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Research Memorandum 77-15

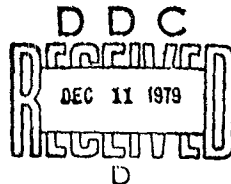
PILOT EVALUATION OF A TACTICAL BOARD GAME FOR TRAINING AND ASSESSING ROTC CADETS

John R. Mietus and Michael G. Rumsey

PERSONNEL ACCESSION AND UTILIZATION TECHNICAL AREA



U. S. Army



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Research Memorandum 77-45

6 PILOT EVALUATION OF A TACTICAL BOARD GAME
FOR TRAINING AND ASSESSING ROTC CADETS.

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PILOT EVALUATION OF A TACTICAL BOARD GAME FOR TRAINING AND ASSESSING ARMY ROTC CADETS

THE PROBLEM

One of the goals of the Army ROTC Military Science program is to provide the cadet with a knowledge of, and opportunity to apply, the basic principles of military leadership, science, and tactics*. Another goal is to provide both the cadet and the Army with an assessment of the cadet's development and potential for military leadership**. Games which simulate critical military activities hold considerable promise as a means of partially fulfilling these objectives in an economic and involving fashion. This pilot evaluation examines the effectiveness of a tactical board game in training and in assessing military knowledge and ability of ROTC cadets***.

The game's training and development utility was measured in terms of the following hypotheses: amount of game playing will be positively related to 1) knowledge of tactics, measured by a paper and pencil test, 2) performance in ROTC Summer Camp, an experience-based leadership training situation. The following hypotheses measured its assessment utility: 1) performance in the game will be positively related to a) tactical knowledge and b) performance at Summer Camp; and 2) peer ratings based on observation of game playing will be positively related to a) game performance, b) tactical knowledge, and c) performance at Summer Camp. *pg. 8*

METHOD

Subjects

Sixty-six subjects were drawn from the population of ROTC cadets enrolled in Military Science III in five schools across the country. The planned sample was considerably larger and more representative, but several schools were unable to participate in the experiment. The experimental sample, after attrition, included cadets from the following five schools: Brigham Young University (n = 10), St. John's University, New York (n = 9), Northeast Louisiana State University (n = 13), East Washington State University (n = 14), and Loyola University (n = 5). The control sample consisted of 13 cadets from Northeast Louisiana University.

* Army ROTC Curriculum Development Steering Group, Fort Monroe, Virginia, 1975.

** Department of the Army. Reserve Officers' Training Corps: Basic and Advanced Camp Program. TRADOC Regulation 145-1, 1975.

*** Kinton, Incorporated. A study of situational training for leaders. U.S. Army Research Institute, Contract DARC 19-74-C-0044, 1975. This report examines the relationship of cadet biographical data to game performance and tactical knowledge. It also details the game development and its acceptance by users.

Due to competing activities and inadequate command emphasis, not every cadet completed all report forms or game-playing requirements. The number of missing data points, therefore, was quite high on some measures.

Procedure

Phase One: Training and Initial Assessment. The initial phase of this study was conducted within the ROTC classes. Subjects were pretested on the Infantry Tactics Knowledge Test (Appendix A), a measure of general infantry tactical knowledge specifically developed for this project. The Squad-Platoon Tactical Map Game served as the training material used in the experiment. This simulate was developed by Kinton Incorporated. In this game one player directs a reinforced infantry squad defending a given territory. The other player directs a reinforced infantry platoon on an offensive mission. The game places both units in direct conflict (see Appendix B).

The cadet's performance in the game was evaluated on the basis of a number of ratings. A controller, most often a cadet, was given the responsibility for regulating the conduct of the game. He or she made an overall judgment as to who won or lost based on the perceived inability of one side to continue effectively in action. The percentage of men remaining at the end of the game was another measure of success (Appendix C). Peer ratings concerning how well game participants would perform as squad leaders were also obtained after the training (Appendix D).

Finally, after participating in the simulation training procedure, the experimental subjects were retested on the same Infantry Tactics Knowledge Test. The 15 control subjects completed both the pretest and post-test administration of this measure, but did not have the intervening game-playing experience.

Phase Two: Follow-up Assessment. At the Advanced ROTC Summer Camp following the Military Science III course, data from a variety of measures were gathered as part of the ongoing Cadet Evaluation System. These were used to measure the generalization of tactical knowledge gained through playing the game to leadership performance in other areas. The measures examined were: 1) Leadership Potential Index (LPI), which is a weighted combination of ratings given a cadet on a number of variables. One variable, performance, combines ratings by the cadet's Platoon Officer Evaluator (POE) and the Platoon Non-Commissioned Officer Evaluator of the cadet's "ability to handle people and situations."²

² Department of the Army. Reserve Officers' Training Corps: Basic and Advanced Camp program. TRADOC Regulation 145-1, 1975, p. 188.

A second variable, personal characteristics, is the POE's evaluation of the "cadet's personal characteristics which relate to effective leadership."* Situations, the third variable, is the POE's assessment of the cadet's ability to perform in various jobs or situations. The Field Problems Test provides several evaluators' assessments of the cadet's performance in a number of simulated combat situations. Finally, the peer rating provides "a leadership rating of cadets by each other."*** Appendix E shows the rating forms used in making these judgments.

2) Land Navigation/Orienteering. The land navigation/orienteering evaluation is composed of three orienteering tasks. Each task requires the cadet to apply navigational, map reading and terrain interpreting skills while moving over natural terrain. The line orienteering task measures the cadet's ability to use these skills on a structured course. The score orienteering test allows the cadet to choose which checkpoints he will reach, in what order, and in a given period of time--thereby requiring a greater degree of speed and problem-solving ability. The freestyle orienteering also allows the cadet freedom to choose his own course, but requires him to reach every checkpoint and judges on speed, requiring an even greater degree of physical endurance and problem-solving ability.

3) Military Stakes. This performance test is "designed to measure the cadet's ability to apply basic individual military skills."***

Of the original 66 subjects, Summer Camp data was available on only 47, and missing data among these produces an even smaller n on some measures.

RESULTS

Training Utility

Infantry Tactics Knowledge Test. Although the initial analysis failed to show that game playing experience positively affected performance, subsequent examination revealed that under certain conditions, game playing did have the predicted effect. The first manipulation of the data was a 2 X 2 (treatment X trials) unweighted means analysis of variance, with repeated measures on the last variable, conducted on the tactics test using those 62 subjects (experimental = 47, control = 15) for whom scores were available. The analysis revealed no treatment by trials interaction ($F(1)$). The experimental group improved from a mean of 24.4 on the pretest to 26.8 on the post-test, but the control group also improved from 22.4 to 23.3. Although this result was not as predicted, the confounding of subjects from many schools with varying degrees of game playing experience in the experimental group precluded

* Ibid, p. 189.
 ** Ibid, p. 191.
 *** Ibid, p. 187.

definitive conclusions concerning the game's effect on subjects' tactics scores. The second analysis--a comparison between the experimental subjects at Northeast Louisiana, all of whom played four games, and the control subjects at the same school--removed those confounding variables. A 2 X 2 (treatment X trials) unweighted means analysis of variance on tactics scores, with repeated measures on trials, revealed a significant $F(1,26) = 8.33, p < .01$ treatment by trials interaction, indicating that the experience of playing four games did in fact improve performance on the tactics test. The score increase by the experimental group is shown in Table 1.

Table 1. Comparison of Pretest and Post-Test Tactics Means for Experimental and Control Subjects at Northeast Louisiana State University

<u>Group</u>	<u>n</u>	<u>Pretest</u>	<u>Post-test</u>
Experimental	13	21.8	27.0
Control	15	22.4	23.3

The next step was to examine the relation between the number of games played and tactics scores. Four cadets played only one game, and four played three games. In order to have a large enough n for reliable interpretation, the categories of one, two, and three games played were therefore collapsed into one. Table 2 shows pretest and post-test tactics means for the collapsed category, the four-game condition, and the zero-game condition. The means show that the cadets playing four games definitely did improve, and the others did not. They also show that the cadets in the collapsed group began with much higher pretest scores than those in the zero or four game groups, with the latter two categories composed predominantly of cadets from the same school. Thus, the lack of improvement by the cadets with a moderate level of experience may represent regression to the mean. Support for this interpretation is obtained by separately examining scores above the median and below, in the collapsed category. Those above had a mean pretest score of 29.1 and mean post-test score of 28.3; those below improved from 22.8 before the gaming experience to 25.9 after. It appears that the game benefited only those players who initially demonstrated a low level of tactics knowledge.

Summer Camp Measures. The number of games played was moderately related to several Summer Camp measures, as the correlation coefficients in Table 3 show. Gaming experience was most highly correlated with LPI, and was somewhat correlated with each of the LPI subscales. Contrary to expectations, the number of games played was unrelated to freestyle orienteering, although they were modestly related to line and score orienteering. Gaming experience was also somewhat related to Military Stakes performance. Although none of the correlation coefficients was significant at the .05 level, the pattern of results was generally consistent, with all coefficients but one being in the positive direction.

Table 2. Pretest and Posttest Tactics Test Means
at Three Levels of Gaming Experience

<u>Number of Games</u>	<u>n</u>	<u>Pretest Score</u>	<u>Posttest Score</u>
4	23	22.5	26.7
1-3	24	26.3	26.5
0	15	22.4	23.3

Table 3. Correlation Coefficients Between Number of Games Played
and Summer Camp Measures (n = 47)

<u>Summer Camp Measures</u>	<u>r</u>
Free Style Orienteering	-.02
Line Orienteering	.09
Score Orienteering	.12
Military Stakes	.16
Leadership Performance Index (LPI)	.22
Performance rating	.20
Personal Characteristics rating	.15
Situations rating	.16
Summer Camp Peer Rating	.17
Field Problems Test	.20

In order to determine whether the small positive correlation between gaming experience and LPI may have been an artifact of superior tactics knowledge by cadets with the experience, a multiple stepwise regression analysis was conducted to measure the separate contributions of gaming experience and tactics post-test scores. On the 44 subjects for which tactics and summer camp scores were available, the correlation coefficient between the tactics post-test score and the LPI score was $-.05$. The number of games, which correlated $.29$ with the LPI for these subjects, was entered first in the analysis; the addition of tactics post-test scores pushed the multiple R only to $.30$. These findings clearly do not indicate that superior tactics knowledge could account for LPI gains among those with gaming experience.

Assessment Utility

Game Performance and Tactical Knowledge. Neither the percentage of games won, nor the percentage of men left at the end of each game provided a particularly useful assessment of the types of knowledge measured by the tactics test. The correlational analyses used to measure assessment utility omitted control subjects, and those for whom Summer Camp data was unavailable. In the analysis of the relation between percentage of games won and tactics knowledge, subjects who played only one game were not considered. A negligible correlation coefficient was obtained between tactics post-test and percentage of games won ($r = .01$, $p < .48$, $n = 35$). A moderate but non-significant positive correlation coefficient was obtained between tactics post-test and the percentage of men remaining ($r = .16$, $p < .18$, $n = 37$).

Game Performance and Summer Camp Measures. Neither the correlation between percentage of games won and LPI ($r = .03$, $p = .42$, $n = 37$), nor that between the percentage of men remaining and LPI ($r = .13$, $p = .22$, $n = 40$) suggested a positive relation between game success and summer camp success. An examination of the correlation between the percentage of men remaining and Summer Camp peer rating ($r = .08$, $p < .32$, $n = 40$) likewise failed to suggest promise.

Game Peer Ratings. Game peer ratings were collected on only 27 experimental subjects. From this small sample, correlations between peer ratings and game performance, tactical knowledge, and Summer Camp measures were collected. These are presented in Table 4. Correlations between peer ratings and game performance were insufficient to establish these ratings as a valid measure of performance. Likewise, the correlation between peer ratings and the tactics post-test was not impressive. The correlation coefficients between game peer ratings, the LPI, and Summer Camp peer ratings, while high, represented perhaps common method variance. Peer rating scores contributed 25% to the total LPI score.

The discrepancy between this coefficient and that shown in Table 4 is due to the reduced n here.

Table 4. Game Peer Rating Correlation Coefficients

Peer Ratings Correlated With:	<u>n</u>	<u>r</u>
Game Performance Measures		
1. Percentage of Games Won	27	.07
2. Percentage of Men Remaining	27	.12
Tactics Posttest	23	.16
Summer Camp Measures		
1. LPI	21	.31
2. Summer Camp Peer Rating	21	.46*
Number of Games Played	21	.41*

* $p < .05$

DISCUSSION AND SUMMARY

Sampling limitations must necessarily constrain any conclusions drawn from this study. The small n was, in many instances, insufficient to demonstrate what may be true relations.

It appears that a cadet, starting at a fairly low level of tactics knowledge, can improve his performance on a paper and pencil tactics test by playing four games, although the impact of one, two or three games on such a cadet's performance cannot be determined from this study. There is no evidence that game-playing has any discernible impact on a cadet already knowledgeable about tactics.

No significant relation was found between game playing and performance at Advanced Summer Camp. The small sample size, the relatively small amount of time devoted to gaming as a proportion of the cadet's overall training, the passage of time between the gaming experience and Summer Camp, and the contamination of each of the criterion measures with elements partially or completely unrelated to tactics, may all have been elements which reduced the correlation coefficients obtained. The many low positive coefficients which were found suggest that the hypothesis that the game improves tactics-related leadership performance need not be discarded on the basis of this evaluation.

In terms of assessment utility, the measures of game performance were predictive of neither tactics post-test scores, nor Camp LPI. The finding that successful game players manifested no better tactics knowledge than unsuccessful players is particularly perplexing, and raises new doubts about the adequacy of the tactics test as a criterion of tactics capability. The test may be deficient--both in failing to evaluate performance-related dimensions, and contaminated with cognitive dimensions that fail to differentiate competent and incompetent tacticians.

→ In general, the findings from this pilot evaluation support the following conclusions: 1) gaming experience is beneficial in training ROTC cadets in tactics as long as several games are played, and the players begin with a low level of tactical competence, and 2) when tested against the available ROTC measures of leadership competence, the game is not a practically useful device for assessing competence. ↙

APPENDIX A

INFANTRY TACTICS KNOWLEDGE TEST

INSTRUCTIONS

The enclosed tactics test (indicated as a "test on general infantry knowledge" on the cover) is to be administered to each of the MS III cadets who participate in the Kinton Tactics game and to MS III cadets who are assigned to the control group. Control groups are only at University of Texas, Arlington, Rose-Hulman Institute of Technology, Northeast Louisiana State University and Brigham Young University.

The tactics test is to be administered twice. The game participants will be given the test the first time just before they are exposed to the game and again within a week after completion of the experimental run of the game. The cadets in the control group are also to take the test twice; at the same time it is administered to the experimental group.

Time: The test is not timed but it is a test of factual knowledge and should be completed in 15 to 20 minutes.

Test Booklets are to be reused and no marks should be made in them.

Only Number 2 lead pencils should be used.

Answer sheets: Sufficient copies of Army Standard Answer Sheet, D-4, are included for two administrations.

Instruct the cadets to print their names on line 1, Date on line 2, on line 3 print 1 if it is the second administration (Post game). Complete line 4, Identification, by printing his SSAN in the top blocks and then marking the appropriate spaces directly below.

Answering the test items: Instruct the cadets that they are to start answering at item 1 on the answer sheet, emphasize that item spaces P1 thru P10 in the practice block are not to be used. The first forty-seven items are four alternative multiple choice and are answered by marking A, B, C, D after the appropriate item number. Items 48, 49, and 50 require that coordinates be written out. The coordinates for item 48 are to be printed on line 8, those for item 49 on line 9 and those for item 50 on line 10. These lines (8, 9 and 10) are located in the lower right corner of the information section of the answer sheet.

KINTON

INCORPORATED

100 PRINCE STREET
ALEXANDRIA, VIRGINIA 22314
(703) 836-2154

This is a short test on general Inf: try knowledge. Read each question or statement carefully and select the best answer or ending for the statement. Circle the letter which precedes that answer.

1. The number of officers in a regular Infantry line company is:
 - a. 4
 - b. 3
 - c. 6
 - d. 5

2. Effective range of the M60 machine gun under normal conditions is:
 - a. 800 meters
 - b. 600 meters
 - c. 400 meters
 - d. 200 meters

3. Reconnaissance patrols are planned and coordinated
 - a. by battalion or higher
 - b. by the company
 - c. by the platoon
 - d. all of the above

4. The number of squads in a platoon is:
 - a. 5
 - b. 4
 - c. 3
 - d. 2

5. Non expendable antitank weapons can be found in which of the following organizations?
 - a. Rifle platoon
 - b. Mortar platoon
 - c. Company Headquarters section
 - d. All of the above

6. Lines and boundaries are used for:
 - a. orientation
 - b. coordinating intelligence
 - c. reporting
 - d. movement control
7. Snipers are primarily used to:
 - a. divert the enemy's attention
 - b. delay and confuse the enemy
 - c. reduce enemy effectiveness
 - d. gather movement intelligence
8. Defensive positions may be located by:
 - a. map reconnaissance
 - b. listening posts
 - c. artillery fire
 - d. diversions
9. Illumination shells from a 155 mm howitzer can be expected to burn for:
 - a. 30 seconds
 - b. 60 seconds
 - c. 90 seconds
 - d. 2 minutes
10. The military symbol for a squad is:
 - a. . . .
 - b. . .
 - c. .
 - d. ' '
11. Dangerous backblast area of the M18A1 claymore mine extends to:
 - a. 30 meters
 - b. 25 meters
 - c. 20 meters
 - d. 15 meters

12. The observer target line may be expressed in:
 - a. grid azimuth
 - b. magnetic azimuth
 - c. mils
 - d. any of the above

13. When moving to contact with an enemy whose positions are unknown, but contact is imminent, a squad should be:
 - a. close together for ease of control
 - b. in a wedge formation
 - c. in a column formation
 - d. in a bounding overwatch formation.

14. Casualty radius of fragmentation hand grenades is:
 - a. 20 meters
 - b. 15 meters
 - c. 10 meters
 - d. 5 meters

15. Effective range of the 81 mm mortar under normal conditions is:
 - a. 5000 meters
 - b. 4000 meters
 - c. 3000 meters
 - d. 2000 meters

16. Communications over a kilometer or more have been restricted to:
 - a. radio
 - b. radio and flares
 - c. any radio or visual means
 - d. are not restricted to specific media.

17. The smallest TO&E unit in an Infantry line company is a:
 - a. platoon
 - b. fire team
 - c. squad
 - d. section

18. An Infantry squad placed in defense would immediately establish:
 - a. bunker positions
 - b. forward observers
 - c. a 75 meter sector
 - d. primary and alternate positions

19. Reconnaissance patrols must have:
 - a. demolition team, security team and recon team
 - b. intermediate and final objectives
 - c. map and radio
 - d. a definite time schedule

20. Gaps in the defenders fields of fire must be covered with:
 - a. concertina wire
 - b. early warning devices
 - c. claymores
 - d. observation posts

21. The correct fuse for use against troops in the woods is:
 - a. time
 - b. delay
 - c. VT
 - d. quick

22. Effective range of the M72A2 LAW under normal conditions is:
 - a. 275 meters
 - b. 200 meters
 - c. 125 meters
 - d. 50 meters

23. Fire suppression is used to:
 - a. keep the enemy from learning your positions
 - b. keep the enemy from firing back
 - c. keep enemy out of a specific area
 - d. reduce weapon malfunctions
24. Defensive positions should always have:
 - a. covered withdrawal routes
 - b. observation posts
 - c. a parapet or berm
 - d. telephone lines
25. Effective range of the M79/M203 at a point target under normal conditions is:
 - a. 300m
 - b. 250m
 - c. 200m
 - d. 150m
26. The observer target line is used to:
 - a. adjust fires
 - b. locate the target
 - c. locate the observer
 - d. estimate distance
27. False defensive positions may be used to:
 - a. concentrate enemy fire
 - b. exhaust enemy combat strength
 - c. divert attention from the real positions
 - d. locate enemy units
28. Enfilade is:
 - a. a type of cover
 - b. a mortar shell
 - c. a patrol objective
 - d. a type of fire

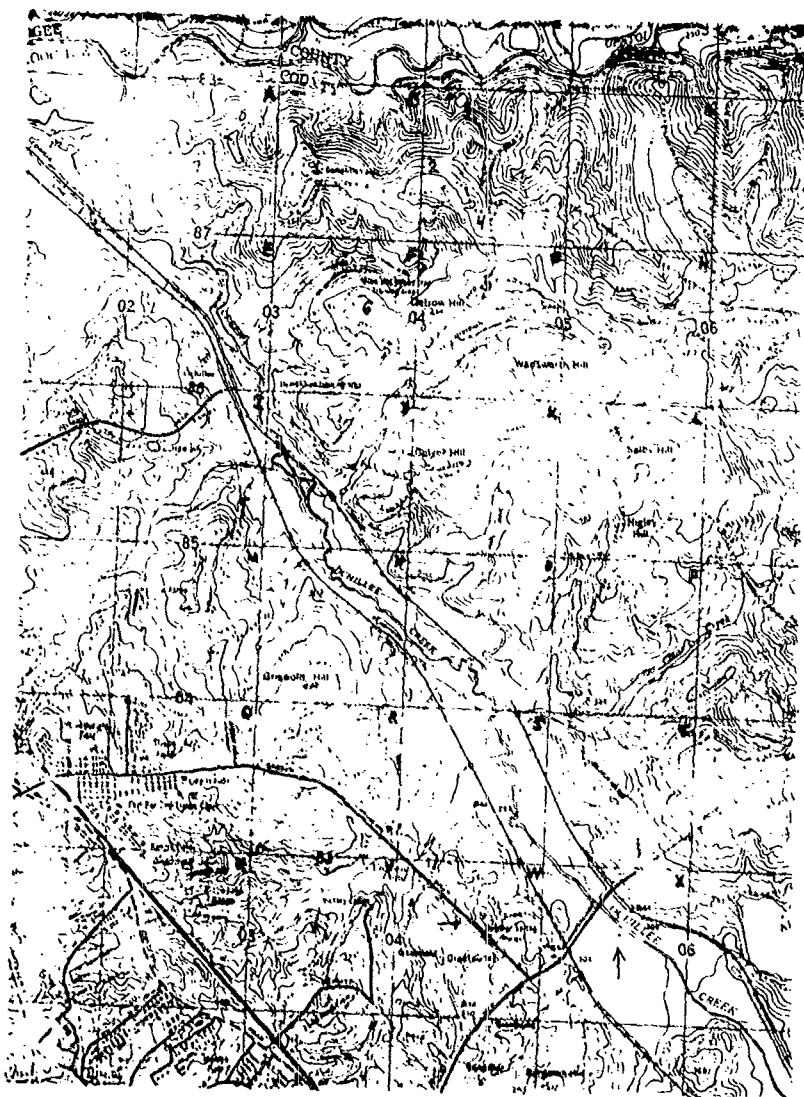
29. When concertina wire is used to protect defensive positions its distance should be approximately:
- 0 - 150m
 - 150 - 300m
 - 300 - 450m
 - 450 - 600m
30. The maneuvering element seeks an advantage in:
- fire power
 - concealment
 - field of fire
 - elevation
31. The distance between point elements and the main body is:
- dependent on visual contact
 - at maximum control distance
 - beyond the booby trap range
 - within M16 range
32. Effective range of the M16 under normal daylight conditions is:
- 600m
 - 450m
 - 300m
 - 150m
33. If possible, defending machine guns should be positioned to provide:
- flanking fire
 - frontal fire
 - plunging fire
 - grazing fire
34. Casualty radius of 81 mm HE shells is:
- 36m
 - 30m
 - 24m
 - 18m

35. A regular Infantry platoon can be expected to have:
- one PRC-77
 - two PRC-77s
 - three PRC-77s
 - four PRC-77s
36. Unless the fire request specifies otherwise, an artillery battery will:
- fire a parallel sheaf
 - fire open sheaf
 - fire converged sheaf
 - request further information
37. If enemy avenues of approach cannot be seen from a sufficient distance, the defenders should use:
- snipers
 - early warning devices
 - claymores
 - concertina wire
38. The dangerous backblast area of the M72A2 LAW extends to:
- 40m
 - 30m
 - 20m
 - 10m
39. Which of the following is not an essential element of a fire request?
- OT line
 - identification
 - method of engagement
 - warning
40. Effective range of the M18A1 claymore mine is:
- 70m
 - 50m
 - 30m
 - 10m

Questions 41 through 50 will be based on the map which follows. The map scale is 1:25000. Twenty-four of the grid squares will be used. These are lettered in the upper right.

41. Which of the following squares has an arrow pointing up hill?
 - a. U
 - b. V
 - c. W
 - d. X
42. Assuming there is no vegetation and observers have binoculars, which of the numbered points at the top of the map could see each other?
 - a. 1 - 2
 - b. 2 - 3
 - c. 3 - 4
 - d. 4 - 5
43. Which direction is Ochillee Creek flowing?
 - a. NE
 - b. SE
 - c. SW
 - d. NW
44. Which of the following points cannot be seen from point 6?
 - a. 1
 - b. 2
 - c. 4
 - d. 5
45. Which of the following squares has the steepest slope?
 - a. K
 - b. L
 - c. O
 - d. P

46. What is the elevation of Selby Hill in Square L?
- a. 480
 - b. 465
 - c. 380
 - d. 355
47. Deese Range in Square M is:
- a. on a ridge
 - b. on a hill
 - c. in a valley
 - d. in a draw
48. What are the coordinates of Hill 280 in Square E?
49. What are the coordinates of the top of Wadsworth Hill in Square G?
50. What are the coordinates of Hourglass Road Bridge in Square X?



SCORING KEY
INFANTRY KNOWLEDGE TEST

- | | |
|-------|-------------------------|
| 1. d | 26. a |
| 2. b | 27. c |
| 3. d | 28. d |
| 4. b | 29. c |
| 5. a | 30. c |
| 6. d | 31. b |
| 7. b | 32. c |
| 8. d | 33. d |
| 9. b | 34. d |
| 10. c | 35. a |
| 11. d | 36. a |
| 12. d | 37. b |
| 13. d | 38. a |
| 14. b | 39. c |
| 15. a | 40. b |
| 16. d | 41. b |
| 17. c | 42. a |
| 18. d | 43. d |
| 19. c | 44. a or d |
| 20. c | 45. d |
| 21. d | 46. b |
| 22. b | 47. a |
| 23. b | 48. 02543620 $\pm$ 100m |
| 24. a | 49. 04908612 $\pm$ 100m |
| 25. d | 50. 05408278 $\pm$ 100m |

Squad-Platoon Tactical Map Game

The squad-platoon level game involves two players--one of whom assumes the role of infantry rifle platoon leader, the other that of squad leader. Each player is provided a large scale map (1:6250) of the same piece of terrain, markers representing resources such as men, weapons, ammunition, and given specific missions which puts the players in direct conflict.

The game is controlled by a controller who views both map boards and provides needed information to the players such as the effect of enemy fire, presence of enemy when appropriate, and other information that normally becomes available in a combat situation. Game information, such as weapons effects, casualty probabilities, and seeing or hearing enemy troops or vehicles, is listed in the controller's manual so the controller is not required to be personally expert in weapons or tactics or required to make decisions about the effects of weapons. This allows relatively inexperienced people to quickly learn the role of controller.

Tables are provided in the Players Information Booklet which explain how fast the pieces can move, how far they can see and hear, how far each weapon can shoot, and what the hit probabilities are. Inexperienced players usually begin with what they have already learned about offensive and defensive tactics. As they gain experience they become more imaginative and try a variety of techniques which they believe will facilitate their winning. Techniques which work are remembered and used again; others are quickly dropped. After a great deal of game experience players learn to interpret some moves as the beginning of a certain tactic and are able to counter the tactic effectively.

The game advances by time intervals and each player is allowed to move any piece a distance on the map which is within the capabilities of the piece. For example, men cannot run 20 miles an hour, and rough or wooded terrain slows movement below normal rates. Each player's moves are directly related to the opponent's action, the terrain, his resources and mission. Encounters are resolved as they occur and each player immediately learns the effect of the encounter on his own resources though not on those of his opponent.

When a player accomplishes his mission or destroys a sufficient number of his opponent's pieces so as to render the opponent ineffective then he has won the game. The controller normally stops the game when the outcome would be obvious to all concerned (like a checkmate). The three participants then discuss what each side was trying to do and the engagements which resulted.

APPENDIX C

GAME SUMMARY PERFORMANCE REPORT FORM

Infantry Game: ROTC Program

Individual Game Summary Sheet

Directions: Fill out this sheet for every game played.

1. Game Sheet # _____
2. Attach both offensive and defensive mission orders.
3. Players:

	<u>Offense</u>	<u>Defense</u>	<u>Controller</u>
Name:	_____	_____	_____
SSAN:	____-____-____	____-____-____	____-____-____
# Games previously played or controlled	_____	_____	_____

4. Winner (check one)

5. Organization and Equipment Loss/Consumption Record

	<u>Offense</u>		<u>Defense</u>	
	<u>Start of Game</u>	<u>End of Game</u>	<u>Start of Game</u>	<u>End of Game</u>
Officers/Men	_____	_____	_____	_____
M-16	_____	_____	_____	_____
M-60	_____	_____	_____	_____
M-79/N-203	_____	_____	_____	_____
LAW	_____	_____	_____	_____
Dragon	_____	_____	_____	_____
TOW	_____	_____	_____	_____
81 mm rds	_____	_____	_____	_____
155 mm rds	_____	_____	_____	_____
Bangalore Torpedo	_____	_____	_____	_____
Starlight Scope	_____	_____	_____	_____
PRC-77	_____	_____	_____	_____
Squad Radio	_____	_____	_____	_____
TA 1 Set	_____	_____	_____	_____

ARI RM 77-15

6. Date game played: _____
7. Starting time (24 hour clock): _____
8. Total actual time to set up, play, debrief and break down playing equipment: _____ minutes.
9. Total actual time for just the playing of the game, (not including set up, debriefing, break down): _____ minutes.
10. Where played: (regular class, leadership lab, own living quarters, student union, etc).

11. Reasons for game outcome:

12. Comments on game:

APPENDIX D

GAME PEER RATING FORM

Infantry Tactics Game (Experimental)
Peer Rating

Based on your observations of fellow cadets who played the Infantry Tactics Game, predict how successful each one would be as the leader of a combat squad in an FTX, e.g., a field problem, squad in the attack or squad in the defense.

Rank, on the attached form, all of the cadets whom you engaged, controlled or observed playing in descending order, from the one you predict would be the most successful squad leader to the least successful (though all might be good).

Indicate your role or roles when you observed the cadet playing by circling the letter(s) following his name.

Do not include yourself in the ranking.

Break all ties.

Peer Rating ROTC Infantry Tactics

Rater Name (Print) _____ Rater SSAN: _____

Rater's School _____ MS II III IV (Circle)

Rank	Name of Cadet (Print)	Your Role when observing: Circle P for player C for controller O for observer		
1.	_____	P	C	O
2.	_____	P	C	O
3.	_____	P	C	O
4.	_____	P	C	O
5.	_____	P	C	O
6.	_____	P	C	O
7.	_____	P	C	O
8.	_____	P	C	O
9.	_____	P	C	O
10.	_____	P	C	O
11.	_____	P	C	O
12.	_____	P	C	O
13.	_____	P	C	O
14.	_____	P	C	O
15.	_____	P	C	O
16.	_____	P	C	O
17.	_____	P	C	O
18.	_____	P	C	O
19.	_____	P	C	O
20.	_____	P	C	O

APPENDIX E

1975 ROTC ADVANCED SUMMER CAMP EVALUATION FORMS
SAMPLE

TRADOC Reg 145-1

SECTION C - CADET EVALUATION REPORT									
SCHOOL IDENTIFICATION CODE									
NAME OF INSTITUTION									
NAME		SEX	UNIT ASSIGNED		CAMP LOCATION		CAMP CYCLE		CADET'S ARMY STANDARD SCORE
MILITARY PROFICIENCY	MAXIMUM SCORE	CADET'S SCORE	QUALIFICATION	CAMP CYCLE AVERAGE	AREAS OF LEADERSHIP POTENTIAL				
1. Rifle Marksmanship	80	75	EXPERT	65	1. Performance		Officer Evaluator 97 NCO Evaluator 100		100
2. Physical Fitness Test	500	375	PASSED	360	2. Personal Characteristics				102
3. Score Orientation			CADET'S ARMY STANDARD SCORE		3. Situations				98
4. Line Orientation			95		4. Peer Rating				96
5. Firearm Orientation			100		5. Field Problems Test				102
6. Military Skills			105		CADET'S LEADERSHIP POTENTIAL INDEX (Weighted scores of areas 1 through 5)				100
REMARKS:									

TRADOC Form 154-A

Figure N-2 For score interpretation see TRADOC Reg 145-1

PLATOON EVALUATOR PERFORMANCE DATA CARD (OFFICER)

1111 POS	DOE, JOHN D. PERFORMANCE	2183	1/44
CO-1	A. Responds quickly and appropriately to a changed situation.....	1	2 3 4 5 6 7
NO-2	B. Directs and maintains control of subordinates.....	1	2 3 4 5 6 7
FS-3	C. Thinks on his feet.....	1	2 3 4 5 6 7
PL-4	D. Keeps troops organized and initiates action forcefully.....	1	2 3 4 5 6 7
PS-5	E. Keeps troops motivated.....	1	2 3 4 5 6 7
SL-6	F. Obtains cooperation from subordinates.....	1	2 3 4 5 6 7
	G. Maintains emotional control under stress.....	1	2 3 4 5 6 7
	H. Shows ability to anticipate problems.....	1	2 3 4 5 6 7
	I. Maintains communications with subordinates.....	1	2 3 4 5 6 7
	J. Makes careful and systematic plans.....	1	2 3 4 5 6 7
SIGNATURE OF EVALUATOR		SIGNATURE OF CADET	

NOTE: Both the platoon evaluator and the platoon NCO evaluator will complete independently a Performance Evaluation on each cadet at least four times during the camp period while the cadet is serving in a leadership situation. They will rate each cadet in all of the performance areas shown on their respective data cards. For control purposes, four (red) Platoon Evaluator Performance Data Cards (officer) should be prepared for each cadet plus two or more in another color. Likewise four (blue) Platoon NCO Performance Data Cards (enlisted) should be prepared for each cadet plus two or more in another color. In each case, the latter colored cards should not be used until all red/blue cards are used.

Figure X-9

Figure 4-10

PERSONAL CHARACTERISTICS

SAMPLE DATA CARD

1111

DOE, JOHN D.

2183

12A4

PERSONAL CHARACTERISTIC

1. Takes appropriate action on his own responsibility

1 2 3 4 5 6 7

(Circle the appropriate number)

Figure N-12

PERSONAL CHARACTERISTICS

1. Takes appropriate action on his own responsibility.
2. Calm and cool under pressure.
3. Gets a job done effectively, follows through to the final desired results.
4. Knows how to handle personnel.
5. Appearance and bearing cause people to react positively.
6. Gives and executes orders firmly without creating a negative attitude.
7. Takes speedy and appropriate action.
8. Shows common sense and good judgment.

Guidelines for Rating Cadets on Personal Characteristics

Each cadet will be rated on each of the 8 statements shown by assigning a numerical value of 1 through 7 for each, as described in figure N-11. The rating procedure will be as follows: First, rate all cadets on statement number 1, then on statement number 2, and proceed in this manner until all cadets are rated on each statement.

Figure N-12 - Continued

SITUATIONS
SAMPLE DATA CARD

1111 DOE, JOHN D. 2183 12A4

SITUATION

1. Represent your viewpoint and make decisions in your name on an extremely important mission.

1 2 3 4 5 6 7

(Circle the appropriate number)

Figure N-13

SITUATIONS

1. Represent your viewpoint and make decisions in your name on an extremely important mission.
2. Be responsible in an emergency situation calling for great initiative, coolness, and dominant leadership.
3. Prepare plans for all aspects of a large undertaking (a task requiring considerable initiative, coolness, and judgment).
4. Represent you in a meeting where considerable tact and ability to get along with people are required.
5. Work on an assignment requiring great attention to detail and routine.
6. Have him lead a unit under your command.

GUIDELINES FOR RATING CADETS ON SITUATIONS

Each cadet will be rated on each of the six statements shown by assigning a numerical value of 1 through 7 for each, as described in figure N-11. The rating procedure will be as follows: First, rate all cadets on statement number 1, then on statement number 2, and proceed in this manner until all cadets are rated on each statement.

Figure N-11-Continued

TRADOC Reg 145-1

FIELD PROBLEMS TEST PERFORMANCE DATA CARD

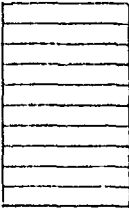
1111		DOE, JOHN D.		2183	1244
Lane Grader (Rater)		Problem	Performance		
0	0	0	A. Responds quickly and appropriately to a changing situation.....	1	2 3 4 5 6 7
1	1	1	B. Directs and maintains control of subordinates.....	1	2 3 4 5 6 7
2	2	2	C. Thinks on his feet.....	1	2 3 4 5 6 7
3	3	3	D. Keeps troops organized and initiates action forcefully.....	1	2 3 4 5 6 7
4	4	4	E. Keeps troops motivated.....	1	2 3 4 5 6 7
5	5	5	F. Obtains cooperation from subordinates...	1	2 3 4 5 6 7
6	6	6	G. Maintains emotional control under stress.....	1	2 3 4 5 6 7
7	7	7	H. Shows ability to anticipate problems....	1	2 3 4 5 6 7
8	8	8	I. Maintains communications with subordinates.....	1	2 3 4 5 6 7
9	9	9	J. Makes careful and systematic plans.....	1	2 3 4 5 6 7

Figure N-14

Peer Rating Data Cards

1111	DOE, JOHN D.	2183	12A4	
				(Green)
				PEER RATING CARD
				NOTE: In blocks to the left show the codes of 10 cadets you would be most willing to serve under.
				SIGNATURE _____

MOST LEADERSHIP CARD

1111	DOE, JOHN D.	2183	12A4	
				(Red)
				PEER RATING CARD
				NOTE: In blocks to the left show the codes of 10 cadets you would be least willing to serve under.
				SIGNATURE _____

LEAST LEADERSHIP CARD

NOTE: The use of green and red machine data cards is not required, but contrasting colors should be used.