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The Development of a Unit Morale Measure for Army Battalions

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An instrument measuring organizational morale was constructed from unit member satisfaction responses aggregated to the battalion level. The data were gathered at three different points in time from military personnel within 55 CONUS battalions. Significant positive correlations between the satisfaction scores and an independent index of affective orientation supported the widely held, but largely untested assumption that satisfaction measures are indications of an individual's affective orientation toward   (Continued)

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20. (Continued)

his/her unit. Analysis of the instrument's psychometric properties showed it to be a reliable and valid measure of morale as an organizational characteristic as distinct from an individual level variable. Theoretical and applied implications of these findings for the study of organizational morale in military and nonmilitary units are discussed.

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The Development of a Unit Morale Measure for Army Battalions

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For a number of years, the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) has conducted research to identify organizational factors impinging on soldier retention and mission accomplishment. The data for this study were collected as part of a larger Command Climate project which assessed climate, cohesion, morale, leadership, unit effectiveness, and other organizational variables at Army battalion level and investigated the dynamic interrelationships of these variables over time.

This particular report is concerned with the measurement of morale in Army battalions. It describes the construction and validation of a measure that can be used both as an assessment instrument and as a research tool to study organizational morale in Army units.

EDGAR M. JOHNSON
Technical Director

THE DEVELOPMENT OF A UNIT MORALE MEASURE FOR ARMY BATTALIONS

EXECUTIVE SUMMARY

Requirement:

To construct and validate an organizational morale measure from aggregated unit member satisfaction responses.

Procedure:

Job satisfaction measures were administered at three different points in time to a sample of 55 combat arms, combat support, and combat service support battalions at six CONUS installations. At each data collection wave, an independent sample of service members, NCOs, and officers was randomly drawn, using the last digit of individual social security numbers. The total sample consisted of 5,844, 6,182, and 6,875 individuals for waves 1, 2, and 3, respectively. A morale score for each battalion was generated by first averaging the battalion members' responses to the satisfaction items into a "General Satisfaction" score for each individual, and then averaging the General Satisfaction scores for all battalion members.

Findings:

(1) The individual satisfaction measures were significantly correlated with a derived measure of affect, suggesting the validity of the satisfaction measures as indicants of affective orientation.

(2) The battalions differed significantly on the General Satisfaction measure, suggesting that affective orientation is a measurable organizational attribute and can, thus, be analyzed at this level.

(3) Battalion morale scores on adjacent data collection waves were significantly correlated, offering further support for the hypothesis that morale is a relatively stable organizational variable.

Utilization of Findings:

The organizational morale measure developed in this research project can be used to assess unit morale and as a research tool to gain a better understanding of the antecedents and consequences of this most important concept.

THE DEVELOPMENT OF A UNIT MORALE MEASURE FOR ARMY BATTALIONS

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INTRODUCTION

While there are obviously many factors contributing to mission accomplishment, one that has been consistently emphasized by military strategists over the years is the unit's morale. For example, Munson (1921), a former brigadier general, believed that the relationship between morale and unit effectiveness "is so obvious and has been proven so often as to require no supporting argument" (p.2). Similarly, Baynes (1967), writing about the Second Scottish Rifles at the World War I Battle of Neuve Chapelle, suggested that "the maintenance of morale is recognized in military circles as the most important single factor in the war" (p.92). In a recent review of the morale literature, Motowidlo et al. (1976) indicated that this opinion is still widely held throughout the military and concluded that "apparently, hardly any military commander doubts that morale is a potent force determining group effectivenes" (p.52). However, these authors also pointed out that despite its stated importance, no coherent theory of organizational morale exists, and there is virtually no systematic empirical literature on the subject.

An important first step to learning about organizational morale would be to construct a reliable and valid measure of the concept. Motowidlo and Borman (1977) were only partially successful in developing such an instrument. Although the authors reported some evidence for the scale's convergent validity, its reliability was low and there were indications of a halo effect in the ratings. The major purpose of the present study was to develop an instrument that was free from such deficiencies.

One obvious issue to consider before developing a valid morale measure is its definition. Unfortunately, there are almost as many definitions of morale as there are people writing about it. This problem was highlighted by Motowidlo et al. (1976) in their discussion of a 1958 conference on industrial morale:

> It was evident that although the participants were all ostensibly discussing morale, they were all talking about somewhat differ- ent things. Each seemed to have his own notions about morale, and none of their definitions corresponded exactly to what... [discussants at an earlier conference]...concluded about morale, although there was some overlap. (p.50)

While definitions differ, most writers seem to agree that morale represents an affective orientation towards the work unit or organization and includes "job satisfaction" as one of its major components. Tamapol (1963), for example, saw morale as "the sum of the satisfactions an employee derives on the job." (p.5), and Guion (1958) defined it as "the extent to which the individual perceives that satisfaction as stemming from his total job situation." (p.62). Similarly, Stagner (1958) emphasized satisfaction in his morale definition as well: "Morale is an index of the extent to which an individual perceives a probability of satisfying his own motives through cooperation with a group" (p.64).

It should be noted, however, that these definitions characterized morale as an individual-level variable, while most military writers (e.g., Baynes, 1967; Munson, 1921) and some organizational theorists (e.g., Applewhite, 1965; Martin, 1965) describe the concept as an organizational variable characteristic of the unit as a whole. In a study referred to earlier, Motowidlo and Borman (1977) used such an organizational level definition as a basis for constructing their morale measure. Their definition was as follows:

> Morale, it is most general sense, might be defined as a psycho-logical state shared by members of a group that consists of general feelings of satisfaction with conditions that have impact on the group and strong motivation to accomplish group objectives despite obstacles or adversity. (p.177)

Based on these conceptual definitions, it would appear appropriate to develop an organizational level morale measure by aggregating unit member responses to a series of job satisfaction items. Such an approach, however, has been criticized on a number of grounds. Some writers question the use of satisfaction as the only indicant of morale. Blum and Naylor (1968) and Motowidlo et al. (1976), for example, argued that an adequate definition of morale should include such factors as motivation and cohesion, and not be limited to job satisfaction alone. However, this assumption is not shared by all those who write on the subject, as Martin (1965) and Tamapol (1963) both contended that satisfaction is the major (if not the only) determinant of morale.

A second criticism involves the appropriate level of analysis to use in defining such affective constructs as satisfaction and morale. Guion (1973) and Lincoln and Zeitz (1980) argued that while it is possible to aggregate scores on an individual level

variable to form an organizational attribute, it makes little sense to do so with an affective characteristic such as satisfaction. They explained that satisfaction, like all evaluative or affective constructs, is subject to an individual's unique motives, values, and job environment. Since these characteristics differ from individual to individual, they believed it would be pointless to aggregate satisfaction scores in an attempt to form a relatively stable and generally agreed upon affective orientation toward the organization. The assumption appears to be that since job satisfaction is an individual-level variable, the affective orientation toward the organization resulting from aggregated satisfaction scores must also be an individual- level variable. Motowidlo and Borman (1978) questioned this argument in a study correlating aggregated satisfaction scores with their morale measure described earlier. Significant relationships were reported. However, their results cannot be taken as conclusive because of the previously mentioned psychometric problems with their morale instrument.

The development of the present morale measure proceeded in two phases. In the first of these, a test was performed to determine whether satisfaction measures are true indicators of an individual's affective orientation towards the organizational setting. While this has been stated as an assertion in the literature (Guion, 1958), it is one which has not heretofore been based on empirical evidence. Clearly, any operational definition of morale that is based on such a contested assumption is one which possesses an uncertain foundation.

The second phase of the analysis examined the psychometric qualities of an organizational morale measure of Army battalions that was based on the combination of unit members' affective orientation as measured by satisfaction items. If unit member consensus on this variable reflects a true organizational attribute, then satisfaction measures should distinguish among organizational units and should show a degree of stability across time.

Specifically, the following hypotheses were tested: (1) Satisfaction measures are true indicators of an individual's affective orientation toward the organization; (2) Satisfaction measures will differ significantly between Army battalions; (3) Unit morale, as measured by aggregated satisfaction scores, will be relatively stable across time.

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METHOD

Subjects and procedures. Data were collected from a sample of 55 combat arms, combat support, and combat service support battalions located at six installations in the Continental United States (CONUS). Surveys were administered in large groups by teams of researchers at three six-month intervals. At each wave of data collection an independent sample of service members, NCOs, and officers within each unit was drawn randomly using the last digit of individual social security numbers. All companies within the battalions were requested to select a sample consisting of 20 service members, 10 noncommissioned officers, and five officers per company, supplemented by five battalion staff officers. Table 1 displays the composition of each wave sample by rank and unit type. As shown, the total sample for each wave consisted of 5,844, 5,182, and 6,875 individuals, respectively. The battalion representation in this sample varied slightly from wave to wave depending on the availability of battalions for testing at each time frame.

Measures. The survey contained two sets of items. One set was composed of four items drawn from the Survey of Organizations (Taylor & Bowers, 1974) and measured individual satisfaction toward four organizational domains: unit, supervisors, coworkers and job. These items were scored so that a higher score represented greater satisfaction. The second set contained 69 items and measured organizational climate on the same four domains as the satisfaction items. The "unit" climate domain included measures of such areas as unit effectiveness, quality of communications, organizational standards, and the orderliness and purposefulness of unit activities. The "supervisor" domain measured various facets of leadership behavior, including supervisory considera-tion, initiation of structure, and leader planning ability. The "coworker" domain assessed levels of cohesion and motivation among unit members, while the "job" domain assessed various characteristics of unit members' jobs such as job pressure, job enrichment, and levels of job responsibility. The actual satisfaction and climate items used in the survey can be found in Appendix A.

Following data collection, quality control procedures were instituted to screen answer sheets for evidence of incomplete, inattentive or biased responding. The procedures included a computer analysis of each subject's data to identify the prevalence of various forms of pattern responding. The most common form of pattern

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TABLE 1

SAMPLE COMPOSITION BY WAVE, RANK AND UNIT TYPE

Rank	Unit Types	Wave			Total
		_1_	_2_	_3_	-
Service Members	CA[1]	2,451	2,571	2,563	7,585
	CS	695	642	877	2,214
	CSS	535	694	811	2,040
	Totals	3,681	3,907	4,251	11,839
NCOs	CA	1,083	999	1,057	3,139
	CS	311	311	377	999
	CSS	242	290	433	965
	Totals	1,636	1,600	1,867	5,103
Officers	CA	317	433	434	1,184
	CS	130	146	174	450
	CSS	80	96	149	325
	Totals	527	675	757	1,959
Total		5,844	6,182	6,875	18,901

[1]CA = Combat Arms
CS = Combat Support
CSS = Combat Service Support

responding was one of selecting the same response alternative over a long series of items. Data from subjects who selected the same response alternative for 25 of more successive items were removed from further analyses. This quality control procedure resulted in the elimination of approximately three percent of the data.

In order to determine if satisfaction represents a member's affective orientation toward the organization, an index of affect was constructed from the climate items to compare with the scores on the satisfaction items. All the climate items were independently judged by two judges as being affectively positive, negative, or neutral. Items were included in the neutral category if they were assessed as such by both judges or if there was disagreement as to their categorization. There were two items placed in this category. Of the remaining 67 items, the judges reached agreement on 50 items in the positive category and 17 in the negative category.

The item responses were converted to standard scores to insure comparability. The z- scores for all positively and all negatively rated items were then averaged separately, while the neutral items were eliminated from further analysis. The two resulting statistics were labeled z+ and z-, with the first of these being an indicant of a subject's tendency to agree to affectively positive items and the second reflecting agreement to affectively negative items.

To test for the possibility that these measures were indicants of an acquiescent response set rather than a true measure of degree of affect, a Pearson product moment correlation coefficient was calculated between z+ and z-. If a positive correlation were found, this would indicate an acquiescent response set that was independent of the content of the items. A significant negative correlation, on the other hand, would suggest that subjects were selectively attending to the affective content of the items and were responding in a manner consistent with their generalized affect towards their situations. Significant ($p < .001$) negative correlations were observed between z+ and z- of -.50, -.49, and -.47, for waves 1, 2, and 3 respectively, suggesting that the indices were, in fact, measuring affective orientation. The z+ and z- statistics were then combined into single affective orientation index (AI) using the equation:

$$AI = (z+) - (z-) / 2$$

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Despite the unequal number of items underlying z+ and z-, these two indices were weighted equally in this computation so that the AI index equally represented affectively-consistent agreement and disagreement across the entire range of items. A positive score on this index, therefore, indicates the degree to which a subject displays a tendency to agree with affective positive items and disagree with affectively negative items. Conversely, a negative score reflects a subject's tendency to disagree with affectively positive items and agree with affectively negative items across content areas in the questionnaire.

RESULTS

The validity of satisfaction items as indicators of affective orientation (Hypothesis 1) was determined by their relationship with the derived measure of affect, AI. Table 2 shows the correlations between AI and the satisfaction items for each of three waves of data collection. It is clear that there is substantial correlation between the satisfaction measures and the independent measure of affective orientation, thus supporting the hypothesis that satisfaction represents a member's affective orientation toward the organization.

TABLE 2

ZERO ORDER AND MULTIPLE CORRELATION BETWEEN AFFECTIVE
INDEX (AI) AND SATISFACTION MEASURES

	Wave 1	Wave 2	Wave 3
	r	r	r
Satisfaction with Unit	.63	.63	.63
Satisfaction with Supervisor	.65	.63	.65
Satisfaction with Coworkers	.44	.46	.44
Satisfaction with Job	.61	.62	.60
Multiple R	.81	.79	.80

The intercorrelations among the four satisfaction items were all significant beyond the .0001 level. Given this intercorrelation, responses to these four items were averaged to produce a single "General Satisfaction" score for each individual. This single measure of General Satisfaction was employed to test hypotheses 2 and 3 regarding the validity of affective orientation as an organizational attribute. The internal consistency of this measure was assessed through the computation of Cronbach alpha coefficients, which were .74, .72, and .72 for waves 1, 2, and 3, respectively.

Two different approaches were employed to assess the use of affective orientation as an organizational attribute. The first approach examined the discriminant validity of the General Satisfaction measure at the battalion level (Hypothesis 2). If General Satisfaction varied only at the individual level, it would be randomly distributed across battalions, and there would be no differences between battalions on this variable. However, if affective orientation was a true organizational attribute, then different battalion settings would produce different General Satisfaction levels. Accordingly, the 55 battalions were compared on General Satisfaction using the one-way analysis of variance technique. As shown in Table 3, Hypothesis 2 was supported. Battalions differed significantly on this measure, and this finding was consistent across the three waves. This suggests that affective orientation is a true organizational attribute and can thus be analyzed at this level.

TABLE 3

RESULTS OF ONE-WAY ANOVAS TESTING DISCRIMINABILITY
OF GENERAL SATISFACTION MEASURE BY WAVE

	Wave		
	1	2	3
F	4.14	5.62	4.14
df	48,5643	52,6294	48,5643
p	.001	.001	.001

NOTE: $p < .001$ for all coefficients

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The second approach was to determine the stability of aggregated satisfaction (i.e., morale) at the organizational level (Hypothesis 3). To perform this analysis, the General Satisfaction score for each individual was aggregated to the battalion level producing a mean satisfaction score for each battalion. (See Appendix B for this measure's mean and standard deviation). Inasmuch as this aggregated measure characterizes the affective state of the unit as a whole, it reflects the concept of unit morale. If morale is, in fact, a meaningful organizational construct, then the battalion morale measure should be positively correlated across the six months separating adjacent data collection waves. The observed correlation coefficients across the adjacent waves were positive and significant for both the Wave 1/Wave 2 comparison ($r = .28$, $p<.02$) and that for Wave 2/Wave 3 ($r = .39$, $p<.01$). Thus, the result supports Hypothesis 3 and suggests that morale, as measured by aggregated unit members satisfaction, is a relatively stable organizational construct.

DISCUSSION

The significant correlations found at the individual level of analysis between the satisfaction items and our derived measure of affect support the commonly held, but largely untested, assumption that job satisfaction directly reflects an individual's affective orientation toward his/her work environment. More importantly, however, the findings derived through the analyses of the morale measure take affect out of the realm of individual psychology and suggest that an affective variable such as morale can be legitimately operationalized at the organizational level. This not only clarifies the nature and function of this variable, but has important implications for the understanding of related variables as well.

One such variable is organizational climate. While a very extensive literature has developed around organization climate and its contribution to the understanding of organizational dynamics, this concept has suffered from several basic definitional problems. The two most central problems have concerned the appropriate level of analysis for this variable (i.e., what is the relationship between organizational climate and psychological climate?) and the degree of redundancy between either organizational or psychological climate on the one hand with affect on the other. Positions on this latter issue have ranged from those who have held that climate and satisfaction are

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theoretically and empirically distinct (Schneider & Reichers, 1983) to Guion's (1974) contention that climate is only a "rediscovery of the job satisfaction wheel." While research results have been advanced in support of both positions, the resolution of this important issue has been impeded by level-of-analysis problems. That is, while organizational climate has been held by most to be an organizational-level variable, an assumption has been made by most researchers that affect is strictly an individual-level variable. Thus, much of the research examining climate-affect redundancy has utilized individual-level analysis, never truly assessing either organizational climate or organizational affect or determining the degree of redundancy between these variables.

By indicating that affect can be legitimately conceptualized and measured at the organizational level, the present results clear the way for the resolution of this and related issues. These results indicate that systematic affective variance can be found at both the individual and organizational levels and aligns with climate measures in the manner depicted in Figure 1. A measure of organizational level affect (i.e., morale) such as that developed in the present research can be used in conjunction with measures of organizational climate to directly assess climate/affect redundancy at the organizational level. Through such further research a greater definition and delineation can be achieved between these two classes of variables and their role in furthering our understanding of organizational dynamics.

Level of Analysis	Measurement Domain	
	Perceptual	Affective
Organizational	Organizational Climate	Morale
Individual	Psychological Climate	Job Satisfaction

FIGURE 1

CONCEPTUAL RELATIONSHIP OF CLIMATE MEASURES
TO AFFECTIVE MEASURES

A separate question concerning the present results relates to the adequacy of a morale measure that is based solely on satisfaction. Although most writers agree that satisfaction is an important component of morale, some (e.g., Blum & Naylor, 1968; Motowidlo & Borman, 1977, 1978) argue that other dimensions should also be included to capture the concept's full meaning. We suggest that while morale may, in fact, be a multidimensional variable, this does not necessarily imply that a unidimensional measure, such as the one described in the present paper, is inappropriate. Operational definitions of psychological constructs rarely (if ever) tap all relevant dimensions. The field of psychology has usually progressed by beginning with limited measures of a particular concept and subsequently building upon these first approximations (Elms, 1975). The same procedure is suggested in the case of organizational morale. Other hypothesized dimensions can be incorporated into future measurement instruments and their discriminant and concurrent validity tested. This systematic approach should lead to the development of a truly reliable and valid instrument that does justice to the potentially multidimensional nature of the concept.

The development of such an instrument is only the beginning, of course. However, it is a necessary first step, for without well-constructed morale measures, it becomes impossible to assess the true impact of morale on organizational functioning. A very basic question involves the relationship between morale and unit effectiveness. As Motowidlo et al. (1976) note, the military has devoted a great deal of effort to unit morale building based on the largely untested assumption that high morale leads to effective units. Motowidlo and Borman (1978) report moderate correlations between their morale measure and some administrative indices of unit effectiveness (e.g., reenlistment, congressional inquiries). Yet there is a substantial body of literature suggesting that affective states do not necessarily correlate with productivity, but rather that this relationship is contingent on other personal and situational factors within the organization (Smith, 1976). A related issue concerns the direction of casuality. It has long been assumed that morale drives productivity. However, there is recent evidence to suggest that the oposite may be true (O'Mara, Note 1). Without a reliable and valid organizational morale measure, the exact nature of this relationship cannot be determined.

An equally important question that cannot be answered without adequate measurement instruments involves the determinants of morale. What must be done to develop high morale in a unit? To date, the morale building process is based largely on conventional wisdom and conjecture rather than on systematic experimentation. A well-constructed morale measure would greatly facilitate research efforts in this area and lead to the identification of factors that could be translated into training programs to teach leaders how to effect high morale in their units.

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APPENDIX A

SATISFACTION AND CLIMATE SURVEY ITEMS

Satisfaction Items

All in all, I am satisfied with the unit that I am in.

All in all, I am satisfied with my supervisor.

All in all, I am satisfied with the persons in my work group.

All in all, I am satisfied with my job.

Climate Items

Unit Domain

In my unit it is hard to get the equipment and tools I need to do my job.

My unit gets told about important events later than other units.

Scheduled events like training and inspections are cancelled at the last minute.

The officers in my unit care about what happens to the individual soldier in my unit.

Excessive drinking is not a problem in my unit.

My unit does not have a drug problem.

Decisions are made in this unit after getting information from those who actually do the job.

My unit is respected on this post.

Meetings in this unit generally accomplish meaningful objectives.

Decisions are made in this unit at those levels where the most adequate information is available.

My unit is willing to try new or improved methods of doing work.

There is discrimination against minorities in this unit.

Rules in this unit are enforced.

There is discrimination against whites in this unit.

This unit places a high emphasis on accomplishing the mission.

The information I receive down through the chain-of-command is generally accurate.

I feel safe in my unit area.

What is your evaluation of the overall work effectiveness of your company/troop/battery? ("Not effective" to "Extremely effective")

Compared to all other units that you have ever served in how effective is your company/troop/battery? ("Least effective" to "Most effective")

How many improvements would it take to make this unit the most effective company/troop/battery that you have ever served in? ("Many improvements" to "No improvements")

Supervisor Domain

My supervisor is willing to listen to my problem.

My supervisor encourages people to give their best efforts.

My supervisor gives me instructions that conflict with other information I get.

My supervisor makes us work a lot of unnecessary overtime.

When I'm talking to my supervisor, he doesn't pay attention to what I'm saying.

My supervisor lets other supervisors interfere with my work group.

My supervisor puts suggestions by the members of the unit into operation.

My supervisor decides what shall be done and how it shall be done.

My supervisor makes sure his role in the company is understood by the men.

My supervisor gives us big jobs late in the day and wants them done before we leave work.

My supervisor insists that individuals follow standard operating procedures.

My supervisor lets individuals know what is expected of them.

My supervisor acts without consulting the men in the unit.

My supervisor refuses to explain his actions.

My supervisor treats the people who work for him fairly.

My supervisor tries to do his best.

Coworker Domain

The soldiers in my unit let you know when they think you've done a good job.

The soldiers in my unit try to think of better ways of getting the job done.

The soldiers in my unit criticize guys who are goofing off.

The soldiers in my unit get along with each other.

The senior NCOs in my unit look out for the welfare of the individual soldier in my unit.

The members of my work group try to do their best.

Job Domain

My job gives me the chance to learn skills that are useful outside the Army.

In my job, I can tell how well I am doing without other people telling me.

I know what I will be doing from day to day.

My job requires high-level technical skills.

In my job, I have more work to do than one person can handle.

My job lets me use my skills and training.

In my job, I have to work extra hours.

My job lets me do the things I am good at.

My job keeps me too busy to take extra training programs.

My job gives me the feeling that I have done something important.

The pressures of my job spill over into my off-duty life.

I can see what my job has to do with others in my unit.

I have full responsibility for doing certain parts of my job.

My job leaves me feeling tired at the end of the day.

Army rules and regulations make it hard for me to do my job.

I get a sense of accomplishment from the work I do.

Workload and time factors are taken into consideration in planning our work group assignments.

I look forward to coming to work every day.

My job helps me to achieve my personal goals.

I want to contribute my best efforts to the unit's mission and my assigned tasks.

I have a good opportunity for advancement in this unit if I do a good job.

The job I have is a respected one.

I enjoy doing the type of work that my job requires.

I try to do my best.

How well do you know how to do your job?

Miscellaneous

In general, I feel that I have gotten a fair deal from the Army.

My possessions are safe where I live.

APPENDIX B

SUMMARY STATISTICS OF A BATTALION LEVEL MORALE MEASURE
AS A FUNCTION OF WAVE AND GRADE LEVEL

		Summary Statistics		
		Mean	Standard deviation	Number of cases
	Grade Level			
	Service Members	2.45	.97	3795
Wave	NCOs	3.10	.97	1673
1	Officers	3.82	.94	542
	Service Members	3.03	.83	3971
Wave	NCOs	3.27	.85	1624
2	Officers	3.53	.74	683
	Service Members	3.15	.86	4737
Wave	NCOs	3.42	.86	1848
3	Officers	3.46	.75	184

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