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Research Report 1608

Motivation and Platoon Performance at Combat Training Centers

George H. Lawrence
U.S. Army Research Institute

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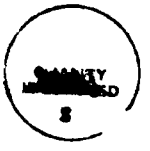

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Under a Memorandum of Agreement with the U.S. Army Command and General Staff College, the U.S. Army Research Institute for the Behavioral and Social Sciences is conducting research to develop products to help small unit leaders improve performance in their squads, platoons, and companies at Combat Training Centers (CTCs). It is widely assumed that motivation powerfully affects the quality of performance. To improve Army leadership training, soldier motivation was measured and its relation to performance was assessed.

As part of a larger effort, two scales designed to assess soldier motivation were administered to soldiers of all ranks in 60 platoons from five light infantry battalions. The scales measure motivation with respect to (1) current job and (2) expectations for the impending CTC rotation. Responses obtained before CTC rotations were compared with performance at the CTCs as rated by on-site observers and by the participants themselves. Interviews obtained after rotation were analyzed for improved understanding of soldier motivation in the field and its effect on performance.

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19. ABSTRACT (Continued)

Data analysis of responses by squad members indicated that the designated scales provided a useful measure of motivation and that measure shows significant positive correlation with performance ratings made by objective observers. In general, respondents at all ranks expressed positive attitudes toward their jobs and their units. Post-rotation interview data suggested a theoretical difference between basal and situational motivation.

The results of this research establish that valid and meaningful measurement of soldier motivation is possible. The basis for developing an instrument to assess and monitor soldier motivation is thus provided. The data presented also indicate that motivation at home station before CTC rotation affects subsequent CTC performance. An interpretation of soldier interview response may provide a basis for improvements in leadership training that will maximize motivation for effective field and training performance.

Research Report 1608

Motivation and Platoon Performance at Combat Training Centers

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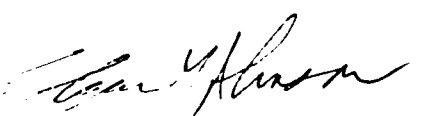
FOREWORD

A primary mission of the Leadership and Motivation Technical Area of the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) is to enhance Army performance through research on small unit motivation. Motivation must be accurately measured so that research findings and products derived for the Army in this area will be sound. Determining the role of motivation in effective platoon performance and developing ways to promote optimum levels of soldier motivation at home station and at the Combat Training Centers (CTCs) are central to the ARI mission.

This research report describes measures of motivation at home station and measures of platoon performance at the U.S. Army Combat Training Centers. It also presents data showing the relationship of motivation level at home station with CTC performance. Information from interviews with soldiers after their CTC rotations is discussed and a theoretical basis for separating basal from situational motivation is suggested.

This work was undertaken as part of a larger research effort that seeks to identify the factors at home station that determine performance at CTCs. Cosponsors of this research are the Combined Arms Center--Training and the Center for Army Leadership, U.S. Army Command and General Staff College, Fort Leavenworth, Kansas, which has reviewed the final version of this report and supports its publication. Research was conducted for the sponsor under a Memorandum of Agreement between the U.S. Army Command and General Staff College and ARI dated 4 May 1987 entitled "Leadership and Cohesion Research Program." It is anticipated that the information derived from this work will contribute substantially to improvements in training for Army leaders, particularly at company, platoon, and squad levels.



EDGAR M. JOHNSON
Technical Director

MOTIVATION AND PLATOON PERFORMANCE AT COMBAT TRAINING CENTERS

EXECUTIVE SUMMARY

Requirement:

Under a Memorandum of Agreement with the U.S. Army Command and General Staff College, the U.S. Army Research Institute for the Behavioral and Social Sciences is conducting research to develop products to help small unit leaders improve performance in their squads, platoons, and companies at the Combat Training Centers (CTCs). It is widely assumed that motivation powerfully affects quality of performance. In order to assess possible benefits from teaching Army leaders to improve soldier motivation, this construct must be measured and its relation to performance determined.

Procedure:

The Determinants Project, a larger effort of which the research reported here is a part, seeks to identify and describe factors at home station that affect performance at CTCs. For this purpose, data were collected with questionnaires from soldiers of all ranks in 60 platoons from five battalions. Included in these instruments were two scales designed to assess soldier motivation with respect to (1) current job and (2) expectations for the impending CTC rotation. Responses to these scales obtained before CTC rotations were compared with performance at the CTCs as rated by on-site observers and by the participants themselves. Interviews obtained after rotation were analyzed for improved understanding of soldier motivation in the field and its effect on performance.

Findings:

Data analysis of responses by squad members indicated that the designated scales provided a useful measure of motivation and that the measure shows significant positive correlation with performance ratings made by objective observers. In general, respondents at all ranks expressed positive attitudes toward their jobs and their units. Post-rotation interview data were interpreted to suggest a theoretical difference between basal and situational motivation.

Utilization of Findings:

The results obtained from this research establish that it is possible to measure soldier motivation in a valid and meaningful way. The basis is thus provided to develop an instrument to assess and monitor soldier motivation. The data presented here also indicate that motivation at home station before CTC rotation affects subsequent CTC performance. An interpretation of soldier interview responses may provide a basis for improvements in leadership training that will maximize motivation for effective field and training performance.

MOTIVATION AND PLATOON PERFORMANCE AT COMBAT TRAINING CENTERS

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MOTIVATION AND PLATOON PERFORMANCE AT COMBAT TRAINING CENTERS

Why Is Motivation Important?

Soldier motivation has been recognized as an important determinant of combat effectiveness for as long as serious study and analysis of military performance has been undertaken. Motivation can act as a force multiplier in that highly motivated forces may be able to overcome a powerful opponent even though outnumbered and poorly supplied. An opposite effect is just as important: in spite of the finest equipment and training, unmotivated soldiers are unlikely to perform effectively in combat and an enemy considerably inferior in size and material may therefore prevail.

Thus, it is vital that Army leaders learn as much as possible about how soldiers are motivated. Behavioral scientists at the Army Research Institute have undertaken field research designed to identify factors that underlie motivation. The work reported here concentrates on identifying those factors that can be controlled by company and platoon leaders and seeks to determine the levels of motivation most conducive to maximum troop performance. Those responsible for leadership training can then translate this knowledge into practical rules. This will help Army leaders develop and maintain levels of soldier motivation appropriate to mission accomplishment. This research on platoon and squad level motivation is part of a larger project examining a variety of techniques and circumstances at home station that affect quality of squad and platoon performance at Army Combat Training Centers (CTCs).

In recent years, several observers of soldier attitudes and behavior have noted that enlistees typically enter the Army motivated to perform well. Certainly, individual rewards such as financial security, educational benefits and skill acquisition motivate most soldiers. But young men and women also join because they are patriotic and want to serve their country, because they like physical and outdoor activity, and because they want to feel that they are worthwhile, contributing members of society. Although a more realistic understanding of Army life is acquired quickly after enlistment, most new soldiers usually carry a reasonably high degree of enthusiasm through basic training (Siebold, 1989; Wilson, 1989).

Although levels of motivation for individual soldiers may vary at any time for a variety of personal reasons, serious problems with motivation seem most often to begin soon after assignment to an initial duty station. These problems appear to result in lower levels of performance and readiness than might otherwise be achieved (Wilson, 1989).

Many behavioral and social scientists, and others interested

in promoting improved Army operations, have interviewed soldiers in basic training or shortly after assignment to an initial duty station. It appears likely that the overriding determinant of soldier motivation during basic training is the quality of leadership the trainees receive from their cadre. Specifically, when non-commissioned officers closest to the trainees display enthusiasm for accomplishing training objectives and concern for the welfare of the soldiers for whom they are responsible, trainee motivation is enormously enhanced.

Motivation At Home Station and CTC Performance

What, if anything, can platoon and squad-level leaders do to maintain the momentum usually established in basic training? How can they avoid, or at least reduce, the frequent post-basic-training drop in motivation - which appears to detract from Army effectiveness?

As an initial step toward addressing those questions, this paper seeks to establish two basic propositions. The first is that motivation can be identified and measured reliably in the field. The second is that motivation level at home station is related to effectiveness in simulated combat, e.g. performance at the CTC's.

An ancillary focus is on the factors which determine motivation level during the CTC rotation. Relevant subjective inferences relevant can be derived from consideration of interview data gathered subsequent to CTC participation. Though such a process does not constitute scientific measurement, in this case it offers useful insight into soldier motivation in the field, at the point of performance.

The purpose of the research described in this report is to identify the role of motivation in the training of light infantry units at home station, to verify the impact of motivation on unit performance at CTCs, and to begin to establish a basis for developing focussed motivational techniques for platoon and company leaders. This research is presented in two parts. The first part describes the measurement of soldier motivation and includes data relating motivation to other group constructs such as unit pride. It also establishes a relationship between home station motivation and subsequent performance in simulated combat at Army Combat Training Centers. The second part provides information obtained from interviews with soldiers immediately or soon after participation in CTC exercises. This information is used to identify and describe factors affecting soldier motivation and the ways that variations in motivation affected unit performance in these exercises.

For discussion, it is important to establish a reasonable informal working conceptualization of soldier motivation. The

level of energy or effort that a soldier willingly makes available for assigned duty can serve this purpose. As such, Army leaders tend to think of motivation as a central determinant of the quality of soldier performance. This conceptualization is not very useful scientifically, since a subjective state of "willingness" would be quite difficult to measure satisfactorily. It does, however, cover the main behavioral expression of the phenomenon identified variously as morale, esprit, or elan. This phenomenon is easily observed, if not measured, by Army leaders in field and garrison, and it is considered by behavioral scientists to comprise at least a major component of motivation.

Individual, unit, and environmental conditions and events impact upon the complex and shifting set of feelings and attitudes that underlie soldier motivation. To be effective in developing and maintaining effective squad, platoon, and company-level performance, leaders need a clear understanding of how these factors interact and how they promote or limit motivation. Developing this understanding together with an appreciation of its centrality to effective leadership and effective unit performance should be considered an essential component of preparation for Army leadership positions.

Such an understanding, of course, is not enough if it remains at a theoretical level. For consistently effective unit performance, the ability to translate sound behavioral principles into successful practical leadership is needed. A future paper will aim to identify and set forth a set of explicit guidelines to assist squad and platoon-level Army leaders to maximize motivation under prevailing conditions, in field and garrison, with whatever resources are available.

Method

The Questionnaires

Two dimensions of soldier motivation, each based upon different theoretical formulations, were measured. They were identified as Job Motivation (JOBM) and CTC Motivation (CTCM). JOBM comprises four items and was designed to provide information about attitudes of soldiers toward their individual military specialties and their general experience as soldiers, including psychological involvement and identification with their work. As reported by Mael (1989), this scale derives from research on motivation and job involvement by Lodahl and Kejner (1965) and Hackman and Oldham (1975). CTCM, comprising three items, taps perceived importance of and expectations toward the upcoming CTC rotation. This scale, again as reported by Mael, "draws from organizational research on the effect of specific goals on the arousal and maintenance of motivation." Writings by Vroom (1964) and Locke, Shaw, Saari, & Latham (1981) are cited by Mael as representative of goal-setting theory. These scales are

presented in Table 1.

Table 1

Items comprising the motivation scales

Job Motivation(JOBM)	
Item	
4	I don't mind taking on extra duties and responsibilities with this platoon.
5	I work hard and try to do as good a job as possible.
6	I look forward to coming to work every day.
7	I am very personally involved in my work.
CTC Motivation(CTCM)	
Item	
8	It really matters to me that we do well at the (JRTC/NTC).
9	I am putting in extra effort to prepare for the (JRTC/NTC).
10	I will learn a lot from the training at the (JRTC/NTC).

Prior to rotation through a CTC, questionnaires (including the scales described above) were administered on two occasions to soldiers from 60 platoons in five light infantry battalions. These questionnaires were administered to squad members, squad leaders, platoon sergeants, and platoon leaders, about 1500 in all. This report is based upon data derived from the responses of approximately 1200 squad members. The initial administration took place four to six months before CTC rotation (baseline administration, or BASE). Essentially the same questionnaire was administered a second time within a month of departure for the CTC rotation (pre-rotation administration, or PRE). The questionnaires comprised approximately 150 - 160 items, varying somewhat according to phase of study and position of respondent. For example, the PRE questionnaire administered to squad members included two questions on reenlistment plans, four demographic items, 14 items pertaining to unit identification and turbulence, and 140 items pertaining to attitudes toward job, superiors, and unit. Responses to attitudinal items were made on four or five-point scales, e.g. "Strongly Agree"(5) to Strongly Disagree"(1), "Almost Always"(5) to "Almost Never"(1), and "Best of All"(5) to "Poor"(1). BASE and PRE questionnaires, of course, included JOBM and CTCM, the two scales designed to measure motivation. A score for each scale was computed by averaging responses to items comprising that scale.

Questionnaires were administered and interviews conducted by

researchers from the U.S. Army Research Institute for the Behavioral and Social Sciences. Administration of PRE and BASE questionnaires took place in indoor spaces with seating for approximately 150 individuals, usually dining facilities or gymnasiums.

The Post-Rotation Questionnaire and Interview

A third questionnaire was administered after completion of the CTC rotation, usually within a few days but within a month in all cases. This questionnaire was much shorter than those administered at BASE and PRE, comprising nine items, each with two to four sub-parts. It was usually administered in classrooms, corners of company dayrooms, or areas of similar size where small-group conversation could be conducted more or less privately. During the same session, after completion of the questionnaire, face-to-face group interviews were conducted.

This procedure is referred to as the post-rotation condition, or POST. The intent was to conduct separate small-group interview sessions with battalion staff, company commanders, platoon leaders, platoon sergeants, squad leaders, and a single entire squad from each company, for each battalion in the sample. Not all members from every category could be made available for all of these group sessions, but a satisfactory approximation of the plan was accomplished. Anonymity was assured and an attempt was made to secure uncensored commentary from interviewees on their recent experience in the field. Approximately 20 small groups of soldiers at various levels participated in discussions oriented toward soldier motivation.

Measures of Performance

Measures of platoon performance at the CTC's were obtained from two sources. The major objective measure were ratings by observers/controllers (O/Cs), obtainable only at the JRTC. O/Cs are permanent cadre, and an O/C was assigned to each platoon taking part in each JRTC rotation. All O/Cs were trained in the use of rating scales and in use of appropriate criteria for assignment of a rating score. They rated platoons on planning, preparation, and execution phases for a variety of missions, all standard at both CTCs. The missions were: movement to contact, hasty attack, deliberate attack, raid, ambush, reconnaissance and security, defend and retrograde. A four-level scale commonly employed by CTC personnel was used. Rating categories were "trained", "needs a little training", "needs a lot of training", "untrained", and "not observed". Each O/C rated only the platoon to which he was assigned.

The other measures of platoon performance, obtained for all

platoons in the sample at both CTC's, derived from ratings by the participants themselves. With the exception of company commanders (COs), who rated each platoon under their command, each participant rated only his own platoon on the missions listed above using scales similar to that employed by the O/Cs. Participant ratings were completed during post-rotation interviews by all participants, leaders and subordinates. Ratings were obtained from platoon leaders, platoon sergeants, squad leaders, and squad members. Performance ratings used in the data analysis were those provided from the O/Cs, the COs, and a combined average representing platoon self ratings (PLTs). This average was computed to represent with equal weight the platoon leader, the platoon sergeant, the average of squad leader ratings, and the average of squad member ratings.

Single performance scores, the average of performance ratings for all missions undertaken by the platoon during the rotation, were computed from ratings by O/Cs. Similar scores were computed from ratings by company commanders and by the platoon. Tremble & Alderks (1992) describe the rationale:

> "Such a measure generally indicated 'how well' a platoon performed or had been trained for performance at the CTC. This measure allows comparison of platoons to the extent it is correct to assume that the CTC exercises during a rotation equally indicate their effectiveness in meeting their assigned mission/training requirements despite some variation in the missions actually required of and undertaken by the platoons compared."

O/C measures were obtained for all 23 of the platoons which took part in the observed JRTC rotations. Fourteen of the twenty company commanders rated a total of 42 platoons. Performance ratings were obtained from 54 of the 60 platoons. COs and platoons provided ratings on overall performance of specific missions, not (as was the case with O/Cs) on each mission phase.

Results

Did The Questionnaires Measure Motivation?

Motivation scale properties are covered in detail in Tremble & Alderks (1991).

Generally, responses to the motivation items were positive rather than negative with the exception of item 6 ("I look forward to coming to work every day").

Table 2 presents descriptors such as mean (arithmetical average) and standard deviation (SD, a measure of dispersion of scores around the mean) for items comprising the two motivation

scales. Only data from questionnaires completed by squad members is reflected. Means range from 2.67 (item 6), somewhat on the negative side of "neither agree nor disagree", to 4.23 (somewhat on the positive side of "agree") for item 5, "I work hard and try to do as good a job as possible"). These responses suggest that the soldiers in this sample generally have a positive rather than a negative attitude toward their jobs.

Table 2

Item descriptors

Item	M	SD	Alpha	N
Job Involvement				
4	3.40	1.09		1183
5	4.23	.83		1182
6	2.67	1.11		1177
7	3.32	1.07		1179
Total Scale	3.41	.80	.77	1177
Plt Lvl	3.43	.31	.83	60
CTC Motivation				
8	3.78	1.10		1177
9	3.50	1.06		1176
10	3.66	1.13		1175
Scale	3.65	.96	.83	1174
Plt Lvl	3.70	.42	.92	60

Note. N's vary slightly because not every subject responded to every item (missing data was handled according to standard SPSS protocol). "Plt Lvl" data treats scores aggregated within platoons as individual scores. Alpha values were all below $p = .01$.

Table 3 presents item intercorrelations, from the PRE questionnaire, for the motivation scales, with loadings for each item on a factor labeled "motivation". This factor was derived from a principal component analysis of squad member responses to the PRE questionnaire.

Table 3

Motivation Scale Item Intercorrelations and Factor Loadings

Job Motivation

Item	5	6	7	Motivation factor loading
4	.38	.49	.47	.54
5		.36	.48	.63
6			.56	.46
7				.61

CTC Motivation

Item	9	10	Motivation factor loading
8	.66	.64	.65
9		.59	.69
10			.61

Note. Items intercorrelate at statistically significant levels ($p < .05$ or better) within each motivation scale. Item responses were treated individually rather than aggregated over platoons.

The data presented in Table 3 show that the items which have been grouped into motivation scales have a reasonable degree of commonality. That is, people who respond to any given item in a scale in one way are likely to respond similarly to other items in that scale. Also, each item in the two motivation scales has a relatively high loading on a single factor derived from an overall analysis of correlations among all like-structured substantive questionnaire items. This factor, combining both motivation scales, is labeled "motivation" since it represents an integrated combination of items which (1) through their verbal content are identified as pertaining to motivation and (2) are statistically related.

Items other than those comprising the motivation scales, it should be noted, were grouped appropriately by the overall factor analysis performed on the questionnaire data. Factor loadings were in all cases (except for one item on one factor) higher for items designed to constitute a given factor than for extraneous items. Items in related scales did cross-load, however - indicating that these variables are related but distinct from each other (Tremble & Alderks 1992).

Table 4 presents a matrix of correlation coefficients showing relationships between the two motivation variables and several other constructs which also represent groups of related items on PRE and BASE questionnaires (Tremble and Alderks, 1992). All correlation coefficients shown are statistically significant.

Scores on the two motivation scales are correlated with each other (.75) and both are also correlated significantly with the scales representing other substantively related constructs - those groups of items designed to reflect quality of morale and atmosphere within the units sampled.

Table 4

Scale Intercorrelations for PRE Questionnaire

VARIABLES	b	c	d	e	f	g
a. CTC motivation (CTCM)	.75	.82	.55	.74	.60	.71
b. Job motivation (JOBM)		.55	.55	.77	.71	.74
c. CTC expectations			.61	.67	.60	.53
d. Incentive utilization				.71	.74	.82
e. Job satisfaction					.81	.82
f. Learning climate						.79
g. Platoon pride						

Note. All correlation coefficients are significant at $p < .001$.

Items on the motivation scales relate substantively to attitudes and behaviors commonly subsumed under what is meant by the term "motivation" and, as noted above, can be grouped statistically. The two motivation scales show a statistical relationship to, but are not identical with, scales designed to measure constructs considered to be distinct from but substantively related to motivation. These group constructs tap into such variables as: learning climate, including responses of supervisors to mistakes; choice of incentives for individual achievement (e.g., passes, praise, awards, etc.); pride in platoon membership; satisfaction with respect to job; and respondents' expectations with regard to the value for them and

their unit of the upcoming rotation. Based upon these observations, it can be asserted that a methodology has been identified for useful measurement of soldier motivation.

Was Motivation Related To Performance?

Ratings were obtained from O/Cs for 23 platoons, all at JRTC. The O/C mean mission rating was 2.11, with a standard deviation of .41 and a range of 1.42 - 3.33. Ratings were obtained from company commanders for 42 platoons at JRTC and NTC. The mean for these ratings was 3.20, with a standard deviation of .43 and range of 2.33 - 4.00. Predictably, company commanders tended to rate their own troops as performing at a higher level than did the O/Cs. For a full discussion of rating scale properties and the relationship of O/C to platoon-derived performance assessments, see Siebold and Lindsay (1991).

Table 5 displays correlations of the motivation scales, aggregated over platoons, with ratings of platoon performance at CTCs. As described above, each O/C rated the platoon he observed. Company commanders rated the performance of platoons within their companies and platoons rated their own performance. The results presented in this table show that the assessment soldiers make of their own motivation levels is related to an objective appraisal, by an O/C, of the simulated combat performance of their units. It is striking, however, that the O/C ratings of performance were considerably more closely related to soldier motivation than were performance ratings made by company commanders and platoons.

Table 5

Intercorrelations between motivation scales and performance ratings

	RATER		
	O/C	CO	PLT
JOBM	.63**	.37*	.31*
CTCM	.65**	.16	.07
N	23	42	54

Note. * = $p < .01$; ** = $p < .001$.
O/C, CO, and PLT scores represent ratings by observer/controllers, company commanders, and platoon members respectively.

Statistical analysis of the questionnaire results indicate that soldier motivation has been identified and reliably measured. Further, motivation is closely related to but not identical with other relevant group constructs, e.g., learning climate, use of incentives, platoon pride, job satisfaction, and CTC expectations. Finally, quality of platoon performance at CTCs as rated by the O/Cs at the JRTC is related to the measures of motivation used in this research.

It was suggested above that a useful way to think of motivation may be as the immediate level of energy made available by a soldier for the performance of duty. The assertions made in the last paragraph, however, do not directly address determinants of on-the-spot motivation of soldiers at the CTC's. Momentary decisions about effort expended in the here-and-now determine quality of field performance at any given time. These decisions, made over and over during the course of a day, appear to reflect a set of factors for which quantitative data have not yet become available. Interestingly, the soldiers themselves held strong opinions on what affected their own motivation and they were emphatic in the expression thereof.

What Did The Soldiers Say?

As stated earlier, the POST data collection included open-ended response to interview questions. Soldiers were encouraged to talk freely about their experiences during the recent rotation. The interviewer attempted to receive and accept positive and negative comments with the same interested but non-judgmental mien. Probes were oriented toward issues relating to motivation. A special effort was made toward eliciting specific examples of incidents or decisions affecting soldier motivation. By the same token, special attempts were made to document a fine-grained picture of effects of changes in motivation on actual performance during the CTC exercises.

The interview data thus acquired received careful inspection and consideration both in substance and in tone. Generally, soldier comments confirm a conception of motivation widely held not only among Army leadership but also by the general public. For example, motivation is considered by everyone to be important for unit effectiveness. Minimal performance (i.e., compliance) can be coerced, but unless soldiers want to perform well they will not. Major sources of motivation identified through the POST interviews include leadership, sense of purpose, adequacy of information, and physical factors. An attempt is made in this paper to deal primarily with those issues affecting soldier motivation that fall largely under the control of company and platoon-level leadership. It is believed that consideration of these interview data offers a sense of the major variables operating in the pressure and immediacy of the CTC environment.

Leadership

What they told us: While describing instances when motivation seemed to decrease significantly during their recent CTC experience, soldiers most often referred to alleged blunders or other evidence of ineffectiveness on the part of leadership. Soldiers complained more about leadership that they perceived to be incompetent or unconcerned with soldier welfare than about any other topic. Examples cited of poor leader skills included apparently contradictory orders, uncoordinated or clumsy unit maneuvers, and stifling micromanagement. Examples cited of leader unconcern included: no effort to obtain cold water or hot food when such could easily be had, changes in placement of heavy and complex equipment perceived as whimsical, and lack of interest in soldiers' personal problems.

Soldiers spoke highly of leaders whom they felt had performed well and whom they believed to be concerned with their welfare. It was not unusual for soldiers to state that they would go out of their way to help such leaders show up well to their respective superiors.

Comment: Soldiers want to perceive their platoon and company-level leadership as both competent and caring, even though they exhibit the usual conversational delight in complaining about alleged lapses. A major source of lowered motivation relating to failed leadership lies in a lack of soldier confidence that the leader is concerned with the welfare of each individual. Soldiers seemed quick to lose interest in pleasing their supervisors (a significant source of impetus to perform well in CTC exercises) when convinced that their comfort, status, or welfare was not valued in return.

If soldiers lose confidence in leadership at a given level, e.g., their platoon leader, they appear to attempt to compensate through increased responsiveness to leadership exercised by a more highly regarded superior, e.g. the platoon sergeant or squad leader. It is not clear whether under such circumstances the alternative leader actually modifies his behavior. However, given the closely interactive nature of the typical relationship between squad or platoon-level leadership and the presumed stress from dissatisfaction with the formal leader, it seems likely that an increase in vertical bonding would occur.

It appears essential for high unit motivation that somewhere in the platoon leadership structure there be a leader who is seen as competent, strong enough to provide protection against perceived incompetence or lack of caring by others, and concerned with the welfare of individual soldiers. An essential component of such a leadership bond appears to be some instance, either directly observed or passed credibly by word-of-mouth, of a voluntary act by which the leader at the least renounces personal

convenience, or even risks a more vital interest, in favor of the welfare of subordinates. A frequent example cited was that of a non-commissioned officer assuming blame for an error which could have been bucked down the line. A common variant might be for the leader to take initiative in the absence of guidance from a higher level, for protection of subordinates, thus risking disapproval from his superior. Changing requirements in gear or uniform, for instance, or in physical training or drill schedules, to take account of weather, are home station examples. A related study (based on data from the overall study of which this paper represents a part) seeks to determine whether the level at which this vertical bonding is disrupted has a consistent effect upon quality of unit performance (Alderks, 1991). One preliminary and tentative inference: with a limited supply of experienced and competent subordinate leaders, a commander can maximize overall unit performance by spreading them among subunits rather than by concentrating them in one.

Sense of Purpose

What they told us: Soldiers enthusiastically described performing tasks for which they felt well trained and for which their roles and goals were made clear. As examples, soldiers cited briefings clearly explaining the importance of individual soldier roles in an exercise, an explanation of the mission of the squad or platoon, and how these fit with an overall strategy.

Soldiers complained when they were moved about as though they were, as more than one put it, "training aids for the officers".

Comment: To be motivated to perform a specific task, soldiers seem to need to feel that there is a purpose to what they are doing. Soldier comments based upon CTC exercises suggest strongly that when the military purpose of an exercise is well-understood, motivation to perform well is likely to be high - even if the task itself is arduous or disagreeable. Superficial grousing does not necessarily negate the pride soldiers appear to feel in being a part of what seems to them to be a meaningful military enterprise. These young men, self-selected through voluntary enlistment for competitiveness and agressivity, express an inherent interest or even enthusiasm in the physical activities which make up the missions practiced at a CTC.

Complaints in this area usually involved allegations that no rationale was offered the troops for, say, why or how far they were to march. What they did, therefore, frequently seemed self-canceling and pointless. Similarly, much home-station duty is seen as busy-work, and when this feeling is pervasive, morale suffers. Even for competent units which are usually well-motivated, a specific assignment or task without perceived relevance to a unit goal is unlikely to be performed well.

It is well understood by most soldiers that dissemination of detailed tactical information to individual soldiers during combat cannot be a high priority. For instance, soldiers complain frequently about sudden and (to them) pointless changes in unit movement or position. These complaints are of course insignificant in the face of emergent tactical requirements, and to some degree soldiers learn to accept being moved about for purposes not immediately clear to them. This is apt to be especially true if prior exercises have been properly debriefed, thus creating a history of eventual clarification and understanding. Motivation level will not suffer in a situation like this if there is a vertical bond which includes demonstrated concern for soldier welfare, including acceptance of legitimate soldier interest in the overall purpose of what is demanded of them.

Closely related to sense of purpose seems to be a need for soldiers to feel that they are, both as individuals and collectively as units, valued. Soldiers need to feel that they are acknowledged as assets, that their training is at least intended to be of high quality, and that they are depended upon to perform well. The view is fairly widespread among squad members, for example, that CTC rotations, and most other training exercises as well, are designed mainly for the benefit of officers - to wit, the "training aids for officers" comment. That phrase, which this interviewer found an eloquent expression of futility, was used frequently enough to suggest the possibility that it has become a cliche among enlisted personnel. Even if this is so, the imagery and sense of motivation-damaging frustration evoked by its use were striking. Some soldiers offered as corroboration of this view their resentment of not having received adequate feedback information in regard to their personal CTC performance or that of their unit.

Adequate task information

What they told us: Unsurprisingly, soldiers said that they often lose motivation quickly for dangerous, difficult, uncomfortable, or boring tasks even under the best of circumstances. They said that they remained motivated longer when they knew the length or intensity of the task confronting them, e.g., how long a distance they would be required to march. They reported that this information allowed them to "pace themselves".

Comment: As described previously, soldiers require a personal sense of purpose and worth associated with their roles in a mission. For maximum performance, soldiers also appear to need direct and concrete mission-related information. For example, loss of motivation is greater and occurs more rapidly when the duration of the stressful task seems to be open-ended, and when degree of danger or discomfort is left to the

imagination. If soldiers are informed, insofar as is possible, of the parameters of an impending hardship or hazard, they seem to assimilate the information into a general mental context. This appears to allow for much better management of anxiety, more realistic allocation of cognitive and emotional resources, and perhaps even carries important physiological stress-reducing effects. It is possible that this knowledge bears a psychological resemblance to a sense of partial control, which has a salutary effect for anxiety reduction that is widely known. This effect may stem from nothing more complicated than having been provided sufficient information to estimate and prepare for impending demands - a sort of psychological inoculation effect. In any event, if too much uncertainty exists, fatigue and demoralization can occur much earlier than if realistic expectations had been established.

Therefore, it appears that soldiers should be informed, to the extent feasible under conditions at the time, how far they may have to march, how long they may have to go without resupply of food or water, the probability of a firefight, and about other potential major stressors. Optimally, this information should be updated when major changes occur. Experimental confirmation of this effect was obtained several years ago with soldiers of the Israeli Defense Force (Breznitz 1988).

It should be kept in mind constantly, however, that these present results have been obtained in the context of CTC exercises. It is possible that in combat some information would be counterproductive to soldier motivation and therefore diminish performance quality - thus increasing rather than decreasing casualties. For example, under some circumstances a realistic forecast of casualty odds in an impending battle situation could generate enough anxiety to overwhelm a soldier and thereby severely damage combat effectiveness.

Physical

What they told us: Many comments by squad members suggest strongly that physical fitness and toughening are critical for soldier performance, corroborating a view almost universally expressed by leaders in this sample. Many soldiers described a powerful positive change in attitude and self-image which they say occurred in basic training. They said that this provided a sense of confidence and self-worth which they found indispensable in performing physical activities of which they would not previously have thought themselves capable.

Soldiers reported that aspects of physical environment in the field which are under the control of leaders play a role in determining motivation level. They say that proper (e.g., hot) food, water, shelter and sleep, or clear evidence of an effort by leaders to provide them, even if the effort is unsuccessful, enhance willingness or even enthusiasm for duty.

Comment: Motivation can drop quickly when creature comforts deteriorate. Minimal satisfaction of physical needs is basic to maintained motivation, and its absence causes resentment and diminished interest in the business at hand. It should be noted, however, that the CTC exercises which provided the data for these comments were of only brief duration. It seems very likely, based upon performance of American soldiers in previous wars, that prolonged and continuous exposure to arduous physical and environmental conditions would eventually elicit adaption to and acceptance of constraints which were perceived as unreasonable, if not intolerable, at the CTCs.

Physical competence, mainly endurance and strength, is necessary for walking or running over rough terrain at rapid speed, for carrying weapons, ammunition, and other necessary supplies, and for performing very hard work for very long hours. Toughening implies a mental dimension as well, probably at least as important as the physical one. This mental and physical toughening appeared to have provided those who achieved it with psychological reserves allowing them to withstand the physical demands of a CTC rotation without seriously diminished motivation.

Company and platoon non-commissioned officers overwhelmingly appeared to believe that an important change has occurred in Army basic training which has seriously diminished the physical and mental toughness of soldiers now coming to their first permanent duty assignments. This widespread attitude seems better founded than simply a cliche belief that life was somehow more real and difficult in days gone by. Leaders report that soldiers newly graduated from basic training are less imbued with positive attitudes and less able to bear hardship than previously. If this is true, then motivation and eventually performance are very likely to suffer under combat conditions. One immediate effect, leaders report, is that more time than previously must be spent on physical conditioning at home station, to the detriment of developing expertise in technical skills.

Discussion and Conclusions

It is encouraging that in their responses to questionnaire items soldiers generally expressed positive attitudes and feelings toward their jobs and toward their upcoming CTC experience. Allowing for the natural tendency of soldiers to complain about their environment, it seems fair to say that this sample of U.S. Army light infantry soldiers were genuinely interested in their assigned duties and tried to do well. It is true that the questionnaires were administered in group settings with close individual physical proximity and that this circumstance may have inhibited (or for that matter encouraged) expression of negative feelings and attitudes. More than a few questionnaires did contain responses that were quite negative.

Also, soldiers appeared to accept assurances of anonymity at face value. Further evidence that these soldiers were, in the main, reasonably positive in their attitudes is provided by the largely positive responses they gave to other items comprising scales similarly reflective of feeling state and morale.

It should be kept in mind that the questionnaire and most interview data used in this report were restricted to squad members, i.e., soldiers with positions below that of sergeant/squad leader. Data from POST interviews and questionnaires include responses from all echelons, up through battalion commander, and BASE and PRE questionnaires were completed by all platoon ranks. Further data analyses, of squad and platoon-level leadership responses, will compare these with responses from squad members.

It also should be kept in mind that these data refer tc performance at CTCs and not under actual combat conditions, the ultimate context toward which all research on soldier performance should be oriented. It is entirely possible that the exigencies of combat, especially direct personal awareness of unavoidable vulnerability and danger, would radically revise current estimates of the relative importance of variables which underlie motivation, and the ways in which motivation affects performance.

While the questionnaire data and the CTC ratings provide reassurance on issues of adequacy of measurement of motivation and of the relation of motivation to performance, the POST interview data offer information of a different kind. Here are presented interpersonal and environmental variables, all largely under the control of platoon and company leadership, which appear to determine motivation. However, while these variables are clearly related to motivation one way or another, their relation to performance is not simple. For example, one scout unit which exhibited high motivation under any reasonable subjective definition felt that its contribution to an exercise at JRTC was ignored several times. These soldiers simply stopped performing, although still "motivated". That is, they remained interested in their jobs, continued to enjoy (in general) what they were doing, and still felt that the CTC rotation could offer important training experience. But their immediate reaction to frustration was to lose interest in their immediate assignment and to go though the motions as minimally as possible. It is hard to say what might have brought them back to their previous high level of performance - perhaps a burst of hostile fire would do it, quickly and easily.

A Proposition

One may note that performance ratings by participants were related to each motivation scale less strongly than the presumably more objective ratings made by the O/Cs. CO and PLT

performance ratings showed no significant relationship to soldiers' scores on CTCM (Table 5). Perhaps this result reflects greater competence for O/C raters who, by virtue of experience at the CTCs, have a much broader basis for judging soldier performance. Too, O/Cs probably were in a better position than participants to observe and discuss objectively with peers concurrent performance of other units of the battalion engaged; this might provide a better basis of comparison for judging quality of platoon performance. It may be, though, that judgements made by company commanders and the other participants were colored by prior knowledge of unit motivation. They may, for example, have used more stringent standards (resulting in lower ratings) for units whom they knew to be well-motivated and high-performing at home station. It is, of course, also possible that the opposite effect occurred. Commanders and platoon self-raters may have tended to assign inflated performance ratings to troops known to be well-motivated at home station. This could have resulted in higher-than-deserved ratings of performance for platoons with high basal motivation when compared to judgements rendered by neutral observers. One possible inference from these speculations is that factors affecting motivation in garrison are not identical with those which operate in the field.

Postulating two conceptually independent types of motivation may clarify somewhat the finding that CTC performance relates much more strongly to O/C ratings than to company commander and platoon ratings. The questionnaires may have measured primarily what will be called basal motivation, while situational motivation may have played a bigger role in measured performance at the CTCs.

Basal Motivation: It can be assumed that soldiers going into combat bring along a set of attitudes and habits. These are formed over a lifetime, but also represent the more recent effects of training, leadership, personal relations, and other aspects of the soldier's experience at his home station. By providing a more-or-less continuing internal context for interpretation and evaluation of life events as they occur, this complex powerfully affects behavior. The subset of attitudes and habits which relate to desire to perform well as a soldier, to cooperate in achieving group goals, and to sacrifice comfort, convenience, or even life in favor of mission success, can be regarded as basal motivation. It is this construct which determines the reservoir of goodwill and level of effort applied to the demands encountered at the CTCs.

Situational Motivation: When they were faced with arduous and dangerous demands at the CTCs, perhaps without obvious rationale or purpose, soldiers seemed to perform better the higher their basal motivation. All other things being equal, a soldier who is well-disposed toward the Army and trying to do a good job will outperform a soldier who does not share these

attitudes. However, it appears that under stress, the importance of a set of variables reflecting parameters of the immediate situation appears to increase exponentially. This seems especially true in situations involving stress arising from unanticipated or ambiguous situational demands, as frequently occurred at the CTCs.

This set of factors probably is much more concrete and immediate than those which determine basal motivation. If so, they are at least potentially more readily measurable. They may include physical factors preponderantly, plus relatively labile interpersonal variables such as immediate supervisory competence and tenor of peer relationships. Under such circumstances, basic goodwill and positive attitudes toward the Army are less important in determining the fine grain of behavior on the spot than would be the case for most home station activity.

Some of these factors, especially physical ones, may change rapidly during situations where motivation is an important determinant of performance. Consider, for example, a hypothetical example combining aspects of several experiences reported in POST interviews. A unit proceeds toward an objective when new orders are suddenly received. Destination and duration of the march are altered, but this information is *not* passed along to the troops. Formations become ragged while changing direction in dark and unfamiliar terrain, and some units become separated. At the new destination equipment does not arrive as planned. Orders are given to dig in, but after this is accomplished the soldiers are told to move their emplacement 100 yards and dig in again. It is discovered that water supplies are low, and that the water is warm. Resupply is apt to be delayed until late in the new day. The morning is chilly and no hot food is available. Under these conditions, motivation suffers no matter what the basal motivation level of the troops (although probably less with troops for whom that level is high). Possible consequences include lax security and much less aggressive performance if action is required, with increased likelihood of high casualties. This scenario, in various forms, was frequently reported to have occurred during the CTC rotations studied; bottom-line performance always reflected basal motivation to some extent, but transitory situational variables appeared to play a surprisingly important role even when basal motivation seems to have been relatively high.

It is believed, therefore, that considering separately the sets of factors which affect basal and situational motivation may be of assistance in developing effective procedures to elevate and maintain both. Future research is anticipated to explore the usefulness of this formulation and to derive testable hypotheses related to it. In any event, the relationship noted above between the questionnaire scales and performance at the CTCs, buttressed by POST interview data, suggests an answer to the

query at the beginning of this paper: motivation is important because not only can high motivation act as a performance enhancer, but a loss of motivation can act just as easily as a performance reducer. While home station motivation may not by itself constitute an adequate predictor of performance at CTCs or in combat, it appears to be a significant determinant.

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