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CLUSTER ANALYSIS OF THE MULTIPLE AFFECT ADJECTIVE CHECK LIST.(U)
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DEPARTMENT OF THE ARMY
UNITED STATES ARMY TRAINING CENTER, INFANTRY, AND FORT ORD
DIRECTORATE OF PLANS AND TRAINING
TRAINING MANAGEMENT AND EVALUATION COMMITTEE
Fort Ord, California 93941

AMNOR-C 16 October 1970

SUBJECT: Technical Report on Cluster Analysis of the Multiple Affect Adjective Check List (Med R&D Project Number 3A062110A823)

(6) (9) Technical rept., (11) 16 Oct 70 (12) 17p.

ABSTRACT:

Cluster analysis of the 132 words appearing on the Multiple Affect Adjective Check List (MAACL) answer sheet were performed on six samples of respondents. Each of the six samples was composed of approximately 300 basic trainees who filled out the MAACL under differing instructional sets and at varying points during the training cycle. The results of the six cluster analyses consistently demonstrated the presense of two principal clusters of items: a positive affect cluster and a negative affect cluster. Using three criteria (repeated presence of item in same cluster, frequency with which item was checked by respondents, and desirable number of items) a 70-item instrument was proposed which, it is concluded, will accurately and validly measure the morale of basic training units. The proposed scoring for the instrument conceptualizes morale level as the point on a single dimension ranging from total saturation of a 35-item negative affect cluster (low morale) to total saturation of a 35-item positive affect cluster (high morale).

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Army Training Center, Engineer and Fort Leonard Wood, MO.
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1. Purpose:

a. To perform a cluster analysis of items on the Multiple Affect Adjective Check List.

b. To use the results of the cluster analysis to construct a scale to measure morale in basic training units.

2. BACKGROUND:

a. The Multiple Affect Adjective Check List (MAACL).

(1) The MAACL is a psychometric device designed to measure the arousal and strength of three distressful affects--anxiety, depression, and hostility. The MAACL consists of 132 items. The items are adjectives descriptive of feelings. The subject marks those words which describe how he has felt during a specified time period. Results are scored on three scales: Anxiety (21 items); Depression (40 items); and Hostility (28 items). The remainder of the items, 43, are so-called buffer items and are not used in the measurement process.

(2) MAACL items were derived by the empirical method of item selection. For example, items on the Depression scale were derived as follows: Neuropsychiatric patients in a depressed state were given a pool of adjectives and were asked to check those words which described their mood. "Normals" were given the same list with the same instructions. Words which were checked significantly more frequently by the depressed patients were placed on the Depression scale of the MAACL. (Likewise, words that were checked significantly less frequently by the depressed patients were also placed on the Depression scale, but are scored in the opposite direction). The Anxiety and Hostility scales were constructed by the same method of empirical item selection.

(3) The manual for the MAACL (Ref 1) at Tab B is a complete description of the instrument. At Inclosure 1 of Tab B is a copy of the MAACL sheet.

b. Previous work by the Army.

(1) At Fort Dix and at Fort Ord, working with the support of United States Army Medical Research and Development funds, Datel and his colleagues (Ref 2, 3, 4, 5, 6) used the MAACL in research designed to measure affect change in the basic trainee over the course of the basic training process. In much of this work, scores from the three MAACL scales were summed and treated as an uni-dimensional index of overall distressful affect arousal. This summary scale, which ranges in score from 0 to 89, was called "Dysphoria." Dysphoria, therefore, was conceptualized as representing a composite of anxiety, depression, and hostility.

(2) In 1970 at Fort Ord, in conjunction with evaluation of a program of contingency management in basic training (i.e., the Merit-Reward System, Ref 7),zthe MAACL was used in 20-plus companies to track morale change across the basic training cycle. The Dysphora scale, defined in paragraph 2b(1), above, was used to measure morale. That is, Dysphora was regarded as a bi-polar, uni-dimensional scale. Low Dysphoria scores were said to represent high morale and high Dysphoria scores were said to represent low morale.

(3) Stanley R. Clemes, Ph.D., research associate with Mental Research Institute, Palo Alto, California, has obtained MAACL measures on basic trainees at Fort Ord in research supported by United States Army Medical Research and Development Command, contract number DA 49-193-MD-2637. MAACL data gathered by Dr. Clemes has had considerable normative-control value in the Fort Ord studies conducted in connection with evaluation of the Merit-Reward System (see Paragraph 2b(2), above).

(4) Captain Peter Bourne MC et al used the MAACL to obtain psychological measures of distress in helicopter ambulane medics (Ref 8) and in Special Forces soldiers (Ref 9) in Viet Nam.

c. Present project.

(1) The present project was supported by an in-service grant from the United States Army Medical Research and Development Command, Washington, D.C., agency accession number DA OB 6929, work unit 502, project number 3A062110A823, program element number 62110A, William E. Datel, Lieutenant Colonel, Medical Services Corps, principal investigator. At Tab C is a copy of the application for the project (Inclosure 1) and a copy of the approval letter (Inclosure 2).

(2) Of the $2000.00 in the original budget estimate, the sum of approximately $800.00 was expended to complete the project.

3. PROCEDURE:

a. Same selection.

(1) MAACL results from six basic combat training (BCT) groups/occasions were selected to use as the data base upon which to execute and replicate

the cluster analysis. Table I, below, presents a description of the six samples. The same trainees constitute Groups 1-A and 1-3, the measures having been obtained on different occasions of the BCT cycle. Similarly, the same trainees constitute Groups 2-A and 2-3. Data on Groups 1-A, 1-3, 2-A, and 2-3 are from trainees measured in the 1968 Fort Ord studies (Ref 5). The Group 3 and Group 4 data are from two different companies of basic trainees undergoing BCT with the Merit-Reward System (see paragraph 2b(2), above).

TABLE I
THE SIX SAMPLES OF MAACL DATA UPON WHICH THE SIX CLUSTER ANALYSES WERE PERFORMED

Group	Occasion	N	Instructional Set	Dysphoria Mean
1-A	Arrival	305	"Expect to feel midway through basic training"	≅34.69
1-3	End Wk 3	305	"Felt during the past week"	≅48.14
2-A	Arrival	298	"Exepct to feel . . ."	36.44
2-3	End Wk 3	298	"during past week"	50.91
3	End Wk 7	220	"during past week"	31.31
4	End Wk 7	220	"during past week"	21.57

(2) The samples selected for study represented varying occasions, different instructional sets, and varying levels of distressful affect arousal. (The Dysphoria means for Groups 1-A and 1-3 in Table I are designated as approximate values since they are derived from an expanded sample of N = 400. Dysphoria means were not recalculated for the sample when N = 305). Note in Table I that there are two occasions when the Dysphoria mean was quite elevated, one occasion when it was at baseline or "resting state" (31.31), and one occasion when it was very low (21.57), suggesting a state of "euphoria." Guiding the selection of these samples was the attempt to discover if similar clusters would emerge under varying conditions and with varying subjects.

b. Scoring and generating correlation matrices.

(1) MAACL responses were scored so as to produce a score of 1 (checked) or 0 (unchecked) for each of the 132 items (words) in the check list. This

was accomplished by optically scanning each MAACL sheet and producing a 2-card IBM output for each sheet.

(2) The IBM cards, containing the 1 vs 0 score for each item, were used to generate a 132 x 132 correlation matrix for each of the six samples. The Pearson product-moment formula was used to calculate the 8,712 correlation coefficients (r's) for each matrix.

c. Cluster analysis. The cluster analysis on each of the six samples was performed as follows:

(1) All of the correlation coefficients in the matrix were rank-ordered from largest to smallest in absolute value.

(2) The two items with the largest r formed the nucleus of the first cluster. The two items producing the second-largest r were then inspected. If these two items were different from the first two items, the beginning of a second cluster was designated. And so on, down the rank-ordered list of r's.

(3) Before two items were designated as the beginning of a new cluster, a search up the ranks was instituted. If either of the two new items were in an already-formed cluster, a new cluster was not designated. Instead, the two new items were added to the already-formed cluster provided the new items were not negatively correlated with any of the items already in the cluster. (Note: The criterion for negative correlation was one of statistical significance rather than sign. For example, with 303 degrees of freedom the criterion for a negative correlation was -.148, since a significance level of .01 requires an r of $\pm$ .148 when N = 305).

(4) Clusters were joined when items brought them together by the same criteria specified in paragraph 3c(3), above.

(5) When an item was encountered which was attempting to enter an already-formed cluster, but was found to be negatively correlated (at or beyond the .01 level of confidence) with one or more items already in the cluster, further progression down the rank-ordering ceased, the procedure was halted, and the cluster analysis was said to be completed.

(6) The program written to execute the cluster analysis did not permit negatively correlated items to enter clusters made up of positively correlated items. Therefore, the final clusters contained no items which were consistent opposites with the remainder of the items in the cluster.

d. Acknowledgements. The programming and the data processing for the scoring and optical scanning of the MAACL were done by the Department of Data Processing, Monterey Penisula College, Monterey, California. The Human

Resources Research Office (HumRRO), Division #3, Presidio of Monterey, California, provided, as a courtesy, technical expertise and consultation on the rationale and method for the cluster analysis. Dr. Herbert Gerguoy of the HumRRO unit performed the initial cluster analysis by hand, thus providing a base by which to judge the accuracy of the machine-computed results. Under Dr. Gerjuoy's tutorship, PVT Stephen B. Longabach created and executed the cluster analysis program. As an inter-service courtesy, the United States Naval Post Graduate School, Monterey, California, generously gave computer time for computation of the correlation matrices and cluster analyses.

4. RESULTS:

a. The results of the six cluster analyses are presented in Table II (see pages 6 to 9 of this report).

b. From each of the six cluster analyses, two principal clusters emerged: a "positive affect" cluster and a "negative affect" cluster. From the analysis performed on Group 1-3, two additional minor clusters emerged: cluster 3 made up of affectionate, devoted, and loving; and cluster 4 made up of contented and soothed. In each of the six analyses there were several words which failed to enter any cluster.

c. Inspection of any given row in Table II reveals the number of times (out of 6) that a given item fell into a particular cluster. For example, note Item #7: aggressive fell into the positive affect cluster on all of the analyses except the one performed on Group 3.

d. Also presented in Table II is the percentage of trainees who checked the item. The percentage checking the item for those items which consistently fell into the negative affect cluster are based on the data from Groups 1-3 and 2-3 only--occasions on which the Dyspohoria means indicated intense distress. The percentage checking the item for those items which consistently fell into the positive affect cluster are based on the data from Groups 3 and 4 only--occasions on which the Dysphoria means suggested no distress or, indeed, euphoria. These "% checking" data can be interpreted to reflect the relative "pull value" or "appeal value" of the various words as descriptors of BCT low morale, in the first instance, and of BCT high morale, in the second instance.

e. It is apparent that despite different samples and different conditions there was considerable replication in the cluster analysis results.

TABLE II

RESULTS OF EACH CLUSTER ANALYSIS OF THE MAACL ON SIX SAMPLES OF BASIC TRAINEES*

	Sample/Group						% Checking	
Item	1-A	1-3	2-A	2-3	3	4	Grp 1-3 & 2-3	Grp 3 & 4
1. active	+		+	+	+	+		72.5
2. adventurous	+	+	+	+	+	+		44.8
3. affectionate	+	3	+	+	+	+		16.6
4. afraid	-	-	-	-	-	-	17.2	
5. agitated	-	-	-	-	-	-	38.6	
6. agreeable	+	+	+	+	+	+		55.5
7. aggressive	+	+	+	+		+		44.3
8. alive	+	+	+	+	+	+		60.4
9. alone	-	-	-	-	-	-	37.3	
10. amiable				+		-		
11. amused						+		
12. angry	-	-	-	-	-	-	52.2	
13. annoyed	-	-	-	-	-	-	53.4	
14. awful	-	-	-	-	-	-	34.7	
15. bashful	-	-	-	-	-	-	2.6	
16. bitter	-	-	-	-	-	-	37.5	
17. blue	-	-	-	-	-	-	35.8	
18. bored		-	-	-	-	-	38.7	
19. calm	+	+	+	+	+	+		24.3
20. cautious	+					-		
21. cheerful	+	+	+	+	+	+		64.6
22. clean	+		+		+	+		
23. complaining	-		-	-	-	-	28.6	
24. contented	+	4	+	+	+	+		35.2
25. contrary	-	-	-	-	-	-	11.0	
26. cool	+	+	+		+	+		39.6
27. cooperative	+	+	+	+	+	+		53.4
28. critical		-	-		-	-		
29. cross	-	-	-	-	-	-	30.4	
30. cruel	-	-	-	-		-	11.8	
31. daring	+		+			+		
32. desperate	-	-	-	-	-	-	20.9	
33. destroyed	-	-	-	-	-	-	21.4	
34. devoted	+	3	+	+	+	+		35.4
35. disagreeable	-	-	-	-	-	-	31.6	

TABLE II (Cont.)

Item	Sample/Group						% Checking	
	1-A	1-3	2-A	2-3	3	4	Grp 1-3 & 2-3	Grp 3 & 4
36. discontented	-	-	-	-	-	-	39.8	
37. discouraged	-	-	-	-	-	-	42.6	
38. disgusted	-	-	-	-	-	-	52.2	
39. displeased	-	-	-	-	-	-	50.5	
40. energetic	+	+	+	+	+	+		52.5
41. enraged	-	-	-	-	-	-	15.2	
42. enthusiastic	+	+	+	+	+	+		44.8
43. fearful	-	-	-	-	-	-	12.6	
44. fine	+	+	+	+	+	+		58.0
45. fit	+	+	+	+	+	+		54.5
46. forlorn	-	-	-	-	-	-	10.6	
47. frank	+			+				
48. free	+	+	+	+	+	+		35.7
49. friendly	+	+	+	+	+	+		60.4
50. frightened	-	-	-	-	-	-	17.7	
51. furious	-	-	-	-	-	-	23.3	
52. gay	+	+	+	+	+	+		40.4
53. gentle	+	+	+	+	+	+		23.0
54. glad	+	+	+		+	+		60.0
55. gloomy	-	-	-	-		-	38.4	
56. good	+	+	+	+	+	+		59.6
57. good-natured	+	+	+	+	+	+		60.2
58. grim	-	-	-	-	-	-	22.3	
59. happy	+	+	+	+	+	+		72.5
60. healthy	+	+	+	+	+	+		60.0
61. hopeless	-	-	-	-	-	-	22.9	
62. hostile	-	-	-	-	-	-	19.6	
63. impatient	-	-	-		-	-	37.3	
64. incensed		-			-	-		
65. indignant	-	-	-	-	-	-	10.6	
66. inspired	+	+	+	+	+	+		40.9
67. interested	+	+	+	+	+	+		61.4
68. irritated	-	-	-	-	-	-	46.2	
69. jealous				-	-	-		
70. joyful	+	+	+	+	+	+		50.9

TABLE II (Cont.)

Item	Sample/Group 1-A	1-3	2-A	2-3	3	4	% Checking Grp 1-3 & 2-3	Grp 3 & 4
71. kindly	+	+	+	+	+	+		35.9
72. lonely	-	-	-	-	-	-	48.8	
73. lost	-	-	-	-	-	-	29.6	
74. loving	+	3	+	+	+	+		37.5
75. low	-	-	-	-	-	-	41.6	
76. lucky	+	+	+	+	+	+		46.2
77. mad	-	-	-	-	-	-	41.0	
78. mean	+	-	-	-		-		
79. meek			-	-	-	+		
80. merry	+	+	+	+	+	+		46.6
81. mild	+	+	+	+		+		13.8
82. miserable	-	-	-	-	-	-	49.6	
83. nervous	-	-	-	-	-	-	38.2	
84. obliging	+		+	+	+	+		22.4
85. offended	-	-	-	-	-	-	24.4	
86. outraged	-	-	-	-	-	-	22.2	
87. panicky	-	-	-	-		-	13.8	
88. patient	+	+	+	+	+	+		28.6
89. peaceful	+	+	+	+	+	+		43.6
90. pleased	+	+	+	+	+	+		53.0
91. pleasant	+	+	+	+	+	+		44.4
92. polite	+		+	+	+	+		34.3
93. powerful	+	+	+	+	+	+		28.8
94. quiet	+		-	+	+	-		
95. reckless	-	-	-			-		
96. rejected	-	-	-	-	-	-	15.7	
97. rough	+	+	+	+		+		13.0
98. sad	-	-	-	-	-	-	37.8	
99. safe	+	+	+	+	+	+		37.8
100. satisfied	+	+	+	+	+	+		65.0
101. secure	+	+	+	+	+	+		37.0
102. shaky	-	-	-	-	-	-	20.6	
103. shy		-	-	-	-			
104. soothed		4		+	+	+		
105. steady	+	+	+	+	+	+		32.3

TABLE II (Cont.)

Item	Sample/Group 1-A	1-3	2-A	2-3	3	4	% Checking Grp 1-3 & 2-3	Grp 3 & 4
106. stubborn	-	-	-	-		-	16.1	
107. stormy	-	-	-	-	-	-	15.4	
108. strong	+	+	+	+	+	+		39.6
109. suffering	-	-	-	-	-	-	31.2	
110. sullen	-	-	-	-	-	-	13.9	
111. sunk	-	-	-	-	-	-	15.2	
112. sympathetic	+	+			+	+		
113. tame		+		+	+	+		
114. tender	+	+	+	+	+	+		17.0
115. tense	-	-	-	-	-	-	28.4	
116. terrible	-	-	-	-	-	-	36.4	
117. terrified	-	-	-	-	-	-	12.0	
118. thoughtful	+			+	+	+		
119. timid	-	+	-	-	-	-	5.2	
120. tormented	-	-	-	-	-	-	30.8	
121. understanding	+	+	+	+	+	+		39.4
122. unhappy	-	-	-	-	-	-	49.8	
123. unsociable	-	-	-	-	-	-	15.6	
124. upset	-	-	-	-	-	-	38.4	
125. vexed	-	-	-	-	-	-	9.3	
126. warm	+	+	+	+	+	+		30.9
127. whole	+	+	+	+	+	+		23.8
128. wild	-	-						
129. willful	+		+			+		
130. wilted	-	-	-	-	-	-	12.9	
131. worrying	-	-	-	-	-	-	40.6	
132. young			+	+	+	+		

*Note: + = item fell into "positive affect" cluster.
- = item tell into "negative affect" cluster.
3 = item fell into a 3rd cluster.
4 = item fell into a 4th cluster.
% checking = percent of trainees in the groups indicated that checked the item; % checking is presented only for those items falling into the same affective cluster 5 ouf ot 6, or 6 out of 6, times.

5. DISCUSSION:

a. The results of the cluster analyses performed suggest that embedded in the MAACL list of 132 adjectives are items which align themselves into two distinct clusters. One cluster is that of positive affect or "good feeling." The other cluster is that of negative affect or "bad feeling."

b. The procedure by which the cluster analysis was performed does not permit a judgement as to whether or not these two clusters are negatively correlated with each other. (That is, "When positive affect is high, is negative affect low?"). Because the cluster analysis method used did not allow for the possibility of incorporating negatively-related items into positively correlated clusters, it is not known whether these two clusters are polar extremes of one dimension, or, on the other hand, if they represent two independent dimensions. Determination of the relationship between the two clusters is probably a more appropriate endeavor for empirical study and experimentation than for correlational methods.

c. On rational grounds alone, it seems probable that coexistent arousal of "good feeling" and "bad feeling" is contradictory. The psychological concept of ambivalence notwithstanding, it seems a plausible assumption that when someone feels bad he does not simultaneously feel good, and that when someone feels good he does not at the same time feel bad.

d. An even further complication in interpreting the two discovered clusters as representing bi-polar uni-dimensionality versus duo-dimensionality is the fact that the data were gathered under instructional sets which spanned a period of time. For the respondent who is summarizing his feeling state for a weekly time period, it is of course non-contradictory to select both "good" and "bad" words. Had the data been gathered under how-do-you-feel-at-the-moment instructions, the two poles of a single dimension may have been more obvious from a cluster analysis.

e. Though the question raised by the discussion in paragraphs 5b-d, above, cannot be answered by the present study, it is a relevant concern in the measurement of morale. Since morale is conceptualized as uni-dimensional, it behooves the measurer of morale to use a scale which is truly uni-dimensional. In the present case the alternative lies between use of items from both clusters versus use of items from one cluster only.

f. An acceptable solution, in the absence of further evidence, is to regard the two complete clusters as extremes of a "good feeling--bad feeling" dimension. Over a weekly interval, at various times, a person moves along the dimension from one point to another. The weekly report, or summary, represents a statement of whether the good feeling outweighed the bad, and by how much.

g. The results from the present study fail to reflect cluster distinctions between anxiety, depression, and hostility. It would appear from this lack of occurrence that utilization of the MAACL strictly in accordance with the manner intended by its authors (i.e., as a measure of three different distressful affects) is inappropriate, at least in the BCT setting. However, it should be mentioned in this regard that utilization of a correlation criterion of a higher (positive) magnitude than the one mentioned in paragraph 3c(3) may have changed the cluster picture to have brought it more in line with the three MAACL scales.

h. Perhaps the most significant finding to emerge from the present cluster analysis is that the list of 132 adjectives which appear on the MAACL sheet has the potentiality for measuring positive affect arousal and negative affect arousal in the BCT setting. A more refined break-out of specific affects did not occur from the analysis.

6. CONCLUSIONS:

a. Two principal clusters describe the "affective space" encompassed by the 132 items appearing on the MAACL sheet when samples of basic trainees are used as respondents.

b. The two clusters can be appropriately called:

(1) Positive affect ("good feeling").

(2) Negative affect ("bad feeling").

c. Words appearing in the same cluster are checked with varying frequency, suggesting that trainees see some words as better (more common) descriptors than other words.

d. Morale is conceptualized as a uni-dimensional, bi-polar phenomenon, ranging from bad to good. The two clusters emerging from the present analysis rationally fit this conceptualization.

e. Based upon the findings from the present cluster analysis, it is possible to construct a uni-dimensional, bi-polar scale to measure morale in BCT units. Tab A is a presentation of the scale created from the present analysis.

f. The bi-polarity of the derived scale can best be judged by ascertaining if empirical results obtained from use of the scale follow an inverse relationship between the two clusters discovered.

AMNOR-C 16 October 1970
SUBJECT: Technical Report on Cluster Analysis of MAACL

7. RECOMMENDATIONS:

a. It is recommended that the proposed instrument at Inclosure 1 of Tab A, called the Military Morale Inventory (MMI), be implemented as the measure of BCT unit morale.

b. Prior to utilization of the MMI, it is recommended, in accordance with the guidance rendered in Inclosure 2 of Tab A, that a complete copy of this technical report be forwarded to Department of the Army, Office of the Surgeon General, ATTN: Staff Judge Advocate, Washington, D.C., to obtain permission to print and utilize the scale developed from the present research.

8. REFERENCES:

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TABS: A--Proposed Instrument w/2 Incls
B--MAACL Manual w/1 Incl
C--Application/Approval for Project w/2 Incls

DEPARTMENT OF THE ARMY
UNITED STATES ARMY TRAINING CENTER, INFANTRY, AND FORT ORD
DIRECTORATE OF PLANS AND TRAINING
TRAINING MANAGEMENT AND EVALUATION COMMITTEE
Fort Ord, California 93941

AMNOR-C 16 October 1970

SUBJECT: Proposed Instrument for the Measurement of BCT Unit Morale (Tab A to Technical Report on Cluster Analysis of MAACL)

1. PURPOSE: To propose an instrument which can be used to measure morale in BCT units on a weekly basis.

2. DISCUSSION:

a. It is of value to BCT commanders and managers to track morale levels and morale change in BCT units. Low levels or precipitous drops in morale can serve as invitations for intensive scrutiny of company management/training policies and procedures so that the sources of morale problems can be identified and solved.

b. The instrument used must:

(1) Be a valid indicator of the morale or "emotional climate" of the unit.

(2) Be simple enough to be administered and understood on a mass basis.

(3) Be suitable for automatic scoring and data processing.

(4) Produce results which are readily interpretable by commanders and managers.

(5) Protect the anonymity of the individual respondent.

c. The proposed instrument attempts to meet the requirements listed in paragraph 2b, above.

3. PROCEDURE:

a. Method of item selection: Using the results of the cluster analysis described in the body of this report, items were selected for inclusion in the scale. Three criteria were used for item selection:

(1) Repeated occurrence of the item in the same cluster. Any item that fell into the positive affect cluster 5 out of 6, or 6 out of 6, times was considered for inclusion. Similarly, any item in the negative affect cluster was so considered.

(2) Frequency of response. Positive affect cluster items that were checked most frequently by respondents to describe their mood state when the group was in a positive mood were given highest priority for scale inclusion. Negative affect cluster items that were checked most frequently by respondents to describe their mood state when the group was in a negative mood were given highest priority for scale inclusion.

(3) Number of items. An equal number of items from either cluster was selected. The total number of items selected was governed by the maximum storage capacity of a single IBM card, after giving consideration to space on the card to identifying data.

b. Items selected:

(1) Thirty-five items from the positive affect cluster were selected. These items are indicated by an asterisk on the listing of items in Inclosure 1.

(2) Thirty-five items from the negative affect cluster were selected. These items are indicated by absence of an asterisk in Inclosure 1.

c. Mock-up of the response sheet: At Inclosure 1 is a mock-up of the instrument as it would be presented to the respondent (minus the asterisks). A suitable title for the device is Military Morale Inventory. Instructions for filling out the form appear on the sheet. The instrument would be printed in a format enabling optical scanning procedure leading to an 80-column IBM card out-put. Identification data (unit, week of training, date of administration) utilize the first 10 columns of the card. The remaining 70 columns of the card would contain the respondent's responses. Scoring would proceed from the card out-put.

d. Scoring: The instrument is scored in the following manner:

(1) The number of items on the positive affect cluster checked by the respondent is summed. The result is the respondent's "positive feeling" score. This score ranges from 0 to 35.

(2) The number of items on the negative affect cluster checked by the respondent is summed. The result is the respondent's "negative feeling" score. This score ranges from 0 to 35.

(3) The respondent's morale score is a combination of his positive feeling score and his negative feeling score. The morale score is derived by adding a constant, 35, to the positive feeling score; then, from this resultant sum the negative feeling score is subtracted. The morale score ranges from 0 to 70.

(4) The unit's morale score is obtained by calculating a mean score for all of the individual morale scores in the company. The unit morale score ranges from 0 to 70. Low socres reflect poor morale; high scores reflect good morale.

5. CONCLUSION: The proposed instrument meets the requirements specified in paragraph 2b, above.

6. ACTIONS RECOMMENDED:

a. That the proposed instrument be adopted as the method of measurement for BCT unit morale.

b. That prior to utilization of the proposed instrument the following actions occur:

(1) In accordance with guidance rendered at Inclosure 2, request that the Office of the Surgeon General insure that use of the instrument does not represent an infringement upon copyright of the Multiple Affect Adjective Check List.

(2) Print the proposed instrument on a form compatible with the card out-put optical scanner located in the Fort Ord Reception Station.

2 Incls: 1--Mock-up Answer Sheet for Proposed Instrument
2--Guidance from Fort Ord SJA

MILITARY MORALE INVENTORY

Unit				Week of	Date		
Co	Bn	Bde	Plt	Training	Day	Month	Year
☐	☐	☐	☐	☐	☐	☐	☐
A	0	0	0	0	0 0	0 0	0
B	1	1	1	1	1 1	1 1	1
C	2	2	2	2	2 2	2 2	2
D	3	3	3	3	3 3	3 3	3
E	4	4	4	4	4 4	4 4	4
E	5	5	5	5	5 5	5 5	5
G	6	6	6	6	6 6	6 6	6
H	7	7	7	7	7 7	7 7	7
I	8	8	8	8	8 8	8 8	8
J	9	9	9	9	9 9	9 9	9

Instructions:

Below is a list of words which can be used to describe a soldier's morale or "feeling state."

We want you to summarize your morale for the past week. Blacken in the space alongside the words that best describe the way you have felt during the past week.

z Although some of the words may seem similar to each other, please mark all of the words that describe the main feelings you have experienced during the past week.

The results of this inventory are scored by machine; therefore:

- Use the pencil provided (#2 pencil)
- Keep answer sheet clean
- Erase stray marks and errors completely
- Do not fold or tear answer sheet

There is no time limit. When finished, turn your answer sheet face down.

*1 active
*2 adventurous
3 agitiated
*4 agreeable
*5 aggressive
*6 alive
7 alone
8 angry
9 annoyed
10 awful
11 bitter
12 blue
13 bored
*14 cheerful
15 complaining
*16 cool
*17 cooperative
18 cross
19 disagreeable
20 discontented
21 discouraged
22 disgusted
23 displeased
*24 energetic
*25 enthusiastic
*26 fine
*27 fit
*28 free
*29 friendly
30 furious
*31 gay
*32 glad
33 gloomy
*34 good
*35 good-natured
*36 happy
*37 healthy
38 hopeless
39 impatient
*40 inspired
*41 interested
42 irritated
*43 joyful
*44 kindly
45 lonely
46 lost
*47 loving
48 low
*49 lucky
50 mad
*51 merry
52 miserable
53 nervous
54 offended
*55 peaceful
*56 pleased
*57 pleasant
58 sad
*59 safe
*60 satisfied
*61 secure
*62 strong
63 suffering
64 tense
65 terrible
66 tormented
*67 understanding
68 unhappy
69 upset
70 worrying