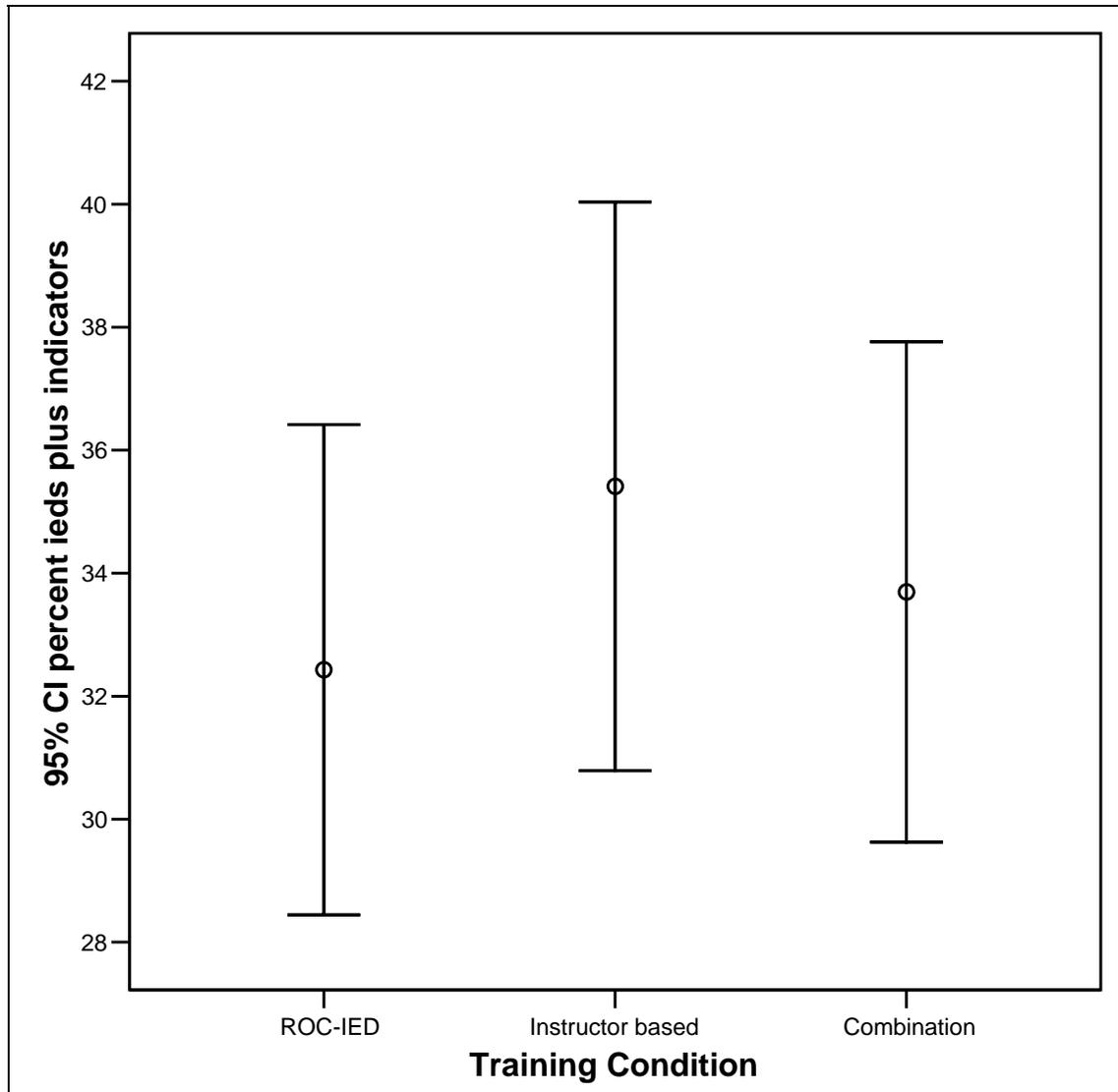
Figure 6. Percent IEDs and IED indicators detected, dismounted lane.

Finally, we analyzed the data from the Instructor based training group and the Combination training group to look for variation between the three instructors who each taught on one of the training days. A summary of the results is shown in table 8.

Table 8. Mean percent correct, instructor based and combination training conditions, by day.

Instructor	n	Written Exam		Dismounted Lane		Mounted Lane	
		Mean	SD	Mean	SD	Mean	SD
Day 1	19	49.9%	10.3%	39.0%	7.4%	24.5%	5.7%
Day 2	19	54.9%	8.0%	29.8%	11.7%	25.8%	9.9%
Day 3	19	52.3%	12.8%	34.3%	11.9%	24.3%	8.7%

For the scores on the written exam, there was no significant instructor effect: $F(2,51) = 1.01$, $p = 0.372$, $\eta_p^2 = 0.038$. Nor was there a significant difference depending on instructor for the mounted lane performance: $F(2,51 = 0.18$, $p = 0.833$, $\eta_p^2 = 0.007$. For performance on the dismounted lane, however, there was a significant effect for instructor: $F(2,55) = 3.47$, $p = 0.039$, $\eta_p^2 = 0.120$. Follow-on paired comparisons (table 9) show that performance on the dismounted lane was significantly better on Day 1 as compared to Day 2.

Table 9. Follow-on paired comparisons, mean percent correct, instructor based and combination training conditions, by day.

Comparison	t	df	Obtained p	Threshold p
Day 1 vs. Day 2	2.85	34	0.007[a]	0.0167
Day 1 vs. Day 3	1.46	35	0.153	0.025
Day 2 vs. Day 3	1.11	33	0.273	0.273

[a]$p < 0.05$, two-tailed.

3.2 Post-Training Questionnaire Results

On the post-training questionnaire, the participants were asked to rate their confidence in their own abilities to perform a variety of tasks related to combating the IED threat. Factor analysis was used to group the questions according to empirical inter-correlations as well as conceptual similarities. The groups of questions are listed in table 10.

Table 10. Confidence questions, post-training questionnaire.

Vehicle-Borne IEDS
Recognize the general and specific characteristics of a VBIED
Distinguish a VBIED from a SVBIED
Identify characteristics of a SVBIED driver
Identify indicators of a VBIED
Recognize the different types of VBIEDs
IED Indicators
Identify where IEDs are emplaced
Identify features of likely IED sites
Identify local Population Indicators
Recognize IED indicators
Perform proper scanning procedures
Types of IEDs
Identify the types of containers used to make HMEs
Explain where you may find HMEs being assembled
Identify basic types of IEDs currently in use
Identify the main components of IEDs currently in use
Recognize the most common IED initiation systems
Identify the difference between EFPs and shaped charges

Note: "On a scale of 1–7, rate your confidence in your ability to perform each of the following tasks."

19

As indicated in figure 7, there was very little difference among the three training conditions in mean responses to these questions.
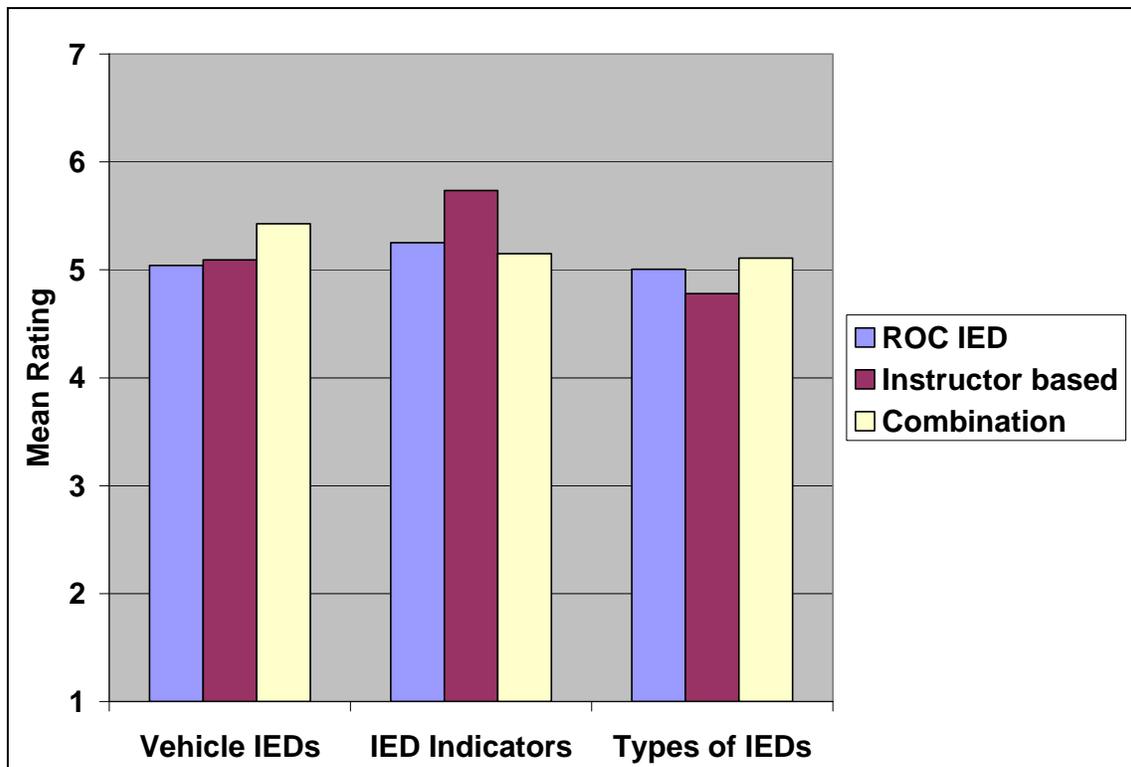
Figure 7. Mean ratings on confidence questions, post-training questionnaire.

The questionnaire also included a number of items on which the Soldiers were instructed to rate their knowledge on various IED topics. Again, factor analysis was used to group the questions, as shown in table 11.

As shown in figure 8, there was very little difference among the training groups in terms of self-rated knowledge.

The participants were generally quite positive in their comments about the instructor-based training program. Most of the Soldiers felt that the instructors were very knowledgeable and their ability to provide real world experience greatly enhanced the training. One officer requested that the course be put on the internet for his Soldiers. However, several of the Soldiers were overwhelmed by the sheer amount of information included in the instructor-based training; they felt that significantly more time should be allotted to cover the material. Some Soldiers commented on the sensory overload from the PowerPoint slides, noting that the slides were too numerous and too busy.

Table 11. Knowledge questions, post-training questionnaire.

General IED Knowledge
Understand what an IED is
Know why IEDs are the insurgents' weapon of choice
Understand how widespread IEDs are
Understand recent trends in IED use
Know how IEDs are emplaced
Understand how the local population are indicators of potential attacks
Know the importance of varying schedule and tactics
Know the importance of developing good community relations
Understand how gathering intelligence can prevent IED attacks
Understand the sequence of events for IED emplacement
Vulnerabilities
Know the vulnerable "centers of gravity"
Know enemy logistic and communication vulnerabilities
Understand how to capitalize on the vulnerabilities
Routes and Schedules
Know the intelligence assets you need before planning routes and schedules
Understand how to perform route analysis
Understand how to perform schedule analysis
IED Search
Know basic searches
Know the proper techniques for searching
Understand the 5/25 meter search
Enemy Networks
Know what a network is and what network members do
Understand why enemy networks exist
EFPs
Understand why EFPs are a significant threat
Know how EFPs work
Know how EFPs are made

Note: "On a scale of 1–7, rate your knowledge of each of the following topics."

The participants were also very positive about the ROC-IED computer-based training program. As was the case with the instructor-based training, many of the Soldiers felt that there was too much information packed into too short a time period. Several Soldiers stated they would have liked to have an instructor present to address questions and provide feedback. The Soldiers found the presentation of the module unit questions to be irritating: the timed question format did not allow sufficient time for the respondents to formulate answers. One Soldier stated that a slower reader or one who spent time considering the responses was unjustly penalized because the time allowed was so short. Soldiers also felt that the points given for answering quickly were not useful.
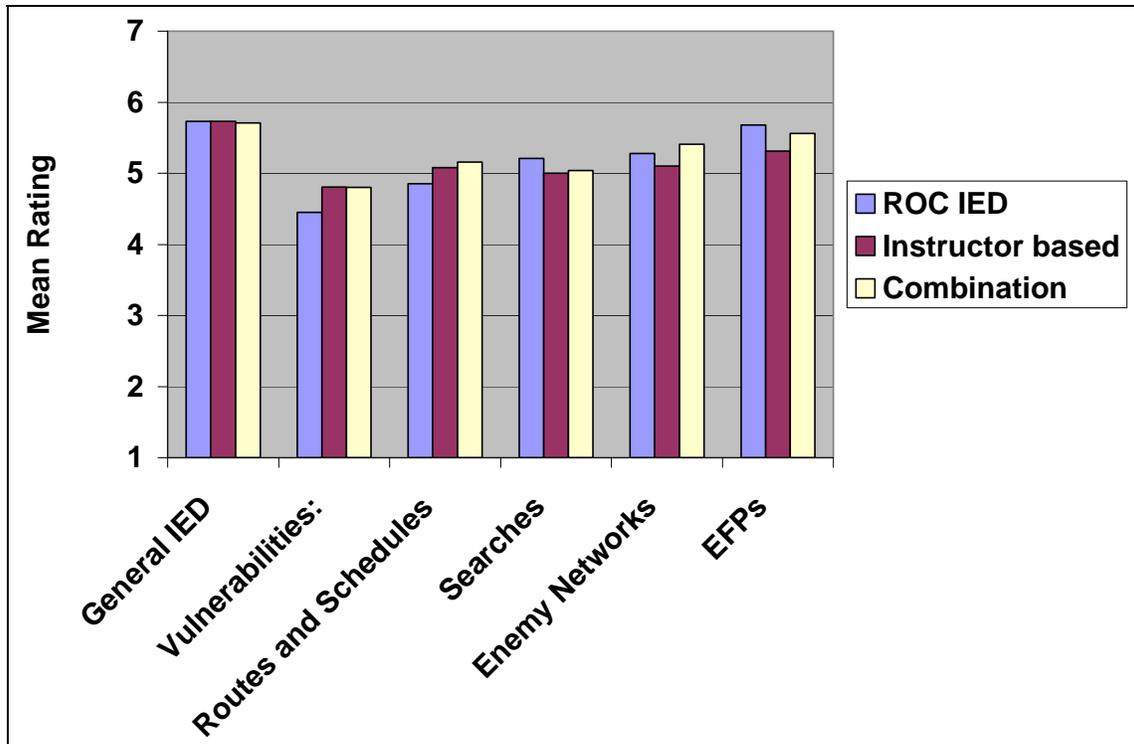
Figure 8. Mean ratings on knowledge questions, post-training questionnaire.

Soldiers had difficulty using the navigation tab in the ROC-IED main menu. The core curriculum entitled "IED Understanding" is displayed along with the supplemental training tabs. The screen directs the Soldier to select one of the topics without specifying the order in which they should be selected. Soldiers also expressed difficulty navigating through the unit modules. Unit 5 directs Soldiers to a link to Unit 8 for more information on vehicle borne attacks. When Soldiers selected the link they skipped Units 6 and 7 and were not sure how to return to Unit 5.

The purpose demonstration tab at the beginning of the ROC-IED program was unclear to the Soldiers. Some mistakenly chose that tab when initiating the program and then complained that they did not receive feedback on their performance.

4. Conclusions and Recommendations

ROC-IED appears to impart knowledge about IEDs at least as well as the instructor based POI. ROC-IED offers the benefit of providing consistent instruction to each Soldier and the instruction quality does not vary based upon differences between instructors.

Based on interviews and questionnaire responses (see the appendix), Soldiers differ in terms of their ability to attend to a computer program for a long period of time. Some Soldiers prefer the computer based training method of learning because it is more self paced, allowing them to move quickly through the portions that are easier for them and to spend more time on sections that are more difficult. Other Soldiers expressed difficulty in attending to a computer program for long periods of time and expressed a preference for being able to ask questions of an instructor. Because of time limitations, the Soldiers in this evaluation were asked to complete all the ROC-IED modules in a 2 1/2 hr time block. However, in their units, the modules can be presented on different days and this should help many of the Soldiers who have problems attending to computer instruction for long periods of time. Soldiers can also revisit difficult modules to increase their comprehension of them.

The knowledge test and the lane performance measures had adequate reliability, yet they were poorly correlated (even though the written and the mounted lanes had a significant correlation, it was still low). This suggests that IED knowledge and hands-on performance are, to a large extent, separate skill sets. It seems to be possible for a Soldier to acquire a good deal of classroom knowledge, but be deficient in terms of practical counter-IED skills. Hands-on counter IED lane training should be included in any counter IED training POI as well as additional computer-based lane training.

The instructor and computer training programs did not differ significantly in terms of IED and IED indicator detection measures. Our research indicates that current and future Counter IED training programs should include instruction and practical work identifying the factors that indicate the presence of IED's as a critical means of detection. The Soldiers in this evaluation were not presented the practical exercises that were supplemental to the core training course. These practical exercises included video detection, thermal video detection, and route analysis exercises. Route analysis exercises were included in the core training but, the video detection exercises were not. Future evaluations of ROC-IED should include the video detection exercises (the ones in which the trainee views field collected videos as if they were driving down the road and tests on detecting indicators and IEDs) to assess their contribution to lane training scores. Other programs that can be added to ROC-IED to improve lane performance should also be pursued.

The Soldiers who participated in this evaluation recognized the importance of counter-IED training. Regardless of the training condition, there was some consensus on the following points:

- More time needs to be allotted for counter-IED training at the unit level.

- Training programs should include a great deal of time spent in hands-on exercises.

- Training programs should include frequent feedback regarding the individual's performance.

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Appendix. Questionnaire Responses

This appendix appears in its original form, without editorial change.

DEMOGRAPHICS

SAMPLE SIZE = 81

SEX	**RANK**		**MOS**		
Male – 63	E3 – 5	1LT - 4	11A – 1	42A – 5	88H - 13
Female – 18	E4 – 11	2LT - 3	12A – 1	42B – 1	88N - 22
	E5 – 14	CPT - 5	15P – 1	70B – 1	88Z - 6
	E6 – 13	MAJ - 8	25B – 2	88A – 9	90A - 5
	E7 – 5	LTC - 5	25W – 1	88C – 3	92Y – 2
	E8 – 7	NR - 1	31A – 2	88D – 1	NR – 2
			31B – 3		

GT SCORE - 112 (mean)

1. Have you received any type of IED training?   16 No 58 Yes   7 NR

2. If yes, what type? 44 unit training 13 self training 12 training by T3 instructor 9 other

3. If yes, how long ago did you receive this training?   13 months (mean)

4. Time service: 162 months (mean)

5. Time in current duty position: 26 Months (mean)

6. Have you ever served in a combat or hostile fire zone?   39   38 No   4 NR
                                                              Yes

7. a. If yes, check all that apply.   3 Afghanistan 23 Iraq 1 Bosnia 18 Other
   b. Number of times deployed (mean): 1 Afghanistan 1 Iraq 1 Bosnia 1 Other
   c. Total months deployed (mean):   9 Afghanistan 13 Iraq 8 Bosnia 13 Other
   d. Other: Kuwait (13), Saudi Arabia (5), Germany (1), Africa (1), Panama (1)

8. Do you wear prescription lenses?   30 Yes   49 No   2 NR

9. If yes, which do you wear most often?   23 Glasses   6 Contacts   1 NR

10. Which of the following military training have you received? Check all that apply.

_68_ Basic Training	_7_ Advanced Infantry Training
_30_ PLDC	_6_ Airborne
_3_ Air Assault	_0_ Pathfinder
_17_ WLC	_14_ IED (describe below)
_13_ ANCOC	_23_ BNCOC
_0_ Bradley Leaders Course	_0_ Sniper
_0_ Ranger	_42_ Combat life saver
_0_ Master Gunner	_12_ Other

11. If other, specify:

AT Level 2, BNCOC Phase 1, FA-OBC, FA-OAC, TC-branch transfer, flight school, hotel, ammo handling, IED at CRC, IED awareness/approach, in theater training, internet w/84th AARRTC/Unit training, OBC (5), OAC (3), CAS3 (3), CGSC, OCS (2), officer training, unit level training, unit pre-mobilization IED training, UPL (1), UXO/IED at TOBC

12. Self rating of Knowledge, Skills, and Abilities (KSA) in each of the areas indicated:

1	2	3	4	5	6	7
Poor			Average			Excellent

	MEAN
General Military Knowledge	
Knowledge of Infantry tactics, techniques, and procedures (TTP)	3.99
Knowledge of reconnaissance, surveillance, and target acquisition procedures	3.60
Knowledge of map reading and orientation in field setting	4.75
Knowledge of land navigation	4.75
Knowledge of selecting routes for land navigation	4.44
Knowledge of selecting routes for movement to contact	4.14
Knowledge of conducting area reconnaissance	3.80
General IED Knowledge	
Knowledge of types of IEDs	3.69
Knowledge of types of IED indicators	3.79
Ability to detect IEDs	3.69
Ability to detect indicators	3.70
General Computer skills	
Knowledge of the internet	5.79
Knowledge of the AKO account	5.79
Knowledge of the My Pay account	5.85
Ability to navigate through the internet	5.86
Ability to play games on a computer	5.00
Knowledge of Microsoft Office products	5.51
Rate your computer literacy	5.54

TRAINING

SAMPLE SIZE:

A (Computer-based) = 27
B (Instructor-based) = 27
Both   = 27

1. Using the scale below, based on your training today, rate your level of confidence in being able to perform each of the following tasks:

1	2	3	4	5	6	7
Extremely unconfident	Very unconfident	Unconfident	Neutral	Confident	Very confident	Extremely confident

MEAN RESPONSE

	A	B	Both
Identify basic types of IEDs currently in use	4.85	5.11	5.26
Identify the main components of IEDs currently in use	5.23	5.12	5.11
Recognize the most common IED initiation systems	5.27	5.33	5.15
Identify the types of containers used to make HMEs	5.00	4.78	5.12
Explain where you may find HMEs being assembled	4.81	4.54	4.89
Identify the difference between EFPs and shape charges	4.54	4.73	5.00
Identify an EFP attack by post-blast damage inspection	5.23	4.88	5.33
Identify the basic types of land mines	4.92	4.54	4.92
Identify the basic kinds of UXO	4.92	4.56	4.85
Identify where IEDs are emplaced	5.27	5.54	5.30
Recognize the general and specific characteristics of a VBIED	5.23	5.42	5.41
Distinguish a VBIED from a SVBIED	5.00	5.12	5.19
Identify characteristics of a SVBIED driver	4.92	5.19	5.44
Identify indicators of a VBIED	5.23	5.31	5.37
Recognize the different types of VBIEDs	4.77	5.00	5.15
Identify features of likely IED sites	5.23	5.65	5.22
Identify local Population Indicators	5.12	5.56	5.26
Recognize IED indicators	5.42	5.69	5.41
Perform proper scanning procedures	5.04	5.42	5.11
Identify RCIED	4.54	4.38	4.74
Define CREW	5.20	4.54	4.93
Perform proper vehicle movements and driving techniques	4.54	4.73	4.73
Perform correct ECP procedures	4.88	4.58	4.74

Comments	**No. of Responses**

A (Computer-based)

I'm good!	1
A little more training will help out.	1
I don't think the computer training set me up for success. I had a hard time identifying the IEDs and indicators, especially on the mounted.	1
More hands-on (field testing) was needed.	3
Need more feedback to base an answer on confidence level correctly, as for now it is overall low.	1
Without feedback from scorers, I am not sure how well I did on the courses.	1

B (Instructor-based)

Good beginning, would like to have computer-based training before taking actual lanes.	1
Great training. Could actually show actual IED's, more of the different types and pass dummies around the room.	1
If the course was more direct and had more time to go into more depth, I feel that I could have taken more from the class. I do, however, feel that the information would be a great asset of informing soldiers prior to deployment.	1
Very enlightening to SWA conditions. The instructors and participants were informative and knowledgeable of their subjects. THANKS for sharing their expertise.	1

Both

Excellent training.	1
The training was great! I would like for both classes to continue being combined, there is a lot of excellent stuff to learn from both.	1
Very good training. Very timely and useful.	1
I feel much more confident than before taking the training.	1
I knew almost nothing when I got here, and I'm still no expert; however, I do know 100% more than I did.	1
Never performed ECP tasks.	1

2. Using the scale below, based on your training today, rate your level of knowledge of each of the following subjects:

1	2	3	4	5	6	7
Extremely unaware	Very unaware	Unaware	Neutral	Know-ledgeable	Very knowledgeable	Extremely knowledgeable

	MEAN RESPONSE		
	A	B	Both
Understand what an IED is	5.96	5.62	6.00
Know why IEDs are the insurgents' weapon of choice	5.96	5.96	6.00
Understand how widespread IEDs are	5.92	6.00	5.93
Understand recent trends in IED use	6.00	5.85	5.81

| | **MEAN RESPONSE** | | |
	A	**B**	**Both**
Understand how IEDs work	5.80	5.81	5.59
Know what a network is and what network members do	5.24	4.93	5.30
Understand why enemy networks exist	5.32	5.26	5.52
Know the vulnerable "centers of gravity"	4.48	4.89	4.93
Know enemy logistic and communication vulnerabilities	4.52	4.74	4.73
Understand how to capitalize on the vulnerabilities	4.36	4.81	4.74
Understand how initiation systems are used	5.04	5.15	5.15
Understand why homemade explosives are being used	5.72	5.15	5.44
Understand why EFPs are a significant threat	5.64	5.59	5.74
Know how EFPs work	5.64	5.35	5.56
Know how EFPs are made	5.76	5.00	5.37
Know how land mines are emplaced	5.40	5.04	5.33
Understand when IEDs are emplaced (most likely time of day and most likely day of the week)	5.64	5.15	5.67
Know how IEDs are emplaced	5.64	5.46	5.63
Know how IEDs are concealed	5.63	5.65	5.67
Know the enemy's most common IED attack strategies	5.50	5.35	5.59
Understand which of our vulnerabilities the enemy exploits the most when plotting IED attacks	5.28	5.35	5.56
Know the best defense options against VBIEDs	4.92	5.04	5.04
Understand the different characteristics of VBIEDs	4.79	5.04	5.27
Understand how the local population are indicators of potential attacks	5.48	5.69	5.33
Know basic searches	5.24	5.12	4.93
Know the proper techniques for searching	5.08	5.04	4.93
Know what actions to take upon discovering a potential IED	5.04	5.56	5.15
Know how to communicate near an IED site	5.12	5.50	5.00
Know the type of search to conduct following an IED encounter	5.00	5.27	5.19
Understand the steps to be taken to control a potential IED site	5.20	5.48	5.37
Know the actions to take after the discovery of a mine	4.92	4.96	4.89
Understand how to obtain control over a potential IED site	4.68	5.08	5.07
Know the format in which IED incidents should be reported	4.30	4.93	4.67
Know the intelligence assets you need before planning routes & schedules	4.72	5.30	5.19
Understand how to perform route analysis	4.88	5.11	5.07
Understand how to perform schedule analysis	4.96	4.85	5.23

(cont)

	A	B	Both
	MEAN RESPONSE		
Know additional scanning techniques	4.96	5.12	5.22
Understand the 5/25 meter search	5.32	4.85	5.26
Know the importance of varying schedule and tactics	5.28	5.54	5.74
Know the importance of developing good community relations	5.48	5.62	5.74
Understand how gathering intelligence can prevent IED attacks	5.48	5.46	5.70
Understand the sequence of events for IED emplacement	5.33	5.31	5.52
Define CREW responsibilities	4.88	4.96	4.85
Understand the basics and special duties of an ECP	5.08	4.85	4.89

Comments	**No. of Responses**
A (Computer-based)	
I kind of know this but not just from today.	1
B (Instructor-based)	
THANKS again.	1
Very good class.	1
There was not enough time to attain the information needed to assure myself the confidence in finding and controlling an IED area.	1
Greater understanding of IEDs.	1
Both	
A sure increase in knowledge. Answered most of my questions regarding IED.	1
I don't think that "5/25" was defined and explained.	1

3. Using the scale below, rate each of the following aspects of training:

1	2	3	4	5	6	7
Extremely bad	Very bad	Bad	Neutral	Good	Very good	Extremely good

	A	B	Both
	MEAN RESPONSE		
Clarity of instruction	5.41	5.58	5.62
Pace of instruction	5.33	5.50	5.12
Length of instruction	5.19	5.08	5.00
Knowledge of instructor	5.65	6.04	6.00
Opportunity to ask questions	5.09	5.72	5.68
Level of detail	5.54	5.08	5.56
Operational relevance	5.42	6.00	5.71
Overall effectiveness	5.52	5.68	5.68

Comments	**No. of Responses**

A (Computer-based)

Hope it can help someone.	1
Not good to time the questions because it puts stress on the student and lowers the student's ability to concentrate on the right answers.	1
Not sure of level of understanding without some feedback after each station.	1
The computer program gave you option to go to lesson 8 subsections but after you were done with the lesson it was confusing to get back to where you left from.	1
Training in the Hummer was too fast. Returning from 2x in Iraq, convoys do not move that slow and you really don't have time to look for the IED's.	1

B (Instructor-based)

THANKS again.......LOVE IT!!!!!!!!	1
Briefings were very knowledgeable and instructor was very knowledgeable.	1
The instructor was excellent, relating real world experiences to the classroom.	1
The instructors seem to have the knowledge of IED's.	1
The pace was very fast.	1
Could be a little more broken down into understandable wording.	1
Recommend that both computer-based, as well as lanes training, be incorporated into mob process. Should try and tailor the lanes toward units actual mission.	1
The power point slides are not sufficient to teach this material.	1

Both

Computer-based training was excellent.	1
I enjoyed the class greatly and got a lot out of it.	1
This was great training combining the classroom and field training on the same day.	1
The instructors knew absolutely what they were talking about. No BS here.	1
Very well put together and realistic.	1
The classroom instruction was vague, too fast-paced, little detailed, assumed prior knowledge of some level (unknown). BUT when it was the second block of training, did reinforce the computer training.	1
I do not feel the unit test should have points or time, it is quite distracting.	1
More hands-on the field on training opportunity to visually/physically understand what to look for. The actual scenarios, where I found myself unassisted and immersed in, in the field helped me better understand how IEDs can be detected.	1
Would like to see feedback from Lanes Training scenarios.	1
Refresher. Still, the package needs improvement in the classroom part.	1

4. Did the training give you confidence in your ability to detect IEDs? If no, explain issues.

	A	B	Both
Yes	17	21	25
No	9	4	1
NR	1	2	1

Comments   **No. of Responses**

A (Computer-based)
I got bored looking at the computer screen, so lost interest. This hurt my ability   1
  on the lanes.
It did; until we got to the lanes!   1
Lack of feedback for when we looked for IED's.   2
Need more hands-on training.   3
B-Instructor-based
What I did get was great, I just would like to know more about it.   1
Made me realize "attention to detail" is paramount.   1
Some, but I recommend more time in the field practicing skills.   1
Both
I looked for indicators correctly, but I could not find any actual IEDs.   1
Would like more "hands-on" training and AAR feedback to "know" I am on track.   1

5. Was the pace of the training you received too slow, too fast, or about right?

	A	B	Both
Too slow	2	0	2
Too fast	5	6	2
About right	20	19	21
NR	0	2	2

A-Computer-based
Fine.   1
Too fast in lanes, on CPU PERFECT!   1
2.5 hours is a long time and it got boring listening to the automated voice.   1
Need more time for application of materials covered.   1
Training was self-paced.   1
You can't teach IED negotiation on computers.   1
B (Instructor-based)
OUTSTANDING!!!!!   1
It is a lot to remember in one day.   1
The rapid pace made following the instruction somewhat difficult.   1

Both

Just right.   1

I was able to follow along with no problem.   1

It would be great to have the class broken up more between the groups so that   1
  Soldiers are not left waiting so long for tests, etc.

Need more on the road (live) hands-on.   1

Classroom was too fast for me. Skimming.   1

Reviewing as a class and discussion before the lanes would greatly help the   1
  soldier get into the right mindset for finding IED; as when you're over in theatre
  your already in the mind-set.

6. Did the training give you confidence in your ability to detect IED indicators? If no,
explain issues.

	A	B	Both
Yes	23	24	25
No	1	0	2
NR	3	3	0

A (Computer-based)

Lack of feedback for when we looked for IED's.   1

B (Instructor-based)

No comments.   1

Both

No comments.   1

7. What changes would you recommend for the training program you experienced today to make
  it better?

A (Computer-based)

I learn fast, so a little faster wouldn't hurt.   1

Give both blocks of instruction in two phases of the course. Get rid of the timing   1
  of the questions in the computer module.

More hands-on training.   1

Give more feedback, not as a grade but general points from hands-on.   1

Make it more hands-on, longer, cut out the computer classes (they put people   1
  to sleep and aggravate them till they skip to the end).

Make it two days of training, with the second day hands-on in the field.   1

More explanations of detection and avoidance.   1

Real live training.   1

Some class room time, but more boots on ground.   1

Comments	**No. of Responses**

B (Instructor-based)

Break up the briefing or cut out some of the slides. Too many slides to read in one session.	1
More samples of videos and for instructor to tell us what the indicators were.	1
The power point slides are too busy. Much of the important information is buried in there. Make the important information more relevant, then explain the details with pictures and videos.	1
Actually make-up some "dummie" IED's, i.e., those currently being used so soldiers can touch and learn.	1
Conduct more interactive IED recognition lanes.	1
More time to learn IED's.	1
May be better if it was a two day process.	1
More days for knowledge; it's very much needed for the military.	1
More live time.	1
This unit is heading to Kuwait, if possible the training could focus on that type of scenario	1
When going through, evaluator should point out on the spot what you did wrong.	1

Both

During the computer portion, there wasn't an opportunity to ask questions because it was on the computer. It was good to have the classroom portion after doing the computer course but by that time you forgot what your question was about.	1
The computer class as a slide show and have the instructor there to answer any questions. That would eliminate the classroom portion because the computer class was much better than the classroom even though it had basically the same information.	1
Final exam used too many negative questions and vague answers.	1
Direct all other activity stop once he begins.	1
I noticed that at least 20% of the class did not listen or pay attention to the instructor during the first 5 min. They were busy fixing their gear and uniform. Several asked me questions about topics covered in the beginning. Recommend that instructor wait.	1
I would have a display of all of the commonly used IEDs on a table in the classroom for the students to see so that everyone knows what they look like even if they are only mock-up dummy IEDs; it would help get you more familiarized with each item.	1
I would like to have known how I did in the training.	1
I would make the unmounted searching course a little longer with the potential IED's further apart. But that's just me.	1
More breaks. Information overload.	1

Not have the course in a burning area. Hard to distinguish between markings set   1
  up for the course and markings for the controlled burning.

Reduce the "clock timer" on the ROC-IED training quizzes. Test points are far   1
  reduced before question can be adequately read and comprehended (and points
  didn't seem to matter anyway?). Provide feedback after practical exercises.

For those of you who used the <u>COMPUTER-BASED</u> training program only.

8. Using the scale below, rate each of the following aspects of computer based training:

1	2	3	4	5	6	7
Extremely bad	Very bad	Bad	Neutral	Good	Very good	Extremely good

	A	**Both**
Navigating through the training program	5.65	5.60
Effectiveness of timed "unit test" questions	4.44	4.27
Structure of software program (logical sequence)	5.88	5.35
Quality of training	5.50	5.58
Quality of graphics	6.12	5.96
Quality of narration	6.04	5.81

<u>A (Computer-based)</u>

Difficulty reading could cause a question to be missed for rushing with the count   1
  down.

The test questions had a timer and it's a great tactic for wrong answers to go away   1
  slowly but as a slow reader by the time I read the longer question, one answer was
  usually taken away. And also after hitting the right answer it could just say correct.

Let you move on instead of having to wait for entire 30 seconds. Or after you hit   1
  the next arrow it should tell you that you got it right if you did not let you select
  another answer.

<u>Both</u>

A bit long.   1

Computer-based training was extremely long. The exaggerated length detracted   1
  from what I retained. The videos were excellent and the use of statistical data was
  helpful. This training would be better delivered by an instructor.

Comments	**No. of Responses**

In section 5 it stated that if you wanted more info to click on link and then it took you to section 8. Once you finished that section it didn't take you back to section 5, so I was confused and had to search for where I was originally at. 1

It did not always give enough details or information. 1

Not as effective as the instructor training. I found that the computer course was very dry and almost put me to sleep.

Remove the time/point system or hide it. 1

I felt the fast paced questions did not deliver enough time to evaluate the questions thoroughly. In training environment more time is needed to fully understand the question. 1

The timed questions may have gone too quick for some people; should give a little bit longer to answer. 1

The timed test was a distracter. The way the minutes counted down made me rush too fast through the tests. It was distracting when the questions grayed out. I wasn't sure if it took my right answer. 1

Though I may have missed it, the timed aspect caught me off guard. Was it explained? The questions and answers were too wordy for the timed technique for soldiers (sixth grade vocab level). 1

Timing was too fast in order to read the questions and answers. 1

The time allotted for test questions was too short. 1

9. Did you have any problems with the computer-based program, e.g., the program froze, had to reboot, etc?

	A	**Both**
Yes	4	4
No	21	21
NR	2	2

A (Computer-based)

Around 5 lesson the computer had to reboot due to some error and I had to restart the program. 1

Shut off on its own. 1

B (Instructor-based)

No comments.

Both

Very good package. It would be nice to have that available for my soldiers on the internet. 1

Comments	**No. of Responses**
1) Unsure if you answered questions correctly 2) It was too long 3) the test starting deducting points without giving you time to read the questions 4) there were no instructions provided about the test and the meaning of the change in color for certain questions.	1
Had some trouble with the test picking up a few answers that had been marked. Had I been doing it for an actual grade I would not have been happy.	1
In the computer programs, some of the videos kept skipping and some of the links wouldn't work - it just skipped right through them.	1
The information was too vague at times.	1

The remaining questions are ONLY for the <u>COMBINATION</u> training condition (both instructor-based and computer-based training).

10. Which training program was better?

	Both
A-Computer-based	7
B-Instructor-based	7
C-About the same	9
NR	4

<u>Both</u>

I liked the instructor because I was able to ask detailed questions, and I wasn't staring at a computer screen.	1
Can ask more questions. The human factor.	1
I work better having an actual instructor that has experience leading the class.	1
ROC-IED had more info & graphics, but instructor added a lot of valuable real world experience,	1
The computer animations were good and can be similarly compared to the video clips in the instructor lead presentation.	1
I fell asleep after Module 5 of the computer based training. Too much information.	1
Liked both as they contained repetitive "key points."	1
Staring at a screen can only give you the information; it can't give you the experience. It is like being book smart instead of street smart.	1
The ROC-IED is a time saver kind of training.	1

11. If you could only receive one of these training programs, which would you choose?

	Both
A-Computer-based	7
B-Instructor-based	13
No preference	3
NR	4

Comments   **No. of Responses**

Both

Computer-based course where you can do it at anytime.	1
The ROC-IED was more in depth even though there wasn't an opportunity to ask questions it had more info and kept me involved with the test right after the lessons.	1
I believe it benefits the soldier more.	1
I would choose the instructor- based training b/c it allows for interaction with the instructor and allows you to share other soldiers' experiences	1
Instructor-based training was more effective in keeping my attention.	1
Instructor can rephrase and put it down to anybody's level.	1
The instructor led program allows for direct interaction.	1
Tough call but I had to go with real world experience.	1
I'd rather receive the combination as a redundant learning process.	1

12. Were the two training programs redundant?

	Both
Yes – the redundancy helped me learn the materials	15
Yes – the redundancy made the experience boring	4
No	4
NR	4

Both

Computers will never replace the hands-on experiences of humans; they are only able to reproduce the same information that is stored in its memory.	1

Comments	**No. of Responses**
Both programs had additional information that was very useful.	1
By the time I got to the instructor led class it was too much IED training in one day.	1
I was able to get it in my brain.	1
It made the next class boring.	1
No, because one prepared you for the other. Seeing it on a screen is easy as it is showing you where it is and what it looks like for you, but on the field its just you and the real environment.	1
Review is good and helped my retention.	1
Some redundancy is ok. Recommend shortening the computer based training and make it the first module.	1

13. Did the ROC-IED training reinforce the instructor based training program?

	Both
Yes	20
No	3
NR	4

Both

Brought awareness to key points so they could be clarified by the instructor.	1
Clarified some of the bigger ideas by providing more detail.	1
Complemented each other.	2
Almost same material, but too much for one day. If you use both methods then separate the classes by a few days.	1
Covered the same material.	1
I think the instructor reinforced the ROC-IED training b/c I was able to get my questions clarified.	1
I would say visa versa.	1
It covered material that was covered in the instructor-based training but in a different manner.	2
Pictures to look for.	1
Putting together the visuals, and powerpoint presentation it made it easier to follow. Having the ROC-IED training after the class instructions helped us to tie it all together.	1
Things that I missed in ROC-IED, I made sure that I received a better understanding in the instructor base training.	1

14. Did the ROC-IED training allow you to practice and apply what you learned in the instructor based training program?

	Both
Yes	18
No	5
NR	4

Comments	**No. of Responses**

Both

Fun and informative.	1
I enjoyed the lanes training--I have never gone through a lane as an individual and this really tested MY personal knowledge	1
Identified the indicators but had a hard time identifying the actual IED.	1
The information that the instructor provided went hand in hand with the computer program.	1
The practice and application were key elements to this successful training block. Only recommended improvement is to allow AAR Feedback on how soldier did (strengths and weaknesses).	1
To actually go out and get an idea of what to look for was awesome.	1
Took ROC-IED prior to instructor based.	1

15. Did the ROC-IED training conflict with what you learned in the instructor based training program?

	Both
Yes	3
No	20
NR	4

Both

The information looked the same --same slides, videos, etc. In fact, the instructor lead may have provided more examples--which are excellent tools for learning. I think the programs complement each other, but the individual training was more engaging for me. I think that the computer-based training is a good backup but should never replace instructor lead training.	1

16. Describe three things you liked about the ROC-IED training:

Comments	No. of Responses
A (Computer-based)	
It was interesting, fun, and realistic	1
Both	
1) Narrator's had good voice inflection 2) Computer simulation 3) self paced.	1
All the pictures, hands-on, good speed.	1
Great training and hands-on is best.	1
I like computers.	1
Organized layout, very helpful graphics, optional interviews were very informative.	1
Quality info, well put together, and pretty easy to navigate.	1
Realistic setting, went fairly quick, variety between lanes.	1
Relevance to current state in theatre. Comprehensive. Diagrams.	1
Self-paced, good videos, time about right.	1
The courses were well set up, very convincing. It was realistic. It was a slap in the face for those who think their ready for patrol in Iraq.	1
The tests after the lessons, the videos pertaining to the lesson, and the explaining of the training by the narrator.	1
The videos, the pictures.	1
The videos, the stats, and the examples.	1
Very informative, easy to use, easy to understand.	1

17. Describe three things you disliked about the ROC-IED training:

	No. of Responses
A (Computer-based)	
The computer training part, sort of sat around a lot, and that's all.	1
Both	
1) Couldn't ask questions 2) made me sleepy 3) too much to ingest in 2 hrs.	1
Could have spent a little more time on classroom instruction.	1
Could not ask questions about the lesson, can't think of anymore reasons.	1
Lack of feedback on the mounted portion.	1
More time training. More scenarios.	1
No feedback on how you did, two links that took you to other sections, and you had to find where you were at once finished with the link, section exams shouldn't be timed.	1

Comments	**No. of Responses**

No human, couldn't ask any questions, not as many life experiences. 1
Self-paced leads to opportunity for some soldiers to "just go through the motion" 1
   and not retain info.
Somewhat boring to me, like more hands-on, rather be on a course. 1
The confidentiality, I don't know if I am doing good or bad. There should have been 1
   a review about the types of IED's and what to look for right before the courses just
   to get everyone in the mind frame.
The overall length, the timed test questions, and the format. 1
The skipping of the videos and audio and that some of the links wouldn't go through 1
   or click, and the drag and place didn't all work.
Timing was too fast. 1

18. Describe three things you liked about the instructor based training:

B (Instructor-based)
Very knowledgeable, powerpoint, videos. 1
Both
1) Personal interaction 2) had personal deployment experience with IEDs. 1
Direct interaction; instructor brought personal experience into class, 1
Excellent instructor, good voice inflection and seemed to be very knowledgeable. 1
First hand experience of instructor, good videos that catch your attention, 1
   reinforces key points.
Good visuals, went pretty quick, seemed to be knowledgeable in the subject at hand. 1
Great instructor, lots of training aids, able to ask questions. 1
Great instructor, very good videos. 1
Great visual aids, had an opportunity to ask questions about the lesson, and was not 1
   too long.
High quality and very knowledgeable instructors. 1
Instructor knowledge base, course content, and videos. 1
It was new, different. The videos, though brutal, are honest and depict the serious 1
   side of not staying alert and aware. The instructors were nice and helpful.
More knowledge from personnel, hands-on, get out of boring classroom. 1
Real experience. 1
The pace was nice. 1
The videos, he asked questions, got the group involved. 1

19. Describe three things you disliked about the instructor based training:

Comments	No. of Responses
B (Instructor-based)	
Nothing to say.	1
Power point was too long, only one break, seemed to go too fast.	1
Both	
1) Provides less details than computer 2) made me sleepy 3) too much to ingest in 2 hrs.	1
Back brief. Feedback on lanes. More time and scenarios on topic.	1
I felt they could have been more involved; they seemed more like a stand by tech team than instructors. I don't like watching so many videos of soldiers being killed. Lunch was too late.	1
It was too long and a lot of information. It was also too fast.	1
Need to add some of the graphics that ROC-IED had, such as the vehicle placements with different types of IEDs.	1
No lunch breaks.	1
Not check on learning after the tests, not as much info put out compared to the ROC-IED. Can't think of another.	1
Pictures and videos of soldiers getting blown up. That got to me.	1
Too repetitive of some points already covered - could have shorten some of the training time by 30 minutes.	1
Too short, port-o-potties at course, think everyone should train together instead of individually.	1

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