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Technical Report 812

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The Impact of Cohesion on Platoon Performance at the Joint Readiness Training Center

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Guy L. Siebold and Dennis R. Kelly

Leadership and Management Technical Area
Manpower and Personnel Research Laboratory



U.S. Army
Research Institute for the Behavioral and Social Sciences

October 1988

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Technical Report 812

**The Impact of Cohesion on Platoon Performance
at the Joint Readiness Training Center**

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FOREWORD

A primary mission of the Leadership and Management Technical Area of the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) is to enhance Army performance through research to improve small unit leadership, cohesion, and commitment. Of special interest is research on how these factors contribute to the performance of combat units during field training exercises against an opposing force.

This research provides the first analysis of performance data from the observer/controllers on units rotating through the Joint Readiness Training Center (JRTC) and relates that data to pre-rotation unit conditions at home station. The specific focus of this report is on how the bonding in a platoon among the soldiers and the leaders, between the soldiers and their leaders, and between platoon members and their platoon as a whole impacts upon the platoon's performance at the JRTC. An important outcome of this research is the empirical validation of the cohesion instrument used to predict performance. The research involved is part of a wider project to develop measures, procedures, and technologies for small unit leaders to improve the leadership, cohesion, and commitment in their platoons and companies. It is sponsored by the U.S. Army Command and General Staff College, Fort Leavenworth, Kansas, which has reviewed this report and supports its publication.



EDGAR M. JOHNSON
Technical Director

THE IMPACT OF COHESION ON PLATOON PERFORMANCE AT THE JOINT
READINESS TRAINING CENTER (JRTC)

EXECUTIVE SUMMARY

Requirement:

Under a Memorandum of Agreement with the U.S. Army Command and General Staff College, the U.S. Army Research Institute (ARI) is conducting research to develop measures, procedures, and technologies for small unit leaders to improve leadership, cohesion, and commitment in their platoons and companies. The future battlefield will demand heightened levels of these factors for combat success. While measures of cohesion have been recently developed, they have not been anchored or calibrated in terms of small unit performance during field exercises against an opposing force. This research was performed to obtain more information on the characteristics of the cohesion measures and to assess the level of cohesion in platoons at home station and determine how the level of home station cohesion matched up with platoon performance ratings by observer/controllers during subsequent Joint Readiness Training Center (JRTC) rotation.

Procedure:

Prior to rotation to JRTC, soldiers in platoons from a light infantry battalion completed a cohesion questionnaire. When the platoons had completed the questionnaires, the authors accompanied one of the platoons during rotation to JRTC to observe the performance of the platoon, its cohesion dynamics, and the observer/controller procedures for rating performance. At the JRTC, immediately after the rotation ended, company commanders rated each of their platoons on four dimensions of performance; they repeated the rating process at home station 2 weeks later. The cohesion scores, company commander ratings, and observer/controller ratings were then analyzed and compared.

Findings:

The various platoons had different experiences and performed different tasks at the JRTC. However, nine line infantry platoons were rated on three comparable tasks (movement to contact, perimeter defense, and deliberate attack) and selected as the sample for analysis. The degree of cohesion in the nine platoons varied but was consistently correlated at a significant level only with performance of the movement to contact task. If platoon performance on the three tasks was taken as a whole and the

ratings on an outlier platoon controlled, cohesion correlated strongly and significantly with that overall platoon performance. Bonding among leaders, soldiers, and between leaders and their soldiers was a powerful component of cohesion and correlated significantly with performance. An examination of subtask ratings revealed that the "preparation" subtask was the major cohesion correlate, with r values at the .8 and .9 level. This is important to note because the planning and execution subtasks also rated were composed mostly of actions required of the platoon leader rather than the other members of the platoon.

The performance ratings provided by the company commanders were not significantly correlated with either the platoon cohesion scores or the observer/controller ratings. They were remarkably consistent between time 1 (at JRTC) and time 2 (at home station) and, with outliers controlled, in the same direction as the other scores. Given the limitations of the performance criteria, the need to control for outliers, the small number of platoons in the sample, and the need to aggregate the data to the level of overall performance, the findings must be taken with some caution. However, the findings are promising, and additional data should be collected to confirm them.

Utilization of Findings:

The results of this research further document the pattern of association between small unit cohesion and the performance of units in major field training exercises. The findings support the continuing need to assess, build, and maintain cohesion at the small unit level. The information in this report has been distributed to the brigade and battalion leadership of the rotating battalion to further develop their units. The results will be used to anchor and calibrate the cohesion instrument so that it can take a central role in the programs being created to support small unit leaders. The report should also provide useful insights to those with the difficult task of running and improving upon the JRTC.

THE IMPACT OF COHESION ON PLATOON PERFORMANCE AT THE JOINT
 READINESS TRAINING CENTER (JRTC)

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THE IMPACT OF COHESION ON PLATOON PERFORMANCE
AT THE JOINT READINESS TRAINING CENTER (JRTC)

INTRODUCTION. The purpose of this report is to describe the relationships found between measures of cohesion obtained on 9 U.S. Army light infantry line platoons at home station and the subsequent performance of those platoons at the JRTC. The JRTC performance was measured by observer/controllers in terms of whether the platoons carried out various specific actions prescribed by doctrine. The JRTC performance of the platoons was also measured by summary ratings provided by their company commanders after the rotation was completed. This report describes the measure of cohesion, the cohesion data collection, JRTC performance and data collection, the relationships found, and conclusions reached. Particular attention is given to the psychometric properties of the ratings of performance, their strong correlation with cohesion in the aggregate, their general lack of correlation with cohesion if disaggregated, and suggestions for developing better performance measures.

METHOD

COHESION RATINGS. Cohesion is conceptualized as the degree to which mechanisms of social control operant in a unit maintain a structured pattern of social relationships between unit members, individually and collectively, necessary to achieve the unit's purpose. To be more specific, cohesion is conceptualized in terms of the bonding between first term soldiers (horizontal bonding), between first term soldiers and their leaders (vertical bonding), and between all the soldiers and their unit (organizational bonding) as in Siebold 1987a, Siebold and Kelly 1987a, and Siebold 1987b. Each type of bonding is further considered to have an affective (feeling) and an instrumental (task) aspect to it. Based on this conceptualization, extensive interviews with soldiers, and past research, a questionnaire measure of cohesion was developed. This measure was subsequently refined into a brief 20 item questionnaire addressing the three types of bonding and their instrumental and affective aspects (Siebold and Kelly, 1988). A copy of the measure, known as the Platoon Cohesion Index (PCI), is provided as Appendix A. The 20 items break out into the subject matter bonding scales as shown in Table 1.

The 20 item questionnaire was administered to 18 line and headquarters platoons from a COHORT light infantry battalion two weeks before their battalion rotation to the JRTC. Three of the companies of the battalion were formed in fall of 1985; one was formed in fall of 1986. The line companies were all COHORT. The Headquarters Headquarters Company (HHC) was not COHORT, but some of its personnel were transferred from the line companies and were thus within the COHORT cycle. The questionnaire was administered to one company at a time in the battalion classroom by Army Research Institute personnel. Responses to the questions were recorded on a machine readable answer sheet.

Table 1

Platoon Cohesion Index (PCI) Cohesion Scales
and Corresponding Question Numbers

Cohesion Scales	Scale Abbreviation	Question Number
Horizontal Bonding	HB	
HB-Affective	HB-A	3,4
HB-Affective, Leaders	HB-A,L	7,8
HB-Instrumental	HB-I	5,6
Vertical Bonding	VB	
VB-Affective	VB-A	9,10
VB-Instrumental	VB-I	11,12
Organizational Bonding	OB	
OB-Affective, Values	OB-A,V	1,2
OB-Affective, Pride	OB-A,P	15,16
OB-Instrumental, Anomie	OB-I,A	13,14
OB-Instrumental, Needs	OB-I,N	17,18
OB-Instrumental, Goals	OB-I,G	19,20

Note. The PCI is presented at Appendix A.

OBSERVER/CONTROLLER RATINGS. The Joint Readiness Training Center, located at Fort Chaffee, Arkansas, is designed to provide an advanced level of collective training for contingency forces in deployment and tactical operations under anticipated conditions of low to mid-intensity combat. Battalion size task forces operate against a similar size, highly capable opposing force under controlled scenarios specifically tailored for each rotation. Action follows specified rules of engagement and continues around the clock for the 12 day deployment and field training exercise. A permanent cadre of professional trainers provides extensive feedback to the training units on performance to standard. They provide several after action reviews (AARs) at the platoon, company, and task force levels throughout the rotation. These AARs cover planning, preparation, and execution of missions. Additional feedback includes take-home packages and lessons learned.

During the rotation, each platoon has an assigned observer/controller team consisting of a Captain and two senior NCOs. As input to the AARs and other feedback, the team assesses the platoon in terms of whether it performed or did not perform various subtask components to standard and whether for a task the platoon was generally trained, trained but needed more practice, or was untrained. Based on these and other assessments, a senior Captain similarly rated each company for each phase of the rotation. In a like manner, performance assessments were aggregated up as input to the task force level assessment.

As the task force considered in this research arrived at the JRTC, it began to work through the scenarios of the field training exercise (FTX). The light infantry companies went through several phases of activity or "tasks." These tasks were carried out by one or more companies and included a strategic deployment, movement to contact, perimeter defense, infiltration to attack, rear area combat operations, and an air assault. Not all platoons participated or were rated on all tasks. In order to compare platoon performance, three tasks were selected on which all or most of the platoons were rated. These three tasks were 1) movement to contact, 2) perimeter defense, and 3) participate with company in an infiltration and attack.

Each task was divided into the three subtasks of planning, preparation, and execution. Each subtask in turn was further divided into a number of smaller components known as indicators of performance (IOPs). The three selected tasks, their subtasks, and their component IOPs are presented at Appendix B. For each subtask, the observer/controllers rated each platoon on whether they performed each IOP. The IOP ratings were simply "yes," "no," or "not rated."

In order to generate quantitative ratings, the number of yes IOP ratings was divided by the number of yes or no IOP ratings together to obtain a ratio number of "successful" performance outcomes to possible performance outcomes. These yes IOP ratio numbers were computed for each platoon on each subtask (planning, preparation, and execution) of each one of the three tasks. For example, the planning subtask of Task 1 has five

IOPs. If a platoon received a "yes, done to standard" rating on three of the IOPs, a "no" on one, and a "not rated" on the remaining IOP, the yes ratio would be 3 divided by 4 or .75. To obtain a quantitative task level rating, the yes IOP ratio number for a platoon on one subtask of a task was added together with that of the other two subtasks and divided by three. For example, if for Task 1 the planning subtask ratio was .75, the preparation ratio was .25, and the execution ratio was .80, the Task 1 rating for the platoon would be $.75 + .25 + .80 (=1.80)$ divided by three or .60. This method of course weights each subtask equally. In essence, the procedure to obtain the quantitative ratings is the same one would use to compute a percentage, except that the ratio is not multiplied by 100 as the last step.

COMPANY COMMANDER RATINGS. The performance of the platoons which were given the cohesion questionnaire was assessed by their respective company commanders immediately after completion of the last JRTC mission. Specifically, the ratings were given by the commanders in their JRTC barracks area before they had a chance to clean up from the field and before the final set of AARs. Commanders rated their platoons on how well they performed in terms of 1) medical/physical fitness (stamina, injuries, problems from exposure to the elements), 2) morale/positive attitude (the extent to which the chain maintained good cheer, a positive mission orientation, and discipline among the soldiers), 3) general tactics (such as on movement, platoon noise and sleep discipline, sanitation, and security), and 4) specific mission tactics. The companies had been rated on these four performance dimensions on a prior exercise by their brigade. The commanders used a 10 point rating scale going from 1=extremely poor to 10=perfect, with 5=average performance on the dimension.

To determine the stability of these ratings, the company commanders were asked to rate their respective platoons again two weeks later. These ratings took place back at home station in the offices of the company commanders. The same dimensions, scales, and rating forms were used.

RESULTS

COHESION RATINGS. The results will be presented here and in the following sections only for the directly comparable 9 line platoons. Results from the line company headquarters platoons and the HHC specialty platoons were generally similar to the 9 line platoons, but much of the data on them is missing. For example, the Scout Platoon did not take the cohesion questionnaire, and many of the other platoons were not rated on the same tasks as the line platoons by the observer/controllers.

The average ratings of their platoon by platoon members on each cohesion scale are presented in Table 2. By normative standards, a rating of .5-1.0 is considered good/standard. A rating above 1.0 is considered very good/exceeds standard. A rating of 0-.5 is marginally good/somewhat below standard while a rating below 0 is considered to be below standard. The Needs

Table 2

Cohesion Scale Mean Scores for Platoons in Companies X, Y, and Z

Scale	Platoon								
	X,P1	X,P2	X,P3	Y,P1	Y,P2	Y,P3	Z,P1	Z,P2	Z,P3
HB-A	-.09	-.36	.36	.54	.85	.87	.21	-.03	-.04
HB-I	.63	.42	1.06	.95	1.20	1.08	1.02	.82	.80
HB-A,L	-.44	.54	.58	.77	1.12	1.06	.50	.32	.66
VB-A	-.27	.19	.60	.35	1.11	.72	.54	.29	.12
VB-I	.11	.57	.60	.75	1.22	.79	.67	.62	.68
OB-A,V	-.07	.17	.64	.43	.79	.66	.13	.34	.37
OB-A,P	-.07	.53	.90	.26	.90	.69	.78	.31	.59
OB-I,A	.78	1.21	1.26	1.18	1.42	1.16	1.52	1.03	.87
OB-I,N	-.62	-.50	-.62	-.55	.14	.12	-.40	-.41	-.13
OB-I,G	.31	.62	.58	-.03	.83	.58	.65	.36	.62
n	22- 23	12- 14	24- 25	23- 24	27	23- 24	23	15- 17	15- 16

Note. X,P1=Company X, 1st platoon; X,P2=Company X, 2nd platoon; etc. Full names for scale abbreviations are contained in Table 1. Scale values can vary between -2 to +2, with 0 as a neutral level of cohesion. n=the number of soldiers in platoon responding, which varied per scale.

scale is somewhat different with average ratings usually well below that of the other scales. The tables show that there are noticeable differences between platoons on the scales, even within the same company. However, the ratings are generally positive; there are few platoons with consistently high or low average ratings across the scales.

COMPANY COMMANDER RATINGS. The ratings on platoon performance made by the company commanders showed only moderate variation (Table 3). For the original ratings made after the last mission at the JRTC, one company commander rated his platoons as about the same, although varying his rating by dimension. The other commanders saw differences among their platoons. The range of original platoon performance ratings using the 10 point scale was from 4-8 for one company commander, from 7-8 for the second commander, and from 6-9 for the third.

The range of ratings on their platoons two weeks later was less. The first company commander's range was from 5-8; the second commander gave each platoon an 8; and the third company commander again gave a range of performance from 6-9. However, averaging across the four performance dimensions, the company commanders still rated the same platoons as the highest or lowest performers two weeks later as they did originally. There was no one performance dimension on which the company commanders as a group rated their platoons as doing extremely well or very poorly. They typically saw their platoons as performing at average or well above average levels in all dimensions.

The cohesion scale scores from the questionnaire given at home station before the JRTC rotation were correlated with the ratings of platoon performance by the company commanders at the JRTC (time 1) and two weeks later at home station (time 2). The results, displayed in Table 4, showed that there were only two significant correlations (at the .05 level); both were at time 2 between the two first term horizontal bonding scales and whether the platoons had high morale and kept a positive attitude during the JRTC rotation. The level of the correlations (.65, .71) was fairly strong, as required for significance with such a small number of cases/platoons. The organizational bonding-needs scale and the vertical bonding-instrumental scale correlations at time 2 with morale/positive attitude were just shy of significance as were a few other correlations. While one might conclude that home station bonding among the soldiers facilitates their keeping a positive attitude at the JRTC, overall there was not a pattern indicating a significant relationship between cohesion and the commander ratings on the four dimensions of performance.

Looking across the rows of Table 4, one can see that the horizontal bonding-instrumental scale (first term teamwork) has a fairly strong and consistent pattern of positive correlations with the performance dimensions as does the organizational bonding-instrumental, needs scale (whether soldiers' basic needs were being met at home station). Looking down the columns of Table 4, one can see that medical/physical fitness ratings were generally correlated with the cohesion scales at a moderate level

Table 3

Performance Ratings by Dimension as Provided by the Company
Commander for Platoons in Companies X, Y, Z

Dimension	Platoon								
	X,P1	X,P2	X,P3	Y,P1	Y,P2	Y,P3	Z,P1	Z,P2	Z,P3
Medical	4/7	5/6	6/6	8/8	8/8	8/8	9/9	9/9	9/9
Attitude	7/6	5/5	7/6	8/8	8/8	8/8	8/8	6/7	9/8
Tactics	7/8	5/6	5/7	7/8	7/8	7/8	7/8	6/6	8/9
Mission	8/8	6/6	5/7	7/8	7/8	7/8	7/8	8/7	9/9

Note. X,P1=Company X,1st platoon; X,P2=Company X,2nd platoon; etc. The number to the left of slash is the time 1 rating (at the JRTC). The number to the right of slash is the time 2 rating (made at home station two weeks later). Ratings were made using a 1 (extremely poor) to 10 (perfect) scale, with 5 being average.

Table 4

Correlations between Platoon Cohesion Scale Means and
Company Commander Ratings by Performance Dimension

Scale	Company Commander Ratings			
	Medical	Attitude	Tactics	Mission
HB-A	.37 / .18 .32 / .63	.56 / .65 .11 / .05	.29 / .40 .44 / .27	-.19 / .56 .60 / .11
HB-I	.55 / .34 .11 / .35	.63 / .71 .06 / .03	.28 / .40 .45 / .27	-.16 / .58 .67 / .09
HB-A,L	.56 / .18 .11 / .63	.37 / .54 .32 / .12	.10 / .17 .79 / .65	-.24 / .11 .52 / .77
VB-A	.45 / .11 .21 / .76	.27 / .46 .46 / .20	-.03 / .05 .92 / .87	-.41 / .15 .26 / .68
VB-I	.61 / .31 .07 / .40	.36 / .59 .32 / .08	.17 / .16 .65 / .67	-.12 / .18 .75 / .62
OB-A,V	.38 / .02 .30 / .95	.33 / .41 .38 / .26	-.02 / .10 .95 / .78	-.31 / .13 .41 / .73
OB-A,P	.37 / .00 .32 / .98	.25 / .25 .51 / .50	-.15 / .06 .69 / .86	-.47 / -.05 .19 / .89
OB-I,A	.31 / .00 .41 / .98	.04 / .24 .90 / .52	-.23 / -.11 .54 / .76	-.59 / -.04 .08 / .89
OB-I,N	.51 / .44 .15 / .23	.49 / .63 .17 / .06	.49 / .41 .17 / .27	.28 / .41 .46 / .26
OB-I,G	.10 / -.02 .79 / .94	.06 / .00 .86 / .98	-.06 / .04 .87 / .91	-.15 / -.11 .69 / .76

Note. For each cell, the top number to the left of the slash represents the correlation between the scale means and the time 1 ratings (at the JRTC); the top number to the right of the slash represents the correlation between the scale means and the time 2 ratings (two weeks later at home station). The bottom numbers represent the significance level of each correlation. n=9.

and in a positive direction, although not significantly, especially at time 1. The highest levels of correlation appeared in the morale/positive attitude columns, especially at time 2. The general tactics and specific mission performance columns show inconsistent and low levels of correlation with cohesion. The specific mission performance column at time 1 suggests a negative correlation with cohesion while the column at time 2 suggests a somewhat positive correlation. Generally, time 2 ratings on the performance dimensions were more positively and strongly correlated with the cohesion scales than were the time 1 ratings. While one might speculate on some underlying causes of these patterns and whether the time 1 or time 2 commanders' ratings were more accurate, it must be remembered that the figures are based on scores on only 9 platoons and that the commanders' ratings were very restricted in range.

During the JRTC rotation, the first author accompanied the observer/controllers into the field to observe the 1st Platoon of Company X, and the second author did the same with the 1st Platoon of Company Y. The authors noted that the company commanders were very busy and only intermittently had time to actually observe how and what their platoons were doing. As per doctrine, the company was geographically dispersed most of the time. The assessment of platoon performance by company commanders was probably based primarily on radio communications, verbal interaction during planning or down times, AARs done by the company level observer/controllers, and whether the platoons seemed to be carrying out their missions. Further, the company commander ratings were undoubtedly influenced by how well the company as a whole and the commanders themselves performed. In addition, the actions of the platoons and companies were heavily orchestrated by the battalion task force and allowed little freedom of action at the platoon level. Given these and other factors, it is perhaps not surprising that the cohesion scale scores correlated little with the overall assessments of the platoons by their company commanders.

After each company commander completed his second set of ratings, he was informed that the correlations between the platoon performance ratings of the commanders and the cohesion scales were erratic and was asked what he thought the reason for that might be. The commanders provided several speculations. One said that it might be a function of the commanders' disappointment with the performance of the platoons which they expected to do well but which underperformed for one reason or another and thus got lower ratings than they should have. Another thought that maybe in the platoons with the high cohesion scores the leaders were trying to be too friendly with the soldiers, to be buddy buddies. Then at the JRTC, the leaders didn't want to make waves or irritate their buddies by pushing them too hard, and platoon performance was therefore lower. The third company commander thought that the JRTC requirements were the problem. He felt that the NCOs (and platoons) didn't get to show their stuff because the action and movements were at the company level and dominated by battalion plans. Thus there was no appropriate platoon performance to link the cohesion scores

to. While there was no consensus on why the cohesion scores were not clearly related to their platoon performance ratings, they all agreed that the squad leaders were the real key to the level of platoon performance.

OBSERVER/CONTROLLER RATINGS. The general pattern of performance ratings by the observer/controllers is presented in Table 5. The table shows the average ratio of yes IOP ratings for each of the 3 tasks and their subtasks for the nine light infantry line platoons. It also shows the lowest and highest ratios (range) among the platoons of yes IOP ratings per task and subtask. As the reader will note, on the average only one third to one half of the IOPs were given a yes rating. The range figures show that some platoons did not perform any of the IOPs for some subtasks while other platoons performed most or all of the IOPs for the same subtask. Putting it succinctly, performance of the IOPs (i.e., actually doing them) was low for almost all subtasks and as aggregated at the task level. For any given subtask, the number of IOPs performed varied greatly over the 9 platoons.

While Table 5 focuses on the typical performance and range of performance on the tasks and subtasks, Table 6 presents performance in terms of the individual platoons. Looking down the columns, one can see that most platoons had one or more subtasks where they did less than 20% (.20) of the IOPs. All platoons had at least one subtask where they performed 80% or more of the IOPs. In general, the number of IOPs performed by a platoon varied substantially from one subtask to another. There were a few platoons which typically performed few of the IOPs (or had a more stringent observer/controller) and no platoons which stood out as consistently performing a high percentage of IOPs, although some platoons had consistently better ratings than others. Most platoons performed fewer IOPs during Task 2 (conduct a perimeter defense) than during Tasks 1 or 3. Seven of the platoons performed more IOPs during Task 1 (movement to contact) than during Tasks 2 or 3. Preparation appears to be the subtask with the least amount of IOPs performed across the platoons. It is not clear whether these patterns indicate that the platoon leadership did not know what to do, that they did not have time to do the IOPs, that there was insufficient delegation, or that the ratings by the observer/controllers were idiosyncratic. In any case, no platoon was rated as doing a high percentage of the subtask IOPs across all tasks and subtasks.

The correlations of the performance ratings across the tasks and across each subtask are given in Tables 7-10. Table 7 shows that the rating a platoon received on Task 1 was negatively (but not significantly so) correlated with the ratings it received on Tasks 2 and 3. On the other hand, the rating received on Task 2 was highly correlated with the rating the platoon received on Task 3. The same pattern holds for the planning subtasks as presented in Table 8. The preparation subtasks shown in Table 9 have no clear pattern or significant correlations, i.e., how a platoon was rated on preparation on one task had no clear relationship to how it was rated on preparation on another task. However, in Table 10 the rating a platoon received on execution

Table 5

Mean Platoon Training Evaluation Ratings and Range Provided
by Observer/Controllers at the JRTC for Tasks and Subtasks

Task/Subtask	Mean	Range
1	.53	.31-.80
plan	.80	.20-1.0
prep	.38	.00-.75
exec	.43	.00-1.0
2	.33	.06-.66
plan	.31	.00-.78
prep	.31	.00-1.0
exec	.42	.18-.77
3	.48	.25-.80
plan	.49	.33-.66
prep	.40	.00-.80
exec	.56	.23-1.0

Note. Platoon Training Evaluation Ratings refer to the percentage of Indicators of Performance (IOPs) performed to a standard by a platoon for tasks and subtasks (planning, preparation, and execution). For example, the Task 1 planning subtask mean of .80 indicates indicates that on the average, 80 percent of its IOPs were done to standard by the platoons. Task 1=movement to contact; Task 2=perimeter defense; Task 3=operate as part of a company (deliberate attack). For n, see Table 6.

Table 6

Mean Platoon Training Evaluation Ratings by Observer/Controllers
at the JRTC for Tasks and Subtasks by Platoon

Task/ Subtask	Platoon								
	X,P1	X,P2	X,P3	Y,P1	Y,P2	Y,P3	Z,P1	Z,P2	Z,P3
1	.41	.40	.48	.69	.80	.61	.31	.51	.62
plan	1.00	.20	.80	1.00	1.00	1.00	.60	.80	.80
prep	.25	.00	.25	.75	.75	.50	.00	.25	.75
exec	.00	1.00	.40	.33	.66	.33	.33	.50	.33
2	.12	.66	.31	.10	.32	.64	.30	.47	.06
plan	.10	.78	.33	.10	.28	.57	.14	.57	.00
prep	.00	.50	.00	*	.50	1.00	.00	.50	.00
exec	.27	.70	.62	*	.18	.36	.77	.33	.18
3	.28	.80	*	.41	.50	.60	.64	.41	.25
plan	.33	.60	*	.50	.50	.66	.50	.50	.33
prep	.00	.80	*	.20	.40	.60	.80	.20	.20
exec	.50	1.00	*	.53	.60	.53	.63	.53	.23

Note. Platoon Training Evaluation Ratings refer to the percentage of components performed to standard by a platoon for tasks and subtasks (planning, preparation, and execution). X,P1=Company X, 1st platoon; X,P2=Company X, 2nd platoon; etc. Task 1=movement to contact; Task 2=perimeter defense; Task 3=operate as part of a company (deliberate attack). *=missing data.

Table 7

Inter-Correlations of
Task Ratings

	Task1	Task2
Task2	-.18 .63 9	
Task3	-.31 .44 8	.79 .01 8

Note. Task 1=movement to contact; Task 2=perimeter defense; Task 3=operate as part of a company (deliberate attack). Ratings on each platoon were done by an assigned observer/controller at the JRTC. Each cell provides the correlation coefficient (top), significance level (middle), and number of platoons (bottom).

Table 8

Inter-Correlations of Planning
Subtask Ratings

	Plan1	Plan2
Plan2	-.50 .16 9	
Plan3	-.27 .51 8	.77 .02 8

Note. Plan1=rating of planning subtask for Task 1; Plan2=rating of planning subtask for Task 2; Plan3=rating of planning subtask for Task 3. Ratings on each platoon were done by an assigned observer/controller at the JRTC. Each cell provides the correlation coefficient (top), significance level (middle), and number of platoons (bottom).

Table 9

Inter-Correlations of
Preparation Subtask Ratings

	Prep1	Prep2
Prep2	.18	
	.66	
	8	
Prep3	-.50	.32
	.19	.48
	8	7

Note. Prep1=rating of preparation subtask for Task 1; Prep2=rating of preparation subtask for Task 2; Prep3=rating of preparation subtask for Task 3. Ratings on each platoon were done by an assigned observer/controller at the JRTC. Each cell provides the correlation coefficient (top), significance level (middle), and number of platoons (bottom).

Table 10

Inter-Correlations of
Execution Subtask Ratings

	Exec1	Exec2
Exec2	.31	
	.45	
	8	
Exec3	.72	.70
	.04	.07
	8	7

Note. Exec1=rating of execution subtask for Task 1; Exec2=rating of execution subtask for Task 2; Exec3=rating of execution subtask for Task 3. Ratings on each platoon were done by an assigned observer/controller at the JRTC. Each cell provides the correlation coefficient (top), significance level (middle), and number of platoons (bottom).

for Task 1 was positively correlated with the execution rating it received on Task 2 and positively (and significantly) correlated with the execution rating on Task 3. Ratings on Tasks 2 and 3 were also positively correlated. In essence, there was some consistency between a platoon's performance of IOPs in the execution of tasks but not in the subtasks of planning and preparation. It is not clear why these patterns occurred. The data are presented here so that the reader can understand the complexities of the observer/controller performance ratings.

Tables 11-13 provide a different perspective. They present the intercorrelations of the subtask ratings as well as the subtask correlations with the aggregated full task rating for each of the three JRTC performance tasks. Since the full task rating was computed by averaging the three subtask ratings, it is not surprising to find that there is a generally a high and positive correlation between the subtasks and the full task. The planning and preparation subtask ratings for a given task are typically strongly and significantly correlated with each other and the full task rating. The execution subtask ratings relate to the others in an erratic fashion; it doesn't appear that good planning and preparation result in good execution, as rated. It is interesting to find that only in Task 3 (operate as part of a company in a deliberate attack) are all subtask ratings strongly and positively correlated with one another. As a note, there was also a break in the action of a day and one half between Tasks 2 and 3 so that the dug in positions from the perimeter defense could be returned to a natural state, the concertina wire and mines removed, and the AARs conducted. The very cold weather also turned much warmer, and the soldiers had a chance to become more acclimated. The platoon and company leaders obviously had more time and JRTC experience to plan for Task 3.

In review, of the JRTC performance ratings on the number of indicators of performance done per subtask and task, there were typically only about 30-50% done. For any given platoon, the number done per task or subtask was highly variable, with Task 2 among the tasks and preparation among the subtasks usually being the lowest rated. Performance on Tasks 2 and 3 were highly correlated with each other but not with Task 1; ratings on the execution subtasks were all positively correlated with each other while those of the planning and preparation subtasks were not. Within a task, ratings on the planning and preparation subtasks were strongly correlated with each other but not with the execution subtask, except for Task 3.

The issue of central concern to this report is the relationship of home station measures of cohesion to platoon performance at the JRTC. That relationship, in terms of the ratings by the observer/controllers, is portrayed in Table 14. Looking at the table as a whole and noting significant correlations (at the .05 level), one can see that there are few. In other words, there is no consistent pattern of significant correlations between the home station measures of cohesion and the number of IOPs per subtask or task rated as performed at the platoon level at the JRTC. Nonetheless there are some interesting patterns of correlation which can be examined for

Table 11

Inter-Correlations of Task 1
and Its Subtask Ratings

	Task1	Plan1	Prep1
Plan1	.60		
	.08		
	9		
Prep1	.93	.68	
	.0003	.04	
	9	9	
Exec1	.08	-.68	-.18
	.83	.04	.62
	9	9	9

Note. Task 1=movement to contact; The subtasks were planning (Plan1), preparation (Prep1), and execution (Exec2). Each cell provides the correlation coefficient (top), significance level (middle), and number of platoons (bottom).

Table 12

Inter-Correlations of Task 2
and Its Subtask Ratings

	Task2	Plan2	Prep2
Plan2	.95		
	.0001		
	9		
Prep2	.81	.73	
	.01	.03	
	8	8	
Exec2	.39	.33	-.16
	.32	.42	.69
	8	8	8

Note. Task 2=perimeter defense. The subtasks were planning (Plan2), preparation (Prep2), and execution (Exec2). Each cell provides the correlation coefficient (top), significance level (middle), and number of platoons (bottom).

Table 13

Inter-Correlations of Task 3
and Its Subtask Ratings

	Task	Plan3	Prep3
Plan3	.82 .01 8		
Prep3	.93 .0007 8	.71 .04 8	
Exec3	.86 .005 8	.62 .09 8	.66 .06 8

Note. Task3=operate as part of a company (deliberate attack). The subtasks were planning (Plan3), preparation (Prep3), and execution (Exec3). Each cell provides the correlation coefficient (top), significance level (middle), and number of platoons (bottom).

Table 14

Correlations between Cohesion Scale Mean Scores and
Observer/Controller Ratings by Task and Subtask

Observer/Controller Task and Subtask Ratings												
Scale	T1	Plan	Prep	Exec	T2	Plan	Prep	Exec	T3	Plan	Prep	Exec
HB-A	.66	.66	.57	-.15	.03	-.11	.46	-.26	.03	.38	.05	-.22
	.04	.05	.10	.69	.84	.75	.24	.52	.94	.34	.88	.59
HB-I	.51	.61	.45	-.23	-.11	-.28	.15	-.16	-.07	.20	.04	-.38
	.15	.07	.21	.54	.75	.46	.71	.69	.85	.63	.91	.35
HB-A,L	.65	.08	.50	.44	.29	.18	.55	-.05	.36	.58	.43	.02
	.05	.83	.16	.22	.43	.62	.15	.89	.37	.12	.28	.94
VB-A	.51	.19	.28	.34	.32	.18	.44	.02	.39	.56	.44	.11
	.15	.61	.45	.36	.39	.64	.27	.95	.32	.14	.26	.77
VB-I	.71	.16	.53	.45	.17	.08	.44	-.19	.24	.41	.30	.00
	.02	.67	.13	.21	.65	.83	.27	.64	.55	.30	.45	.99
OB-A,V	.75	.39	.58	.24	.19	.14	.47	-.27	.07	.44	.08	-.16
	.01	.29	.09	.52	.61	.70	.23	.50	.85	.27	.83	.69
OB-A,P	.19	-.17	.05	.41	.30	.14	.13	.28	.50	.45	.68	.13
	.62	.65	.89	.26	.43	.70	.74	.49	.20	.26	.06	.75
OB-I,A	.02	-.23	-.17	.43	.32	.17	.15	.55	.69	.58	.74	.48
	.95	.53	.65	.23	.39	.65	.71	.15	.05	.12	.03	.22
OB-I,N	.62	.31	.53	.15	.24	.07	.60	-.52	.07	.30	.20	-.26
	.07	.40	.13	.69	.52	.84	.10	.17	.86	.46	.62	.52
OB-I,G	-.01	-.30	-.14	.41	.36	.22	.14	.09	.38	.16	.54	.16
	.96	.42	.71	.26	.33	.56	.72	.82	.34	.69	.16	.69

Note. Task 1 (T1)=movement to contact; Task 2 (T2)=perimeter defense; Task 3 (T3)=operate as part of a company (deliberate attack). Planning (Plan), preparation (Prep), and execution (Exec) subtask columns correspond with the task column to their immediate left. Each cell contains the correlation coefficient (top) and significance level (bottom). Nine platoons were rated for Tasks 1 and 2, and eight platoons were rated for Task 3.

exploratory purposes.

Looking across the rows, one can see that horizontal bonding-affective, leaders (peer bonding among leaders) is positively correlated with each task and principally due to the correlation with the preparation subtask with which it has correlations of .50, .55, and .43. It may be that where there is strong bonding among the leaders, that bonding facilitates the accomplishment of those preparation types of tasks during an FTX. One can also note that organizational bonding-instrumental, anomie (soldiers know what is expected of them) increases in level of correlation from Task 1 to 2 to 3 (.02 to .45 to .69) and in the planning and preparation subtasks as well while being consistently related to the execution subtask (.43, .55, and .48). This implies that where there are clear expectations in a platoon at home station, the processes that generate them begin to show up in FTX leader performance over time and facilitate task execution by the platoon. But these notions are only speculations and require more evidence.

Looking down the columns, one can notice that there are a number of strong correlations, many of them significant, between the cohesion scale scores and Task 1 performance. There is no similar pattern with Task 2 or 3. Why this is so is not clear. It may be a function of the particular task or that Task 1 was the first task performed or just chance. Examining the subtask components of Task 1 does not help to explain it; there is no meaningful pattern there. Among the subtask columns, preparation within each task is generally related in a positive, moderate way with the cohesion scales. Again, it is not clear why from an examination of correlations with specific cohesion scales. In summary, home station cohesion appears not to correlate with the performance of IOPs for subtasks or tasks in any consistent or meaningful pattern.

During the look at the relation between home station measures of cohesion and company commanders' ratings of the JRTC performance of their platoons, little correlation was found between them. Since little correlation was found between the home station cohesion measures and observer/controllers' ratings of IOPs being carried out at JRTC, one possible explanation for the general lack of correlation is that there was no correlation between cohesion and JRTC performance. This explanation can be examined indirectly by seeing whether the company commanders' summary ratings of performance confirm the observer/controller ratings. Table 15 presents the evidence. Putting it mildly and considering that different measures were used to assess somewhat different aspects of performance, the company commanders and the observer/controllers don't agree. Most significant correlations are strongly negative. In short, and considering the properties described above of each system for measuring performance, neither the company commanders' ratings nor the observer/controller ratings were adequate criteria to assess the relationship between cohesion and JRTC performance.

The results presented thus far with the observer/controller ratings have been at the disaggregated level of individual tasks and subtasks. One of the problems with using this level is that

Table 15

Correlations between Company Commander and Observer/Controller
Ratings of Platoon Performance

CO Rat- ings	Observer/Controller Ratings											
	T1	Plan	Prep	Exec	T2	Plan	Prep	Exec	T3	Plan	Prep	Exec
Med	.22	.31	.34	-.29	-.26	-.37	.03	-.36	-.41	-.23	-.17	-.69
	.55	.40	.36	.44	.49	.31	.92	.37	.30	.57	.67	.05
Attd	.55	.56	.64	-.33	-.31	-.48	.16	-.40	-.29	-.02	-.08	-.64
	.12	.11	.06	.38	.40	.18	.70	.31	.47	.96	.84	.08
Tact	.36	.55	.62	-.60	-.65	-.81	-.26	-.45	-.51	-.48	-.26	-.71
	.32	.11	.07	.08	.05	.01	.51	.26	.19	.24	.52	.04
Misn	.39	.78	.58	-.73	-.59	-.76	-.12	-.51	-.56	-.38	-.38	-.74
	.29	.01	.09	.02	.08	.01	.76	.19	.14	.34	.35	.03

Note. Task 1 (T1)=movement to contact; Task 2 (T2)=perimeter defense; Task 3 (T3)=operate as part of a company (deliberate attack). Planning (Plan), preparation (Prep), and execution (Exec) subtask columns correspond with the task column to their immediate left. Company commander (CO) rating dimensions of platoon performance were Medical/Physical Fitness (Med), Morale/Positive Attitude (Attd), General Tactics (Tact), and Specific Mission Tactics (Misn). Each cell contains the correlation coefficient (top) and significance level bottom). Nine platoons were rated for Tasks 1 and 2, and eight platoons were rated for Task 3.

the number of IOPs per subtask is limited. While the patterns in such data can be instructive, a truer picture of overall platoon performance, as the observer/controllers saw it, can be obtained by aggregating or rolling up the average IOP ratings from all subtasks to get the average ratio of yes IOP ratings to yes and no ratings for all the tasks as a whole. Table 16 presents the (over all tasks) average yes IOP ratio for each of the 9 platoons and the rank order of the platoons in terms of that ratio. For comparison, the table similarly presents the sum of the company commander performance ratings at time 1 and at time 2 and the average cohesion scale score. In short, Table 16 provides an overview of platoon cohesion and JRTC performance.

A quick examination of the rank ordering indicates that there were two platoons for which the performance ratings appear clearly inconsistent. The 2nd Platoon of Company X (X,P2) received the highest rating by an observer/controller and the lowest rating by a company commander. The low cohesion score, which has been a reasonably accurate predictor of performance in the past (Siebold and Kelly, 1987b), would suggest that the company commander rating was more accurate. Perhaps the observer/controller rating the platoon was using a much less stringent standard than the other observer/controllers or was, in essence, an easier "grader." That there may have been a rater "problem" can be seen by referring back to Table 6. For Task 1, the X,P2 platoon received only .20 and .00 for the planning and preparation subtasks but was given a 1.00 for execution. Assuming that planning and preparation should affect execution, the execution rating appears exaggerated. The highest rated task for X,P2 was Task 3 (operate with the company in an infiltration and attack). The first author, following X,P1, observed the performance of the whole company during this task and noticed no particular difference between the performance of the platoons; none did especially well. Therefore, the ratings on X,P2 seem suspect. The authors further observed at JRTC that the observer/controllers had difficulty in assigning a yes or a no to a given IOP because much of the time platoon performance of an IOP was marginal. Thus a rater with just a little tendency to be lenient might give a much higher proportion of yes ratings.

The 3rd Platoon of Company Z (Z,P3) received a low rating from its observer/controller but top rating from its company commander. In this case, the cohesion score would suggest that the observer/controller was more accurate, although he might have been a less lenient rater. The commander of Company Z did have a tendency to give high performance ratings compared to the other commanders. Perhaps he rated the 3rd Platoon so high because of its performance at a prior FTX or on tasks at JRTC not included in this analysis. Also, the commander felt the strength of the platoon was in its squad leaders, whose activities at JRTC were not as frequently relevant to the ratings as that of the platoon leader. In any case, the contradictory performance ratings of X,P2 and Z,P3 point out the problems that can occur if only one rater is used in a measurement procedure. They also are examples of "outliers" in the data or cases where their ratings are so unusual as to obscure the underlying pattern demonstrated by the

Table 16

Overall Ratings and Rank Order for Each Platoon

Ratings/ Order	Platoon								
	X,P1	X,P2	X,P3	Y,P1	Y,P2	Y,P3	Z,P1	Z,P2	Z,P3
O/C Rating Overall	.27	.62	.40	.48	.54	.61	.41	.46	.31
Rank Order	9	1	7	4	3	2	6	5	8
CO1 Rating Overall	27	21	23	30	30	30	31	29	35
Rank Order	7	9	8	3-5	3-5	3-5	2	6	1
CO2 Rating Overall	29	23	26	32	32	32	33	29	35
Rank Order	6-7	9	8	3-5	3-5	3-5	2	6-7	1
Cohesion Overall	.02	.33	.59	.46	.95	.77	.56	.36	.45
Rank Order	9	8	3	5	1	2	4	7	6

Note. Observer/controller (O/C) overall ratings are the average across all subtasks. Company commander (CO) overall ratings were computed by adding the ratings on each of four performance dimensions at time 1 (CO1) and time 2 (CO2). Cohesion overall ratings are the average across all cohesion scales.

Table 17

Correlations between Observer/Controller, Company
Commander, and Cohesion Overall Ratings

										Platoons Considered									
										All 9			All but X,P2			All but X,P2 and Z,P3			
										O/C	CO1	CO2	O/C	CO1	CO2	O/C	CO1	CO2	
CO1	-.31										.02			.48					
	.40										.95			.27					
CO2	-.29	.97									.10	.95		.48	.94				
	.43	.0001									.80	.0002		.26	.001				
COH	.53	.25	.34								.77	.12	.25	.82	.26	.38			
	.14	.51	.36								.02	.75	.54	.02	.56	.39			

Note. O/C=observer/controller overall average ratings of the platoons; CO1=company commander overall rating at time 1; CO2=company commander overall rating at time 2; COH=overall average ratings on the cohesion scales. Each cell contains the correlation coefficient (top) and significance level (bottom).

rest of the data points (platoon ratings).

In order to present the overall findings and control for the impact of outliers, Table 17 provides the correlations between the overall average cohesion and the overall performance measures (shown in the prior table) with and without using the outliers. One can see from the bottom row of correlations that cohesion, in the aggregate, is moderately related to the observer/controller ratings and slightly related to the company commander ratings. If the "exaggerated" performance rating of X,P2 is left out, cohesion is strongly and significantly correlated (.77) with the observer/controller ratings of performance of platoons at the JRTC. On the other hand, if the "exaggerated" company commander rating of Z,P3 is also left out, cohesion is still only somewhat correlated with the company commander assessments of JRTC platoon performance (although the correlations with times 1 and 2 go to .35 and .43 if X,P2 is also considered along with the other 7 platoons). With both X,P2 and Z,P3 eliminated, as the first column in the right hand section of the table shows, performance ratings by the observer/controllers and company commanders are moderately correlated (.48).

Of special relevance to this report is the extent to which the individual cohesion scales relate to overall performance of the platoons as measured by the observer/controllers. This is layed out in Table 18, with and without outliers considered. While only the bonding among platoon leaders (HB-A,L) is significantly correlated with performance when all 9 platoons are considered, all the horizontal bonding and vertical bonding cohesion scales and some organizational bonding scales are significantly and strongly related to JRTC performance if one or both of the outliers are eliminated from consideration. The reason for the strong correlations is shown in Table 19 where it clearly indicates that cohesion is strongly and significantly related to JRTC performance, as measured by the ratings of IOP accomplishment, through the preparation subtask. The reader might review Appendix B at this time to see that the preparation IOPs include actions by the squad leaders, platoon sergeant, and squad members as a whole. The planning subtask IOPs and many execution subtask IOPs are primarily the activities or responsibilities of the platoon leader alone. In summary, where the overall performance of the platoon (beyond that of the platoon leader) is measured, the level of that performance is strongly correlated with the degree of cohesion in the platoon.

DISCUSSION

THE RATERS. It is an understatement to say that it is difficult to measure the wholistic performance of an infantry platoon on a 12 day extended FTX like at the JRTC. This is especially so if one is a company commander who knows that much of the action was determined by the battalion task force plans and orders and that much of platoon performance was affected by the decisions and general performance of the company commander himself. Further, the company commander knows that he did not have the opportunity to observe the platoon consistently and intensely and that

Table 18

Correlations between Observer/Controller Overall
Ratings of Performance and Cohesion Scale Scores

Scales	Platoons Considered		
	All 9	All but X,P2	All but X,P2 and Z,P3
HB-A	.36 .33	.86 .005	.84 .01
HB-I	.10 .78	.77 .02	.74 .05
HB-A,L	.66 .05	.78 .02	.91 .003
VB-A	.57 .10	.79 .01	.77 .03
VB-I	.55 .11	.72 .04	.81 .02
OB-A,V	.46 .20	.73 .03	.79 .03
OB-A,P	.37 .31	.44 .26	.52 .22
OB-I,A	.52 .14	.56 .14	.45 .31
OB-I,N	.40 .28	.60 .10	.81 .02
OB-I,G	.21 .57	.14 .72	.27 .55

Note. Each cell contains the correlation coefficient (top) and the significance level (bottom).

Table 19

Correlations between Observer/Controller Overall
Ratings and Cohesion Scale Scores by Subtask

Scale	Platoons Considered								
	All 9			All but X,P2			All but X,P2 and Z,P3		
	Plan	Prep	Exec	Plan	Prep	Exec	Plan	Prep	Exec
HB-A	.56	.70	-.24	.64	.90	.41	.55	.92	.27
	.14	.07	.59	.11	.01	.40	.24	.02	.65
HB-I	.33	.49	-.33	.44	.81	.69	.34	.81	.67
	.42	.26	.46	.32	.04	.12	.50	.08	.20
HB-A,L	.40	.89	.21	.40	.90	.40	.54	.93	.58
	.31	.005	.63	.36	.01	.42	.26	.02	.29
VB-A	.48	.77	.19	.49	.81	.68	.41	.82	.66
	.22	.04	.67	.26	.04	.13	.41	.08	.22
VB-I	.33	.74	.16	.33	.77	.52	.39	.77	.64
	.42	.05	.72	.46	.07	.29	.44	.12	.23
OB-A,V	.59	.86	-.07	.61	.92	.25	.72	.93	.31
	.11	.01	.87	.14	.008	.62	.10	.02	.59
OB-A,P	.12	.69	.32	.12	.70	.60	.23	.72	.80
	.77	.08	.48	.79	.11	.20	.66	.16	.10
OB-I,A	.13	.44	.58	.13	.44	.91	-.13	.43	.91
	.74	.31	.17	.76	.37	.009	.79	.46	.03
OB-I,N	.43	.81	.22	.44	.92	.16	.67	.96	.30
	.27	.02	.63	.31	.007	.75	.13	.009	.61
OB-I,G	-.01	.59	.33	.00	.58	.42	.14	.62	.64
	.97	.15	.46	.98	.21	.40	.78	.26	.23

Note. The three subtasks are planning (Plan), preparation (Prep), and execution (Exec). Each cell provides the correlation coefficient (top) and significance level (bottom).

Bonding Among Leaders in a Platoon and Platoon Performance of Preparation Subtasks at the JRTC

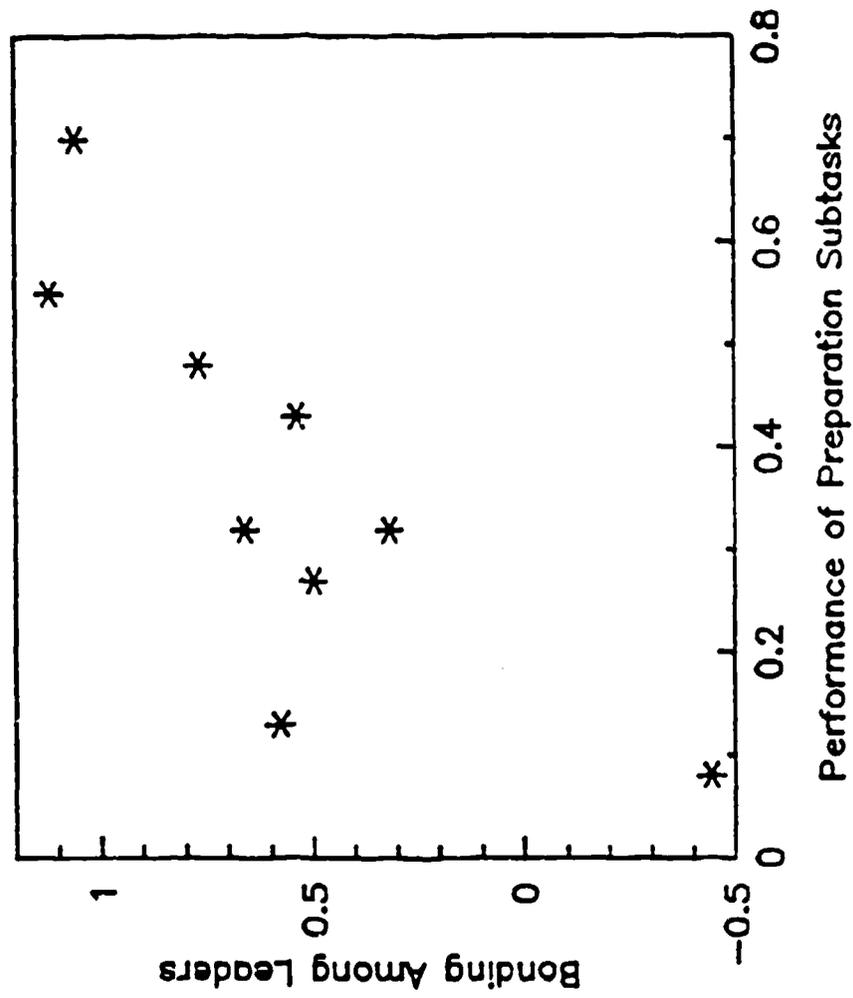


Figure 1. Platoon HB-A, L scores plotted against platoon preparation subtask scores.

platoon activities were in part a function of OPFOR actions. In addition, company commanders are usually extremely proud of their men and how, despite suffering many deprivations, they worked hard to get the job done. This is particularly the case for the commanders in this JRTC rotation who each had been in charge of their companies for a long time. Therefore, it is not unexpected, nor perhaps undesirable, that company commanders rated the performance of their platoons high and with little differentiation. However, the research community needs to take this into consideration and use company commander ratings judiciously and as only part of triangulated measurement. The same goes for using any other single rater within a performing unit (see Siebold, 1987c).

Nonetheless, in this effort, the company commanders did provide some differentiation in their ratings and were very consistent in doing such at time 1 and time 2. Generally, the pattern of their ratings was not disconfirmed by the ratings of the observer/controllers, with the one or two exceptions noted earlier, or the personal observations of the authors. However, in future research more attention needs to be given to the design of a measurement system that would allow the insights of the company commanders to be more cleanly extricated and more systematically utilized.

The observer/controllers were assigned a specific role at the JRTC and used a pre-ordained, doctrinally based task/subtask IOP checklist. These raters themselves were mostly Rangers, experienced, and knowledgeable. Their role (besides that of controller and enforcer of safety) was primarily that of a trainer. While they evaluated a platoon in terms of whether it did the IOPs on the checklists, they did not, from the observations of the authors, thoroughly evaluate the performance of the soldiers, squads, the platoon, or the platoon leadership, nor were they expected to. They had the time and skill but not the mission or measures to do such.

Overall they provided a good evaluation of the battalion task force and task force procedures and useful training information which was given as feedback in the AARs and take home packages. Yet platoon members, other than the platoon leader, and platoon subelements (which would continue on together for many months) did not receive the full benefit of the observer/controllers' presence. In part this was to avoid interference, and in part it was not within the charter of the observer/controllers. Also, the platoons could absorb only so much feedback before overload would occur and priorities for improvement would be lost. Nevertheless, it is worth considering whether the observer/controllers should assess more closely the performance of platoon subelements, the platoon sergeant, the squad leaders, and the soldiers and provide more feedback specifically for them.

THE MEASURES. The cohesion measures are basically solid and differentiated well among the platoons. The ability to distinguish the cohesion components among the platoons is particularly impressive because the battalion rotating through

the JRTC was the top performing and most experienced one in its high performing brigade. The companies as well were extremely good. Thus there was a somewhat restricted range in the level of cohesion generally, command climate, and performance. Details on the development and properties of the cohesion instrument can be found in Siebold and Kelly, 1988.

The dimensions rated by the company commanders were familiar to them because their companies were rated on the dimensions a few months earlier during another FTX. The commanders of Company X and Company Y were also familiar with the 10 point rating scale because they had used it before to rate their platoons for some earlier research on cohesion conducted by the authors. Therefore the commanders had no difficulty with the 10 point scale or the rating dimensions and appeared to understand very well what they were being asked to do.

However, it probably would have been better to subdivide and make more concrete the dimensions of general tactics and specific mission tactics. The commanders completed the ratings in less than 2 minutes so that adding another minute or two to the task would most likely not be fatiguing while it could generate much more detailed information. The commanders were asked (but not pressed) to try to differentiate among their platoons. Making them do so through a forced choice design of the instrument would probably not be as effective as simply subdividing and making more concrete the rating dimensions. The medical and attitude dimensions were simple and concrete enough so that no change is probably needed with them. In short, the reliability of the company commander ratings was high, which indicates the performance measures were good in that regard. The construct validity was also good but could most likely be improved by breaking down the general and specific mission tactics dimensions into more concrete subdivisions. Halo effects from a platoon's performance on a prior FTX could perhaps be controlled through instructions to commanders before they made the ratings. The problem with the inability of the commanders to fully observe their platoons could be handled by including executive officers and first sergeants as additional raters. Including these other raters also might promote more objectivity in the ratings.

The observer/controller performance measures were not designed as criteria or overall ratings of platoon performance. Therefore it is not appropriate to criticize them on that basis. Nonetheless it is important to spell out their limitations in order to understand the research results. Observer/controllers generally used stringent doctrinal standards in their decisions about whether an IOP was done or done correctly. This resulted in many ratings being at the margin and which could have been legitimately called either as a yes or a no. Along with the inherent ambiguity of FTX task performance, these marginal calls allowed the degree of leniency of the rater(s) to effect the ratings.

The requirement that the rater make a judgment as to whether an IOP was done or done to standard fits with the concept of training to standard. However, performance is usually complex and variable from good to bad or high to low. Performance which

exceeds the standard receives no extra credit, and performance which is just below standard receives no partial credit. Thus raters who are complying with the training conceptual scheme are forced into a series of either/or, yes/no decisions which prevents their ratings from being fully adequate as general performance criteria. In particular, with the yes/no format variance within an IOP is constrained so that one must look for variance across a series of IOPs. While research would be helped by the use of a "yes, marginal yes, no" rating scale, it must be recognized that observer/controllers are trainers and should use a rating system compatible with training concepts. Nonetheless, researchers must be aware of the limitations of the yes/no format when using observer/controller ratings as criteria.

The subject matter of IOPs is another issue. They are drawn from relevant tasks and subtasks and focus on technical and tactical actions but do not cover many other aspects of performance. For example, IOPs do not cover much in the areas of morale/positive attitude, teamwork, sharing of food and water, aiding another platoon in trouble, initiative, perseverance, or other intangibles or "soft" skills which frequently mean the difference between winning or losing. "Winning" or "losing" are also not well assessed at the platoon level. Further, the actions of the platoon leader are over-represented while those of the rest of the platoon are under-represented. Yet, the IOPs which are evaluated are critical and should be assessed. The observer/controllers cannot rate everything. However, the researcher needs to keep in mind that the full range of platoon performance is not reflected in IOP ratings, and hence the ratings can only serve as one set of performance criteria. But the observer/controllers do a tough job well, and their ratings should be used whenever the IOP subject matter matches that of needed criteria.

THE RESULTS. Given the limitations of the performance data noted above and the small number of platoons in the sample (see Oliver, 1987), the results must be taken only as suggestive. The results were presented first in the disaggregated form so that the reader could gain an appreciation of the individual measures, the JRTC task structure, each platoon, and the interplay between them. It was important to point out, for example, the difference among the platoons on the cohesion and the performance measures, the restricted range of the company commander ratings, the modest level of the ratings by the observer/controllers, and the inconsistencies between the various task and subtask performance ratings. The latter provided the justification for aggregating the data. The conflict between the observer/controller and company commander ratings provided the justification for examining the cohesion linkage to performance without the outliers. The correlation of cohesion with platoon performance then became more clear.

Despite the high correlations, especially between cohesion and the observer/controller ratings on the preparation subtask, the results are not fully convincing. The strong correlations were mostly the result of the platoon with the lowest cohesion

having the lowest performance score and the two platoons with the highest cohesion scores having the highest performance scores. The platoons in between with modest cohesion scores had an irregular pattern of performance scores. The restricted range of performance scores and their limitations as adequate criteria did not allow for a clear examination of the impact of cohesion on platoon performance at the JRTC.

THE IMPACT OF COHESION. The primary purpose of this report was to describe the relationship between the home station measures of cohesion on 9 light infantry platoons and their subsequent performance at the JRTC. This was accomplished to the extent that the performance measures permitted. One can conclude from the results, put in the best light, that there appears to be a substantial relationship between cohesion as it exists at home station and platoon performance at the JRTC. More specifically, the data would suggest that, on the average, the performance of a platoon would increase by .1 on a performance scale for every .3 it increases on the cohesion measure. Earlier data collected by the authors indicated a ratio of about 1 to 1. Nevertheless, cohesion does appear to impact on performance to a sufficient degree to warrant an emphasis on building and maintaining it at home station. This emphasis should focus on the bonding among soldiers, between soldiers and their leaders, between all platoon members and the platoon as a whole, and on leader bonding, which was the highest correlate with JRTC performance.

It is still not clear to what degree cohesion causes FTX performance or in turn is caused by it. The authors did see positive cohesion among members of a platoon facilitate performance at the JRTC in terms of communications, teamwork, mutual support, and enduring the hardships caused by the weather and fatigue. They also saw the experiences at the JRTC pull some members of the platoons more together and at times create more dissension. Additional work needs to be done to clarify these dynamics.

In summary, the cohesion instrument used did predict performance and may prove to be a valuable tool in that regard. Through the research, much more information was obtained on the pattern of relationships among the variables, and much was learned about how to improve research projects of this kind.

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APPENDIX A

PLATOON COHESION INDEX

Directions: This questionnaire is designed to help your Company Commander assess the general level of cohesiveness in your platoon. Fill in the information below and respond to each question by marking an "X" on the line which best represents your view. Your answers will be combined with the other soldiers in your platoon to get an overall picture.

Write In Your Platoon: _____
 Company: _____

Check Your Pay Grade: E1-E4[]
 E5-02[]

- | | |
|--|---|
| <p>1. First-termers in this platoon uphold and support Army values.</p> <p>[+2] ___ A. Strongly Agree
 [+1] ___ B. Agree
 [0] ___ C. Borderline
 [-1] ___ D. Disagree
 [-2] ___ E. Strongly Disagree</p> <p>2. Leaders in this platoon set the example for Army values.</p> <p>[+2] ___ A. Strongly Agree
 [+1] ___ B. Agree
 [0] ___ C. Borderline
 [-1] ___ D. Disagree
 [-2] ___ E. Strongly Disagree</p> <p>3. First-termers trust each other in this platoon.</p> <p>[+2] ___ A. Strongly Agree
 [+1] ___ B. Agree
 [0] ___ C. Borderline
 [-1] ___ D. Disagree
 [-2] ___ E. Strongly Disagree</p> <p>4. First-termers in this platoon care about each other.</p> <p>[+2] ___ A. Strongly Agree
 [+1] ___ B. Agree
 [0] ___ C. Borderline
 [-1] ___ D. Disagree
 [-2] ___ E. Strongly Disagree</p> <p>5. How well do first-termers in your platoon work together to get the job done?</p> <p>[+2] ___ A. Very Well
 [+1] ___ B. Well
 [0] ___ C. Borderline
 [-1] ___ D. Poorly
 [-2] ___ E. Very Poorly</p> | <p>6. First-termers in this platoon pull together to perform as a team.</p> <p>[+2] ___ A. Strongly Agree
 [+1] ___ B. Agree
 [0] ___ C. Borderline
 [-1] ___ D. Disagree
 [-2] ___ E. Strongly Disagree</p> <p>7. Leaders in this platoon trust each other.</p> <p>[+2] ___ A. Strongly Agree
 [+1] ___ B. Agree
 [0] ___ C. Borderline
 [-1] ___ D. Disagree
 [-2] ___ E. Strongly Disagree</p> <p>8. Leaders in this platoon care about each other.</p> <p>[+2] ___ A. Strongly Agree
 [+1] ___ B. Agree
 [0] ___ C. Borderline
 [-1] ___ D. Disagree
 [-2] ___ E. Strongly Disagree</p> <p>9. First-termers in this platoon can get help from their leaders on personal problems.</p> <p>[+2] ___ A. Strongly Agree
 [+1] ___ B. Agree
 [0] ___ C. Borderline
 [-1] ___ D. Disagree
 [-2] ___ E. Strongly Disagree</p> <p>10. Leaders and first-termers in this platoon care about one another.</p> <p>[+2] ___ A. Strongly Agree
 [+1] ___ B. Agree
 [0] ___ C. Borderline
 [-1] ___ D. Disagree
 [-2] ___ E. Strongly Disagree</p> |
|--|---|

11. Leaders and first-termers in this platoon train well together.
[+2] ___ A. Strongly Agree
[+1] ___ B. Agree
[0] ___ C. Borderline
[-1] ___ D. Disagree
[-2] ___ E. Strongly Disagree

12. Leaders in this platoon have the skills and abilities to lead first-termers into combat.
[+2] ___ A. Strongly Agree
[+1] ___ B. Agree
[0] ___ C. Borderline
[-1] ___ D. Disagree
[-2] ___ E. Strongly Disagree

13. First-termers in this platoon know what is expected of them.
[+2] ___ A. Strongly Agree
[+1] ___ B. Agree
[0] ___ C. Borderline
[-1] ___ D. Disagree
[-2] ___ E. Strongly Disagree

14. In this platoon the behaviors that will get you in trouble are well known.
[+2] ___ A. Strongly Agree
[+1] ___ B. Agree
[0] ___ C. Borderline
[-1] ___ D. Disagree
[-2] ___ E. Strongly Disagree

15. First-termers in this platoon feel they play an important part in accomplishing the unit's mission.
[+2] ___ A. Strongly Agree
[+1] ___ B. Agree
[0] ___ C. Borderline
[-1] ___ D. Disagree
[-2] ___ E. Strongly Disagree

16. First-termers are proud to be members of this platoon.
[+2] ___ A. Strongly Agree
[+1] ___ B. Agree
[0] ___ C. Borderline
[-1] ___ D. Disagree
[-2] ___ E. Strongly Disagree

17. How satisfied are the first-termers in this platoon with the time available for family, friends and personal needs?
[+2] ___ A. Very Satisfied
[+1] ___ B. Slightly Satisfied
[0] ___ C. Borderline
[-1] ___ D. Slightly Dissatisfied
[-2] ___ E. Very Dissatisfied

18. How satisfied are the first-termers with the social events in this platoon?
[+2] ___ A. Very Satisfied
[+1] ___ B. Slightly Satisfied
[0] ___ C. Borderline
[-1] ___ D. Slightly Dissatisfied
[-2] ___ E. Very Dissatisfied

19. First-termers in this platoon feel they are serving their country.
[+2] ___ A. Strongly Agree
[+1] ___ B. Agree
[0] ___ C. Borderline
[-1] ___ D. Disagree
[-2] ___ E. Strongly Disagree

20. First-termers in this platoon have opportunities to better themselves.
[+2] ___ A. Strongly Agree
[+1] ___ B. Agree
[0] ___ C. Borderline
[-1] ___ D. Disagree
[-2] ___ E. Strongly Disagree

APPENDIX B

JRTC TASK/SUBTASK IOPs

Task1 Conduct Movement to Contact (PLT)

Subtask1 Plan a movement to contact.

- IOP1 Did the platoon leader issue a warning order?
- IOP2 Did the platoon leader choose the proper formation?
- IOP3 Were targets preplanned along the route?
- IOP4 Did the platoon leader understand the boundaries of his route?
- IOP5 Did the platoon leader issue an OPORD?

Subtask2 Prepare for a movement to contact.

- IOP1 Was coordination made with friendly elements?
- IOP2 Were assembly area activities conducted?
- IOP3 Were briefbacks conducted?
- IOP4 Were rehearsals conducted?

Subtask 3 Execute a movement to contact.

- IOP1 Did the platoon leader cross the LD/LC on time?
- IOP2 Did the platoon use the correct movement techniques?
- IOP3 Did all subordinates know the location of the platoon leader?

When contact was made did the unit:

- IOP4 Make contact with the smallest element possible?
- IOP5 Advise the commander?
- IOP6 Coordinate all available fire power?
- IOP7 Use the remaining squads to maneuver and destroy the enemy?
- IOP8 Maintain enemy contact until ordered to break contact?

Task2 Conduct a perimeter Defense (Platoon)

Subtask1 Plan the Perimeter Defense.

IOP1 Did the platoon leader issue a warning order?

IOP2 Was a recon conducted?

IOP3 Did the platoon leader use a METT-T to determine the size of the perimeter?

Did the platoon leader use the following to assign sectors:

IOP4 The mission and commanders intent?

IOP5 Key terrain within sector that must be held?

IOP6 Troops available?

IOP7 Time available to prepare?

IOP8 Deposition and strength of the enemy?

IOP9 Avenues of approach?

IOP10 Observation and fields of fire?

IOP11 Cover and concealment?

IOP12 Obstacles?

IOP13 Were local counterattack plans available?

IOP14 Was there a plan for OPs to provide early warning?

IOP15 Were patrols planned to harass and provide early warning?

IOP16 Were fighting positions mutually supported?

IOP17 Were anti-armor weapons placed to flank likely avenues of approach?

IOP18 Did the patrol incorporate sufficient control measures to control the battle?

IOP19 Was coordination made with adjacent units?

IOP20 Was a detailed fire support plan made?

IOP21 Were mortars placed so their minimum range did not restrict their ability to fire?

IOP22 Were TOWs and tanks given hide and fighting positions (s)?

IOP23 Was an obstacle plan integrated & were all obstacles covered by fire?

Subtask2 Prepare for a perimeter defense.

IOP1 Did the platoon leader issue an OPORD?

IOP2 Did the unit conduct pre-combat checks and inspections?

Subtask3 Move to and occupy the defense.

IOP1 Were LP/OPs and patrols used to provide early warning?

IOP2 Did the unit move into position unseen?

IOP3 Was the perimeter divided into sectors with coordination points assigned?

IOP4 Were fighting positions, CP and mortars dug in?

IOP5 Was security maintained while positions were being prepared?

IOP6 Was defense oriented 360?

IOP7 Were all positions camouflaged?

IOP8 Were the flanks tied in for mutual support?

IOP9 Did anti-armor positions have several positions?

IOP10 Was all available fire support incorporated into the plan?

IOP11 Was a reserve force designated and prepared to block penetration or counterattack?

IOP12 Were obstacles and mines used?

Task3 Operate as part of a company deliberate attack

Subtask1 Plan.

- IOP1 Platoon receives company order and issues warning order to start, prep and initiate time table?
- IOP2 Recon with the company commander is conducted.
- IOP3 Coordination is made with supporting units and attachments.
- IOP4 A detailed fire support plan is developed.
- IOP5 Special teams (breaching, EPW, clearing & aid/litter) are designated.
- IOP6 OPORD is issued.

Subtask2 Prepare.

- IOP1 Ammo, food, water, medical supplies & special equipment is distributed.
- IOP2 Briefbacks of squad leaders, FOs, and RTOs are conducted.
- IOP3 Rehearsals of attack sequence including signals & team assignments are conducted.
- IOP4 Initial and final inspections are conducted.
- IOP5 Pre-combat checks are conducted.

Subtask3 Execute.

Movement to the objective:

- IOP1 Platoon crosses the LD/LC on time and in sequence. Security is maintained.
- IOP2 Platoon leader is positioned to best see and control the platoon.
- IOP3 Platoon uses correct movement techniques based on METT-T.
- IOP4 Machine guns are positioned to be easily brought into action.
- IOP5 Hand and arm controls are used to control squads.
- IOP6 Noise discipline is enforced in order to avoid detection.
- IOP7 Platoon moves to support position; squads emplaced and wait for signal to attack.

Assault:

- IOP8 Platoon moves into assault positions and drops ruck sacks.
- IOP9 If supporting element, platoon shifts fire when signal is given.
- IOP10 When signaled platoon begins aggressive assault on objective.
- IOP11 Platoon uses fire and movement techniques during the assault.
- IOP12 Platoon leader controls movement during assault on the objective.
- IOP13 Platoon reports problems to company commander as they occur.
- IOP14 Breaching team clears and marks lanes through obstacles.
- IOP15 Attack is continued through objective, enemy is cleared, security established.