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Battalion Effectiveness and Command Climate

It has long been known that effective Army units have high morale and favorable command climates. What has not been known, however, and what has remained a matter of debate, is how this comes about. Does command climate contribute to unit effectiveness or is unit effectiveness a necessary antecedent to a favorable command climate? Or, are command climate and unit effectiveness concurrent products of some third organizational attribute, such as the characteristics of the unit commander. The Command Climate Project was begun in February, 1978 to address these questions. Specifically, this research was aimed at defining the causal dynamics between command climate and morale on the one hand and battalion effectiveness on the other.

However, before command climate, or anything could be related to unit effectiveness, the Army had to understand how to define and measure this effectiveness. Thus a necessary prerequisite for examining the climate-effectiveness relationship was the measurement of unit effectiveness.

Approximately 55 battalions located at six CONUS installations were studied over two years (some measures beyond three years). At each of four waves (May and November of 1978 and of 1979), three types of data were collected on each test battalion: (1) Unit Performance/Readiness; (2) Command Climate Survey Measures; (3) Interviews with Senior Commanders.

Analysis of the results and implications for the assessment and diagnosis of unit effectiveness is presented and diagnosed.

THE MEASUREMENT OF ARMY BATTALION PERFORMANCE

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One of the most central but most perplexing issues in the study of organizations in general, and the study of military organizations in particular, is that of defining valid criteria of organizational effectiveness. This is a central issue inasmuch as any theory of organizational functioning must be validated by its successful prediction of organizational performance. Obviously, the strength of such a validation rests on the degree to which organizational performance is precisely yet comprehensively defined and measured. In this way, the quality of the theoretical and operational definition of organizational effectiveness defines the upward limit of the growth of organizational and military psychology.

In light of the importance of this issue, it is not surprising that a voluminous literature has developed around it. As far back as 1959, over 370 references could be cited as relevant to organizational effectiveness (Wasserman, 1959). In the intervening years, this literature has swelled further to impressive proportions (Goodman and Pennings, 1979). In an attempt to integrate this literature, Campbell, Bownas, Peterson, and Dunnette (1974), have identified two major approaches to this issue. The first of these, the Goal Model, assumes that there are clearly specified short and/or long-term goals for an organization. The assessment of organizational effectiveness then requires a determination of the organization's specific goal or mission, followed by the development of measures which reflect the degree to which these goals are met. Familiar examples of this approach would include cost/benefit analysis and a management-by-objectives approach to organizational effectiveness. The System Model approach, on the other hand, proceeds on the assumption that the goals of any sizable organization are so numerous, complex and dynamic that it is not possible to clearly define a small number of unambiguous, stable, and measurable goals. Rather, the best index of an organization's effectiveness is its general "health" (i.e., the ability of the organization to sustain its capabilities and operations without exhausting resources). "Good health" permits it to continually accomplish its goals, regardless of the nature of these goals or how they may change. Through this model, the assessment of organizational effectiveness does not proceed through a determination of goal attainment but rather through the direct measurement of the organization's "health." Thus, those subscribing to the Systems Model have emphasized organizational processes rather than organizational outcomes.

While this dichotomization of approaches has done much to provide coherence to a burgeoning literature, when it is applied to a military environment it can be seen that both models are simultaneously employed. The overall peacetime goal of Army units is to maintain their readiness to engage successfully in combat operations. In this way, the criterion of organizational effectiveness is singular and defined. Organizational

effectiveness is simply the extent to which the military unit maintains conditions which support its maximum performance in combat (e.g., equipment levels, equipment readiness, or the competence of unit personnel in their combat duties). In line with the Goal Model the Army devotes considerable resources in monitoring such conditions and reporting their status through the Unit Status Report [USR].

The singular unit objective of combat readiness, however, when operationalized on a day-to-day basis, is transformed into a broad spectrum of taskings and requirements. In this way the sense of an orderly and integrated composite of clearly specified, prioritized and unchanging objectives breaks down at the unit level to a condition in which a multitude of often conflicting demands are placed upon the unit. Further, the unit must meet these demands in the fact of shifting priorities and with changing resource levels. In this environment, the unit's flexibility and capability to quickly respond to a wide variety of short-term objectives becomes a truer indication of its effectiveness. A Systems Model approach would therefore be more appropriate to assess the unit's generalized capability of meeting indeterminate objectives. Many measures of unit effectiveness employed by the Army today are congruent with the Systems Model approach. Most of these measures fall into the category of measures usually referred to as "Command Indicators" or "Traditional Indicators," e.g., rates of Absence Without Leave [AWOL], reenlistments, or courts-martial. These measures have been traditionally emphasized in the military because it is felt that they reflect the state of morale and discipline in the unit which in turn are thought to support the unit's general capabilities.

Thus, both models of organizational effectiveness are employed currently by the Army. The Goal Model is used in evaluating the accomplishing of the long-term goal of combat readiness while the unit's capability to meet varying day-to-day objectives is indirectly assessed through a Systems Model approach. In terms of contemporary models of organizational effectiveness then, the approach currently used to assess Army unit effectiveness is one which is quite complete.

The literature is far less supportive of the validity of the Army approach to unit effectiveness assessment. Many questions have been raised regarding the empirical adequacy of current Army unit effectiveness assessment procedures, particularly with regard to those involved with USR (Robinson, 1980; Ross, et. al., 1979; Sorley, 1979; Sorley, 1980; U.S. Army Concepts Analysis Agency, 1975; U.S. Army War College, 1976). The magnitude of the deficiencies identified with the USR can be best summarized in one of the many findings of the Army War College (1976) study on unit effectiveness reporting. Of the approximately 2,100 Army personnel surveyed as a part of this study a full 70 percent

reported that the Unit Status Report does not reflect the true readiness condition of a unit. The particular deficiencies in this system which had been advanced to explain its lack of manifest validity have included: (1) the subjectivity of measures--it is felt that there is a substantial degree of latitude for subjective interpretation of unit conditions that it is permitted in filling out the USR. For example, the estimate of training readiness, one of the major components of unit readiness measured on USR, is based upon the unit commander's estimate of the number of weeks of training the unit would need to be fully ready for combat. It is felt that in light of the pressures on commanders to maintain their units at maximum readiness, this unsubstantiated estimate is likely to be overly optimistic, (2) statistics management--evidence was found in the War College study to suggest considerable pressure being placed upon unit personnel to have the units portray a maximally positive readiness condition on the USR even to the extent of overlooking genuine unit deficiencies, (3) standards--it has been stated that the standards employed for determining readiness on the USR are either too lax (Sorley, 1979), too strict (U.S. Army War College, 1976), or inconsistent across branches of the Armed Forces (US Army War College, 1976), (4) complexity of procedures--the USR has been criticized as entailing complex procedures that are not always explained fully or well in the supporting regulations. Accordingly, there is a higher probability of errors being made in reporting unit readiness.

In addition to the measures reported on the USR, other factors employed in assessing unit effectiveness, particularly the command indicators, have been subjected to scrutiny and criticism. Unlike the USR measures, these indices are not systematically reported to the higher echelons of the Army command structure. However, unit measures on these variables are used quite frequently at the local level as indicants of unit conditions and problems. Sorley (1979) has been critical of the use of such measures inasmuch as he sees them leading to a "management by statistics" in which those factors, which are more readily quantifiable, are given greater command emphasis than those which more substantively support and reflect unit effectiveness but which are less readily measured. Too often, he feels, command attention is expended on "getting the numbers right" in such areas of questionable military value as motor vehicle accidents or letters of indebtedness among unit personnel at the expense of diverting command attention from such areas as unit training and equipment maintenance. The position underlying his assertions is that statistical indices of unit operations, particularly those relevant to the personnel area, are of questionable utility in assessing areas pertinent to unit effectiveness. Clearly, some of these statistical measures are more germane to unit effectiveness than are others. What is needed is an empirical

determination of the relative value of each of these measures for assessing unit effectiveness. In the absence of this, it is left to individual opinion as to which of the wide variety of possible measures are true indicants of unit capability. Such a condition can only lead to a proliferation of measures on which units are assessed and judged but which are of little or no value as true measures of unit effectiveness.

The purpose of this research is to examine the validity of the most commonly employed measures of Army unit effectiveness. To accomplish this, the interrelationship among variables that purport to measure the same organizational construct (e.g., combat readiness, morale) will be examined to determine the concurrent validity of these measures.

METHODS

SAMPLE

Measures of unit effectiveness were taken from a sample of 71 battalions located in USAREUR and CONUS. These battalions constituted a representative sample of Combat Arms, Combat Support, and Combat Service Support battalions.

Measures

The measures of unit effectiveness which were employed in this research fell into three major categories: Direct Readiness measures, Command Indicators, and Personal Judgements. The specific measures used in the first two categories are displayed in Figure 1 and Figure 2, respectively. The Personal Judgements measures consisted of estimates of battalion effectiveness by the Division Commander, the Assistant Division Commander, and the Brigade Commander above the battalion in the chain of command and of the service members, Non-Commissioned Officers [NCOs], and officers within each of the battalions. The judgements of the Division Commander, Assistant Division Commander, and Brigade Commander were collected in the course of an interview with each of these individuals. In the course of these interviews these commanders were asked to assess the effectiveness of each of the sample battalions using a 13-point rating and also to rank each battalion relative to the other battalions in the rater's command. The rating and the ranking were each converted to standard scores and then combined into a single battalion effectiveness score for that rater. Estimates of battalion effectiveness were collected from service members, NCOs, and officers within each of the battalions in the course of a survey administered to unit personnel. Responses to each of three items regarding overall battalion effectiveness were averaged for each individual. These scores were then aggregated to produce an average SM, an average NCO, and an average officer estimate of battalion effectiveness for each of the battalions.

OVERALL READINESS	A battalion's overall readiness status as reported in the monthly Unit Status Report.
PERSONNEL READINESS	A battalion's personnel readiness status as reported in the monthly Unit Status Report.
EQUIPMENT ON HAND	An index of the degree to which a battalion possesses all authorized equipment, a reflection of the battalion's supply system.
EQUIPMENT SERVICEABILITY	The maintenance status of a battalion's equipment, a reflection of the battalion's maintenance system.
EQUIPMENT ON HAND RATED RDY	The proportion of equipment a battalion actually has on hand that is operational.
ARTEP	The percentage of the missions/tasks rated "satisfactory" during a battalion's most recent field training exercise.
AGI	The percentage of the areas rated "satisfactory" during a battalion's most recent annual general inspection.

FIGURE 1
 READINESS MEASURES

ARTICLES 15	The percentage of enlisted personnel administered nonjudicial punishment (e.g., fines, reductions in grade) during a given month.
COURTS MARTIAL	The percentage of enlisted personnel receiving a court martial during a given month.
AWOL	The percentage of enlisted personnel who were involved in unexcused absences during a given month.
DESERTIONS	The percentage of enlisted personnel who deserted during a given month.
FIRST TERM RE-UP	The percentage of a battalion's first-term reenlistment objective that was achieved in a given month.
CAREER RE-UP	The percentage of a battalion's reenlistment objective for career personnel that was achieved in a given month.
CRIMES OF VIOLENCE	The percentage of a battalion's enlisted strength involved in crimes of violence in a given month.
PROPERTY CRIMES	The percentage of a battalion's enlisted strength involved in crimes against property in a given month.
DRUG ARRESTS	The percentage of a battalion's enlisted strength arrested for drug and marijuana violations in a given month.

FIGURE 2

COMMAND INDICATORS

Procedure

Data were collected in the course of four data waves in May and November of 1978 and 1979. In Wave 1, Direct Readiness and Command Indicator data were collected for the preceding five quarters, while in the subsequent waves these data were collected only for the intervening time periods. The Personal Judgements data were collected in the course of interviews and surveys conducted during each data wave.

RESULTS

Pearson correlation coefficients were computed among the measures constituting each of the three groups. It was anticipated that the measures in each of the three groups would be significantly intercorrelated inasmuch as the same construct. That is, Director Readiness measures purportedly reflect direct assessments of the unit's capability to perform its mission while Command Indicators assess the degree of morale and discipline in the unit and the Personal Judgements measures reflect the reputation of the unit for effective performance.

The correlations among the Direct Readiness measures are displayed in Table 1. As shown, agreement of the USR measures with ARTEP and AGI results was restricted to USR measures pertaining to the maintenance status of equipment. In contrast to this, there was nearly universal agreement among the various USR measures. This agreement suggests that a substantial component of the variance of the USR measures is attributable to a general factor which supports high REDCON ratings in all areas. A possibility exists that this general factor is, at least in part, attributable to the priority given to the unit in allocating resources, that is, the unit's position on the Department of the Army Master Priority List [DAMPL]. This possibility is suggested by the differences in the significant correlations which the Equipment Serviceability REDCON rating shares with the other REDCON ratings in contrast to the lack of significant correlations between the Equipment Readiness measure and these REDCON ratings. The difference between the Equipment Serviceability REDCON and the Equipment Readiness measure is that the former measure reflects the condition of the unit's total allocated equipment while the latter reflects the condition of the equipment that the unit actually has on hand. Thus, the portion of variance which the Equipment Serviceability REDCON shares with the other REDCON ratings reflects the extent to which this measure is influenced by the units being supplied with its required resources while the variance it shares with the Equipment Readiness measure reflects the degree to which the unit successfully applies its level of resources to maintaining its equipment.

TABLE 1
MEAN CORRELATIONS AMONG DIRECT READINESS MEASURES
OF BATTALION EFFECTIVENESS

	ARTEP	AGI	CO	CPER	CEOH	CESC	CTRN	WKS	EQRD
ARTEP	1.00								
AGI	.19	1.00							
Overall REDCON ² (CO)	.27	.16	1.00						
Personnel REDCON (CPER)	.13	.06	.69**	1.00					
Equipment on Hand REDCON (CEOH)	.02	.04	.48**	.11**	1.00				
Equipment Serviceability REDCON (CESC)	.59**	.39**	.47**	.14**	.44**	1.00			
Training REDCON (CTRN)	.30	.02	.60**	.56**	.22**	.26**	1.00		
Weeks to Readiness (WKS)	-.22	.03	.54**	.47**	.20**	.27**	.86**	1.00	
Equipment Readiness (EQRD)	.54**	.40**	.32**	.04	.03	.74**	.12**	-.10*	1.00

* p < .05

**p < .01

²All REDCON ratings have been scored such that higher scores indicate greater readiness.

Therefore, the findings that both Equipment Serviceability REDCON and the Equipment Readiness measure are correlated with ARTEP and AGI performance while the other REDCON ratings are not indicate that it is the unit's ability to make the most of what it has which is the common element producing these correlations.

The mean correlations among the Command Indicators measures are exhibited in Table 2. There was a fair degree of agreement among these measures as 29 of the 55 mean correlations were significant. However, with a few exceptions, these significant means correlations were too small to support the interpretation of there being a single dimension underlying these measures. If one were to use a minimum cutoff value of only .20 as a criterion of practical utility, then only 9 of the 55 correlations would meet or exceed this value. Of these nine, one (between AWOL rate and Desertion rate) is preordained by the operational definitions of these measures, four (AWOL rate, Desertion rate, and Crimes Against Property rate with rate of Articles 15, and Drug Arrest rate with Courts-Martial rate) appear to describe linkages between specific violations of Army regulations and the punishment typically administered in response to team, while the remaining four mean correlations (between Articles 15 rate and Adverse Discharge rate, between First-Term Reenlistment rate and Career Reenlistment rate, and between Crimes Against Property rate and both Crimes of Violence rate and Drug Arrest rate) constitute agreement among measures tapping into similar functional areas of unit operation.

Considering the directionality of these significant mean correlations, it can be seen that the nature of the interrelationships among these variables is even more complex. First-Term Reenlistment rate, for example, correlates positively with rate of Adverse Discharges, Courts-Martial, Drug Arrests, and Career Reenlistment, yet negatively with rates of AWOLs, Desertions, Crimes Against Property, and Crimes of Violence. There is, thus, no simple pattern in which such a "positive" measure at First-Term Reenlistment rate is positively associated with other "positive" measures and inversely related to "negative" measures (e.g., Drug Arrest rate).

In summary, the correlations shown in Table 2 indicate that these measures are not alternative measure of a single underlying construct such as morale or unit effectiveness. Indeed, there appears to exist some trade-offs among the facets of unit operation reflected in these measures, so that high scores on some negative measures are associated with desirable unit outcomes (e.g., reenlistments).

The correlations among the Personal Judgments measures of battalion effectiveness can be seen in Table 3. In contrast to the other two groups of measures, there is a substantial degree

TABLE 2
 MEAN CORRELATIONS AMONG COMMAND INDICATOR MEASURES
 (11 Quarters, N = approx. 400 battalion-level observations)

	EDP	ADVRS	ART	C-M	AWOL	DFR	FREUP	CREUP	COV	PROP	DRUG
Expeditions Discharge (EDP)	1.00										
Adverse Discharge (ADVRS)	.09	1.00									
Articles 15 (ART)	.07	.29**	1.00								
Courts-Martial (C-M)	.08	.03	.11*	1.00							
AWOL	.15*	.09	.26**	.07	1.00						
Desertions (DFR)	-.02	.07	.23**	.10	.50**	1.00					
First-Term Reenlistment (FREUP)	.03	.19**	.01	.17**	-.10	.09	1.00				
Career Reenlistment (CREUP)	.16**	.02	.04	.15**	.00	.05	.41**	1.00			
Crimes of Violence (COV)	.06	.03	.12**	.05	-.01	.02	-.09*	.03	1.00		
Crimes Against Property (PROP)	.02	.00	.20**	-.01	.14**	.09	-.10	.00	.25**	1.00	
Drug Arrests (DRUG)	.18**	.02	.05	.23**	.03	.02	.15**	.14**	.16**	.42**	1.00

* p < .05

**p < .01

TABLE 3

MEAN CORRELATION AMONG PERSONAL JUDGEMENTS
OF BATTALION EFFECTIVENESS (4 WAVES)

	CG	ADC	BDE	OFF	NCO	SM
External Perceptions						
Division Commander (CG)	1.00					
Ass't Division Commander (ADC)	.64**	1.00				
Brigade Commander (BDE)	.44**	.50**	1.00			
Internal Perceptions						
Officers (OFF)	.34**	.28**	.35**	1.00		
NCOs	.10	.10	.33**	.55**	1.00	
Service Members (SM)	.16*	.17*	.29**	.26**	.26**	1.00

* p < .05

**p < .01

of correlation among these independent estimates of battalion effectiveness. The extent of this agreement, however, is a function of the proximity in the chain of command of the individuals providing the judgment of effectiveness. Thus, there appears to be a perspective on battalion effectiveness which varies gradually across command echelons, such that individuals in intermediate echelons (i.e., Brigade Commanders, Battalion Officers) partially share the perspective of both those above and those below them in the chain-of-command while individuals in more extreme echelons seem to hold widely disparate views regarding what constitutes unit effectiveness.

DISCUSSION

Of all the findings of the present research, that which is most serious in its consequence is the meager concurrent validity among the direct measures of unit mission capability, i.e., the Direct Readiness measures. The lack of concurrence between ARTEP and AGI results is somewhat understandable in light of the different emphases of these two evaluations. That is, ARTEP exercises strongly emphasizes the tactical proficiency of the unit while the AGI has a much stronger emphasis on garrison activities and procedures. Further, there is likely to be a considerable period of time separating a unit's ARTEP from its AGI. In the present results this time period was permitted to extend to as much as six months. It is not at all inconceivable that in the course of the time period separating these two evaluations a battalion could substantially increase or decrease in its overall effectiveness.

More troublesome than the lack of agreement between the ARTEP and AGI results in the rather spotty agreement between these two measures and those reported on the USR. Here, it was seen that the Overall REDCON measure--the "bottom line" on the USR--bore no relationship to battalions' effectiveness as measured by ARTEPs or AGIs. Further, the Training REDCON, which should have been the REDCON most closely aligned with performance on an ARTEP, a training evaluation, was not at all associated with it. These findings serve to support earlier criticisms of the USR (Robinson, 1980, Ross, et. al., 1979; U.S. Army Concepts Analysis Agency, 1975; U.S. Army War College, 1976; Sorely, 1979). However, the present findings suggest that to the degree that the Equipment Serviceability REDCON reflects not a battalion's level of allocated resources, but rather the battalion's ability to effectively apply its available resources in maintaining its equipment, it can constitute an acceptable measure of battalion effectiveness. This finding would therefore support a recommendation that the Equipment Serviceability REDCON could be improved if it were to be based on the percentage of the equipment that the unit actually has on hand which is ready rather than on a percentage of allocated equipment which is ready.

Even though Command Indicators have long been employed in the military as indices of overall unit morale, there is no evidence in the present results to suggest the presence of any global factor underlying these measures. Rather, these results show that the relationship among these variables are quite complex so that, for example, some "positive" indices (reenlistment) are directly related to some "negative" measures (e.g., Courts-Martial). Such findings clearly show the danger of evaluating the effectiveness of a battalion, or a battalion's command, by reference to a single score on a single measure without consideration being given to the dynamics and conditions which fostered that score. That is, these findings are an indictment of "management by statistics" approach to monitoring and maintaining unit effectiveness. A unit's high or low score on any of these Command Indicators cannot be taken as a sign of unit morale or discipline without additional information about why that score is at that level.

The relatively high degree of consensus along the professional judgments of individuals familiar with the unit suggests that such "soft" measures of unit effectiveness would be useful adjuncts to "hard" unit effectiveness measures in providing a total picture of unit capability. The broad consensual base which extends up to and includes the division commander shows that such an addition is not required at the local level. It is at the higher echelons where critical long-range decisions are made, with a heavy reliance on standard statistical indices of unit effectiveness, indices which the present results indicate have definite shortcomings. Future efforts should be expended to develop and evaluate methods for systematically and validly providing the potentially rich source of information which can be gleaned from judgments of military professionals familiar with the unit. The present results, in conjunction with related research (Kerner-Hoeg and O'Mara, 1981), indicates that this data should include the input of unit officers and NCOs at a minimum.

In conclusion, the results of this research indicate that the estimation of military unit effectiveness is an area which has some promise but a promise that is not presently being realized to a substantial degree. The findings support the position of neither the most optimistic supporter nor the most pessimistic critic of current methods of effectiveness assessment. Rather, they indicate that there are several shortcomings in current systems which can be fruitfully addressed at present while in other areas, ameliorative efforts must await a fuller articulation of the dynamics of military unit operation.

REFERENCES

- Barzily, A., Catalogne, P.R., & Marlow, W.H. Assessing Marine Corps Readiness (T-430). Washington, D.C.: The George Washington University, September 1980.
- Bowser, S.E. Determination of Criteria of Operational Unit Effectiveness in the U.S. Navy (NPRDC TR 76TQ-41). San Diego, California: Navy Personnel Research and Development Center, August 1976.
- Campbell, J.P., Bownas, D.A., Peterson, N.G. & Dunnette, M.D. Measure of Organizational Effectiveness: A Review of Relevant Research and Opinion. Final report to Office of Naval Research, under Contract N00022-73-C-0023, Minneapolis, Minnesota, 1974.
- Kerner-Hoeg, S.E. & O'Mara F.E. Commanders' Assessment of Unit Effectiveness Measures. Paper presented at the 23rd Annual Conference of the Military Testing Association, Arlington, Va., 1981.
- Robinson, R.M. Objective Measurement of Training Readiness. Carlisle Barracks, Pennsylvania: U.S. Army War College, May 1980.
- Ross, G., Murphy, J., March, M., Robinson & Tullington, B. Military Organizational Effectiveness/Readiness and Substainability. Final report to Headquarters, Department of the Army under Contract DAA1C21-79-0015, McLean, Virginia: Science Applications, Inc., September 1979.
- Sorley, L. Professional Evaluation and Combat Readiness. Military Review, October 1979, 41-53.
- Sorley, L. Prevailing Criteria: A critique. In Sarkesian, S.C. Combat Effectiveness--Cohesion, Strees, and the Volunteer Military. Beverly Hills: Sage Publications, 1980.
- U.S. Army Concepts Analysis Agency, Readiness System Study, Phase I Analysis. AD-A029 387, August 1976.
- U.S. Army War College, U.S. Army Unit Readiness Reporting. ACN 75025, June 1976.