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U. S. NAVAL AIR STATION  
PENSACOLA, FLORIDA

## RESEARCH REPORT



CONSTRUCTION AND VALIDATION OF A MULTIPLE-CHOICE  
SENTENCE COMPLETION TEST: AN INTERIM REPORT

PROJECT NO. NM 001 077.01.02

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Construction and Validation of a Multiple-Choice Sentence Completion Test: An Interim Report.

Carroll E. Izard and Nathan Rosenberg, Tulane University, and John T. Bair and Clinton Mag, U. S. Naval School of Aviation Medicine, Pensacola, Florida.

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UNCLASSIFIED

This research was concerned with the construction and validation of a test designed to differentiate levels of personal-social adjustment within a population of Naval Aviation Cadets. The projective responses of 85 NavCadets to a series of sentence beginnings or "stems" were utilized as a basis for constructing a multiple-choice sentence completion test. The resulting multiple-choice test proved sufficiently reliable for the classification of an individual into a low, average, or high adjustment group. With peer and self-ratings of social adequacy as criteria, the test yielded validity coefficients of -.15 and -.22, respectively. These correlations were in the predicted direction and significant at the .01 level of confidence.

1. Personality Adjustment      2. Test Construction

I. Izard, Carroll E.      II. Rosenberg, Nathan      III. Bair, John T.

IV. Mag, Clinton

U. S. NAVAL SCHOOL OF AVIATION MEDICINE  
NAVAL AIR STATION  
PENSACOLA, FLORIDA

JOINT PROJECT REPORT NUMBER 2

The Tulane University of Louisiana  
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U. S. Naval School of Aviation Medicine  
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CONSTRUCTION AND VALIDATION OF A MULTIPLE-CHOICE  
SENTENCE COMPLETION TEST: AN INTERIM REPORT

Report by

Carroll E. Izard, Ph.D.  
Nathan Rosenberg, M.A.  
John T. Bair, Ph.D.  
and  
Clinton Maag, M.A.

Approved by

Professor Cecil W. Mann  
The Tulane University

and

Captain Ashton Graybiel, MC, USN  
Director of Research  
U. S. Naval School of Aviation Medicine

Released by

Captain James L. Holland, MC, USN  
Commanding Officer

30 July 1953

Opinions or conclusions contained in this report are those of the authors. They are not to be construed as necessarily reflecting the view or the endorsement of the Navy Department. Reference may be made to this report in the same way as to published articles noting authors, title, source, date, project number, and report number.

## SUMMARY

Military aviation requires personnel who are able to adjust to hazardous duty. This suggests a need for psychological measures which predict personality adjustment under stress. The present paper represents an approach to one phase of this problem. It reports the construction and validation of a test designed to differentiate levels of personal-social adjustment within a population of Naval Aviation Cadets (NavCads).

Projective techniques have proved effective for evaluating personality adjustment. However, they are not feasible for wide scale selection since their use requires a great deal of time on the part of specialized professional personnel. In view of this a projective test was converted to a more practicable form, and the new form was examined for reliability and validity.

The projective responses of 83 NavCads to a series of sentence beginnings or "stems" were utilized as a basis for constructing a multiple-choice sentence completion test. The resulting multiple-choice test (M-1) consisted of 47 stems, each followed by three possible responses. A scoring key was developed for 32 of these items by having three professionally qualified psychologists rank the multiple-choice responses with respect to the degree to which the responses indicated inadequacy or maladjustment.

Consistency of responses to the M-1 on separate occasions was found. The reliability of the M-1 was estimated as .73 from the product-moment correlation of the test-retest scores of 137 NavCads.

The ability of the M-1 to predict both peer and self-ratings of social adequacy was low but statistically significant. The correlation between M-1 scores and peer ratings of social adequacy was  $-.15$ ; the correlation between M-1 scores and self-ratings was  $-.22$ . Both of these  $r$ 's were greater than would be expected by chance. Negative correlations were predicted since high M-1 scores and low ratings purportedly indicate inadequacy or maladjustment.

The subjects selected as the low adjusted group on the basis of their projective responses had significantly higher M-1 scores than their "non-low" classmates.

The average M-1 score of 179 attrition cases was not significantly higher than the average for 409 Pre-Flight NavCads ( $P = .18$ ), but the difference between the averages was in the predicted direction. Pure pass-fail groups may be more clearly differentiated.

The present results for the M-1, especially with respect to its reliability and its validity against peer and self-ratings of social adequacy, appear to warrant further refinement and expansion of the test.

An evaluation of personality is desirable in any classification procedure; it is particularly important in the selection of men for hazard-

ous duty. A step in this direction will be realized if the further development of the M-1 carry out the present findings.

### INTRODUCTION

The importance of personal-social adjustment for success in a given field has long been recognized. An extensive study of Naval Aviators during World War II indicated that certain personality factors related to adjustment were deemed essential to combat effectiveness (4). More recently, aviation psychologists investigating the problems of selection, motivation, and morale have suggested the need for practicable measures of personality adjustment (12). The present paper reports the construction and validation of a test designed to differentiate levels of personal-social adjustment within a population of Naval Aviation Cadets.

The authors selected the projective sentence completion method for a preliminary investigation of personal-social adjustment in the NavCad population. The sentence completion method was selected for the present study for three reasons: (a) several studies have demonstrated the value of the technique for personality evaluation (5,6,8,9,13,14); (b) it is adaptable to group administration; and (c) it appeared that it would lend itself more readily to conversion to an objectively scoreable form which would be practicable for large scale selection or screening.

The primary objective of the present study was the development of a multiple-choice sentence completion test which would differentiate levels of adjustment within a relatively select normal group. The method was to construct and administer a conventional form of the sentence completion test and to utilize the obtained projective responses for deriving multiple-choice statements.

#### Construction and Tryout of the Sentence Completion Test

Construction and Administration of the Projective Test. The usual sentence completion test consists of a series of sentence beginnings or "stems" which the subject completes by writing his response in the space provided. The subject's written responses are considered to be reflections of his feelings and attitudes.

A total of 72 stems were written for the present test. Most of these were original, but some were modifications of items from other sentence completion tests. The stems were intended to tap levels or areas of personality not measured by the questionnaire or inventory method and to yield responses which could be meaningfully classified with respect to personal-social adjustment.

Regarding the structure of the test items and the instructions for taking the test, two points deserve clarification: (a) A study by Sacks (11) indicated that items in the personal form (stems referring to self) were

more effective in yielding diagnostic information than items in the impersonal form (stems referring to others). Consequently, whenever item content permitted, stems on the present test were written in the personal form; (b) Rotter and Willerman (10) concluded that the less structured type of test directions yielded more clinically useful responses. Thus, the instructions were formulated along the lines suggested by this finding -- the subjects were instructed to express what they "actually feel or do," rather than to "work rapidly and write down the first thing that comes to mind."

Because of the limitation of testing time the 72 item test was divided into two forms of 36 items each. Forms A-1 and A-2 of the projective sentence completion test are included in Appendix I. The two forms were made as comparable as possible on an a priori basis. Form A-1 was administered to an entering class of 40 NavCads and Form A-2 to an entering class of 43 NavCads.

Analysis of the Projective Responses. The method of analysis applied to the test data involved the utilization of the over-all protocol of projective responses as a basis for evaluating personal-social adjustment. The four investigators working independently selected the ten poorest adjusted subjects from the 40 NavCads in class 48-52 and similarly the ten poorest adjusted subjects from the 43 NavCads in class 49-52. A final low adjustment group was determined by giving a subject a weight of one each time a judge selected him for membership in the low group. From the total of 83 subjects the final low adjustment group consisted of the 12 individuals who were designated as low by at least three of the four judges. Application of binomial probability theory indicated that inter-judge agreement in selecting subjects for the low adjustment group was significant at better than the .01 level. This analysis made possible a comparison of the low and non-low adjusted groups on the basis of their scores on the multiple-choice form of the test. This comparison will be presented in a later section.

#### Construction and Validation of the Multiple-Choice Sentence Completion Test

Construction. On the basis of previous experience with projective sentence completion tests as diagnostic instruments, the 35 items of forms A-1 and A-2 adjudged most relevant to personal-social adequacy were subjected to category scoring. For a given item, as many responses as possible were grouped on the basis of content. Once a content-group had been identified, an attempt was made to abstract a category heading or psychological definition which would encompass that group of responses. Then, the category headings for the various groups of projective responses to a given stem were utilized as a basis for deriving multiple-choice statement for that stem. This procedure can be illustrated by the following example. In responding to the stem, Compared to others, most of the subjects described themselves or some aspect of themselves as above average, average, or below average. The following responses were placed in the "below average" category: "I could stand a few attentions;" "I tend very often to get discouraged;" "I frequently fear that I will fall short;" "I need personality

improvement;" "I could be improved in a million different ways;" "I am lacking in alertness." The multiple-choice statement for these responses in the "below average" category was: In my group, I sometimes feel I may fall short in some ways. A similar method was followed in deriving the multiple-choice statements for the "above average" and "average" response categories of this item.

The multiple-choice sentence completion test consisted of 47<sup>1</sup> items or sentence beginnings, each of which is followed by three responses. A stem plus any one of its three possible responses makes a complete sentence. This multiple-choice form, hereafter referred to as M-1, is included in Appendix II. Items scored for personal-social adequacy are indicated by asterisks.

Administration of the M-1. The M-1 was administered to 409 NavCads in their 15th week of pre-flight training. This group included classes 48-52, 49-52, and classes 1-53 through 9-53. In order to estimate test reliability, the M-1 was given twice to the 137 entering NavCads of classes 27-53 through 29-53. These 137 NavCads were tested on Friday and Saturday of the week they entered the Naval Air Training Program. There were approximately seven hours of testing with other instruments during the 24 hour interval between the two administrations of the M-1.

The M-1 was administered to a total of 179 attrition cases --- all attrition cases during the period from February to July 1953. This attrition group consisted of 130 DOR's (dropped at own request), 21 FF's (flight failures), 13 NPQ's (not physically qualified), 7 GSF's (ground school failures) and 8 attritions who left the program for miscellaneous reasons.

The Scoring Key for the M-1. In this preliminary study only the 35 items relating to personal-social adequacy were considered for quantitative scoring. Three of the investigators independently ranked the three multiple-choice responses to each of these items with respect to the degree to which they indicated inadequacy or maladjustment. Satisfactory agreement was obtained for 32 of the 35 items. For the 32 items at least two of the three judges agreed as to which of the three multiple-choice responses was most indicative of inadequacy; for 20 of these 32 items all three judges agreed as to which was the most inadequate response. A subject was given a score of one each time he selected as first choice a response ranked by the judges as most indicative of inadequacy. Thus, a subject could receive a maximum score of 32 on the personal-social adequacy key.

Ratings on Social Adequacy -- Criterion Data. In order to validate the M-1 against an independent measure of personality adjustment, ratings on the variable of "social adequacy" was obtained for the 335

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<sup>1</sup>In addition to the above 35 items, 12 items aimed at measuring attitudes in the liberal-conservative area were included on the multiple-choice form. These items were included because it was felt that they might relate to success in the training program. However, the data from these items were not considered in the present report.

NavCads of classes 1-53 through 9-53. The rating forms<sup>2</sup> were administered to sections consisting of approximately 20 NavCads who had been living and working together for 15 weeks. The form which defines social adequacy and outlines the rating procedure is presented as Appendix III. The procedure outlined on this form yields two sets of scores for each cadet -- one derived from the peer ratings, and one from the self-ratings. The peer ratings of highest ( $H_1$ ), second highest ( $H_2$ ), third highest ( $H_3$ ), third lowest ( $L_3$ ), second lowest ( $L_2$ ), and lowest ( $L_1$ ) are given weights of +3, +2, +1, -1, -2, and -3, respectively. A total raw score was obtained for each subject by summing the weights for the ratings assigned to him. The raw scores were arranged in order of magnitude and normalized by means of the rankit transformation (3). The self-ratings were obtained by having each subject assign himself a number estimating his standing in the group with respect to social adequacy. These numbers were arranged in order of magnitude and also converted to rankits (3).

Analysis and Results. In evaluating the multiple-choice sentence completion test, the first problems considered were the nature of the distribution of the scores and the reliability of the instrument. It will be recalled that the test was scored for personal-social adjustment with a key developed by having psychologists evaluate the multiple-choice statements. The validity of the M-1 for predicting personal-social adjustment was tested by determining the relationship of the M-1 scores to peer and self-ratings of social adequacy. In addition, a comparison was made between the average M-1 scores of a Pre-Flight and an attrition group of cadets. The following results were obtained from these analyses:

1. The normality of the distribution of M-1 scores was satisfactorily demonstrated by means of a probit diagram (1).
2. The reliability of the M-1 was estimated as .73 from the product-moment correlation of the test-retest scores of 137 subjects. The means for the two administrations were 7.77 and 7.20. The standard error of measurement was 1.61.
3. The linear regression for peer ratings of social adequacy on M-1 scores for the 335 NavCads was statistically significant, as indicated by the analysis of variance for replicated regression lines (1). The effect of slope (linear regression) and the residual variation was computed for each of the 17 sections of NavCads. The results of these separate analyses were combined in order to obtain the effect of combined slope, the variation among individual slopes, and a pooled estimate of error. Table I presents the combined results.

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<sup>2</sup> The rating forms were devised by LCDR W. F. Madden, MSC, USN, and LCDR A. C. Poe, MSC, USNR.

The Bartlett  $\chi^2$  test indicated that the error variances for the different sections were homogeneous. The F ratio for variation in slope showed that there was a satisfactory degree of parallelism among the 17 separate curves. The effect of combined slope was significant at the .01 level. The resulting correlation between peer ratings and M-1 scores was  $-.15$ ,  $P < .01$ .

4. The linear regression for self-ratings of social adequacy on M-1 scores was significant at the .005 level for the 335 NavCads. The correlation coefficient was  $-.22$ ,  $P < .01$ . The analysis here paralleled that for peer ratings. The combined results are presented in Table II.

5. The group adjudged poorly adjusted on the basis of their projective responses had significantly higher M-1 scores than their classmates -- the higher the M-1 scores presumably the poorer the adjustment. The small number of cases and restricted range of the low adjustment group placed doubt on the assumption of normality and hence on the applicability of analysis of variance. Thus, the Mann-Whitney (7) extension of the Wilcoxon (15) ranking test for the comparison of two groups without the assumption of normality was applied. This test yielded a P of .04 for the difference between the M-1 scores of the two groups.

6. The mean M-1 score for the total attrition group of 179 NavCads was not significantly higher than that for the pre-flight group of 409, but the mean difference was in the predicted direction.

As the first step in this analysis, tests were completed to determine whether the several pre-flight classes and the several classifications of attritions could be combined to form a single in-training and a single attrition group respectively. The analysis of variance presented in Table III indicated that the means and variances of the 11 NavCad classes were drawn from the same population. The analysis presented in Table IV yielded comparable results for the five attrition groups.

In view of the above results, the 11 pre-flight classes were combined into a total in-training group and compared with the total attrition group. The F ratio for the homogeneity of the within group variances gave  $.02 < P < .10$ . The Bartlett  $\chi^2$  entered on the  $\chi^2$  chart prepared by Bliss (2) yielded a more precise P of .03. This rendered suspect the use of a pooled error term for testing the difference between means by analysis of variance. Consequently, a t test based on classical probability theory and modified for use with samples of unequal variance was computed (3). The data for the t test are presented in Table V. The results were:  $t = 1.39$ ,  $n = 30$ ,  $P = .18$ .

Discussion of Results. The standard error of measurement for the M-1 indicates that its reliability is sufficient for the classification of an individual into a low, average, or high adjustment group.

Scores on the M-1 have a significant linear relationship to peer ratings and self-ratings on social adequacy. The negative correlations are in the expected direction. High M-1 scores and low ratings on social adequacy are presumably indicative of inadequacy or personal-social maladjustment. Although the validity coefficients are statistically significant, they are not sufficiently high to make practicable the use of the M-1 for the prediction of a particular individual's social adequacy. However, a refinement and expansion of the present preliminary form of the test should increase its validity considerably.

The subjects designated as poorly adjusted on the basis of their projective sentence protocols can be defined as a criterion group. In this respect, the fact that the M-1 scores for this group were significantly higher than those of the non-low group is additional evidence of the validity of the M-1. This result is also indirect evidence of the feasibility of the presently used method of converting the sentence completion test from projective to multiple-choice form. That is, subjects selected as poorly adjusted by the costly process of psychologists evaluating individual projective test protocols will tend to be selected as poorly adjusted by a quantitative index from the M-1.

The difference between the mean M-1 score of the in-training and attrition groups is not significant, but the mean difference is in the expected direction -- the higher mean for attritions presumably indicating poorer personal-social adjustment. A preliminary analysis was completed for the first 84 members of the total attrition group against the first 289 subjects of the in-training group. In this initial analysis the mean difference was also in the expected direction, and the P value was approximately the same magnitude as that reported for the final analysis. Furthermore, since the in-training group still contained most of its expected attrition, pure pass-fail groups should be more clearly differentiated.

#### Implications for Further Research

It is generally accepted that projective techniques measure important aspects or levels of personality not tapped by so-called objective-type tests. For the present study, there is a question as to what, if anything, was lost psychologically in the process of converting the sentence completion test from projective to multiple-choice form. The only evidence from the present report relating to this question was indirect. Subjects placed in the low adjustment group on the basis of their over-all projective sentence protocols had significantly lower "adjustment scores" on the M-1 (multiple-choice form) than did their classmates. If this result were obtained in further replications of the study, it would imply that for purposes of screening extreme adjustment groups the M-1 would tend to do the same job as that accomplished by the costly procedure of having professionally competent judges rate projective sentence protocols.

A more definite answer to the above question might be obtained by testing whether subjects whose projective responses were classified in a given category tended to choose the multiple-choice statement corresponding to that category. Such a study would have theoretical and practical significance for the construction of objectively scoreable personality tests.

The M-1 is an experimental multiple-choice sentence completion test. The present results, especially with respect to its reliability and its validity against peer and self-ratings of social adequacy, appear to warrant further development of the instrument. With refinement and expansion, the multiple-choice sentence completion test may be an aid in the screening of NavCads with respect to personal-social adjustment.

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TABLE I

ANALYSIS OF VARIANCE ABOUT THE REGRESSION LINE FOR M-1  
SCORES AND PEER RATINGS ON SOCIAL ADEQUACY

| SOURCE                   | D. F. | VARIANCE | F    | P    |
|--------------------------|-------|----------|------|------|
| Effect of Combined Slope | 1     | 6.80     | 7.57 | <.01 |
| Variation in Slope       | 16    | 17.27    | 1.08 | <.50 |
| Error                    | 301   | 270.30   | .90  |      |
| Total                    | 318   | 294.37   | .93  |      |

Bartlett  $\chi^2$  test for homogeneity of error variances:  $\chi^2 = 1.28$ , D.F. = 16,  
P > .90.

TABLE II

ANALYSIS OF VARIANCE ABOUT THE REGRESSION LINE FOR M-1  
SCORES AND SELF-RATINGS ON SOCIAL ADEQUACY

| SOURCE                   | D. F. | VARIANCE | F     | P     |
|--------------------------|-------|----------|-------|-------|
| Effect of Combined Slope | 1     | 14.24    | 16.18 | <.005 |
| Variation in Slope       | 16    | 9.52     | .60   | <.50  |
| Error                    | 301   | 263.61   | .88   |       |
| Total                    | 318   | 287.37   | .90   |       |

Bartlett  $\chi^2$  test for homogeneity of error variances:  $\chi^2 = 3.843$ ,  
D.F. = 16,  $P > .90$ .

TABLE III

ANALYSIS OF VARIANCE OF M-1 SCORES FOR 11 PRE-FLIGHT CLASSES

| SOURCE             | D. F. | VARIANCE | F    | P    |
|--------------------|-------|----------|------|------|
| Between Classes    | 10    | 11.22    | 1.09 | >.05 |
| Within Class 48    | 36    | 7.95     |      |      |
| " " 49             | 36    | 9.24     |      |      |
| " " 1              | 45    | 13.30    |      |      |
| " " 2              | 33    | 9.47     |      |      |
| " " 3              | 34    | 12.20    |      |      |
| " " 4              | 39    | 12.25    |      |      |
| " " 5              | 44    | 11.62    |      |      |
| " " 6              | 32    | 9.63     |      |      |
| " " 7              | 39    | 5.18     |      |      |
| " " 8              | 36    | 12.18    |      |      |
| " " 9              | 24    | 8.46     |      |      |
| Within all Classes | 398   | 10.26    |      |      |
| Total              | 408   | 10.29    |      |      |

F max test for homogeneity of within group variances: F max = 2.57,  
P >.05.

TABLE IV

ANALYSIS OF VARIANCE OF M-1 SCORES FOR THE 5 ATTRITION GROUPS

| SOURCE           | D. F.      | VARIANCE     | F    | P    |
|------------------|------------|--------------|------|------|
| Between Groups   | 4          | 14.97        | 1.12 | >.05 |
| Within DOR Group | 129        | 12.32        |      |      |
| Within FF "      | 20         | 19.06        |      |      |
| Within NPQ "     | 12         | 15.92        |      |      |
| Within GSF "     | 6          | 12.95        |      |      |
| Within Misc. "   | 7          | 13.41        |      |      |
| Within Groups    | <u>174</u> | <u>13.41</u> |      |      |
| Total            | 178        | 13.44        |      |      |

Bartlett  $\chi^2$  test for homogeneity of within group variances:  $\chi^2 = 2.01$ ,  
D. F. = 16,  $P > .80$ .

TABLE V

THE t TEST FOR DIFFERENCE BETWEEN MEAN M-1  
SCORES OF THE TOTAL ATTRITION AND  
TOTAL IN-TRAINING GROUPS

|             | N   | $\bar{x}$ | $s^2$ | s    | t*   | P   |
|-------------|-----|-----------|-------|------|------|-----|
| Attrition   | 179 | 8.31      | 13.44 | 3.67 | 1.39 | .18 |
| In-Training | 409 | 7.87      | 10.29 | 3.21 |      |     |

\* D. F. = 30, see text.

## APPENDIX I

### Sentence Completion

Form A - 1

THIS MATERIAL IS STRICTLY CONFIDENTIAL AND  
WILL BE USED ONLY FOR RESEARCH PURPOSES

### INSTRUCTIONS

Below is a list of unfinished sentences. We would like you to finish each sentence in any way you like, as long as the completed sentences express what you actually feel or do. There are no "right" or "wrong" answers. You may use as few or as many words as you wish in finishing each sentence.

- |                                     |                                       |
|-------------------------------------|---------------------------------------|
| 1. I like _____                     | 19. I never _____                     |
| 2. The future _____                 | 20. I am a person _____               |
| 3. People who _____                 | 21. I failed _____                    |
| 4. I always _____                   | 22. If I could change _____           |
| 5. Practical jokers _____           | 23. My parents _____                  |
| 6. When my parents disapprove _____ | 24. College athletes _____            |
| 7. When I am criticized _____       | 25. Success _____                     |
| 8. Sensitive people _____           | 26. To understand others _____        |
| 9. To change plans _____            | 27. Compared to others _____          |
| 10. What annoys me _____            | 28. I blame _____                     |
| 11. I can't forgive _____           | 29. My chief regret _____             |
| 12. If I _____                      | 30. My superiors _____                |
| 13. An important decision _____     | 31. Ambitious people _____            |
| 14. If only my father _____         | 32. Most foreigners _____             |
| 15. Before an exam _____            | 33. Immortality _____                 |
| 16. Most congressmen _____          | 34. People with strong opinions _____ |
| 17. People who conform _____        | 35. Religion _____                    |
| 18. When I have fun _____           | 36. The American Press _____          |

APPENDIX I (Cont'd)

Sentence Completion  
Form A - 2

THIS MATERIAL IS STRICTLY CONFIDENTIAL AND  
WILL BE USED ONLY FOR RESEARCH PURPOSES

INSTRUCTIONS

Below is a list of unfinished sentences. We would like you to finish each sentence in any way you like, as long as the completed sentences express what you actually feel or do. There are no "right" or "wrong" answers. You may use as few or as many words as you wish in finishing each sentence.

- |                                      |                                                  |
|--------------------------------------|--------------------------------------------------|
| 1. I admire _____                    | 19. When I get angry _____                       |
| 2. Five years from now _____         | 20. Impulsive people _____                       |
| 3. My best friend _____              | 21. Women bosses _____                           |
| 4. I can _____                       | 22. People who always try to please others _____ |
| 5. When I'm in a strange place _____ | 23. I get disgusted _____                        |
| 6. Early marriage _____              | 24. My past achievements _____                   |
| 7. What I lack most _____            | 25. Intellectuals _____                          |
| 8. Other people _____                | 26. I am afraid _____                            |
| 9. Those who trust most people _____ | 27. Loneliness _____                             |
| 10. The purpose of life _____        | 28. When I go out with a crowd _____             |
| 11. Most officers _____              | 29. Among my friends _____                       |
| 12. My friends regard me _____       | 30. When away from home _____                    |
| 13. My parents disagree _____        | 31. I cannot _____                               |
| 14. My new acquaintances _____       | 32. Fraternities _____                           |
| 15. The only trouble _____           | 33. When I see a fist fight _____                |
| 16. Most socialists _____            | 34. Compared to mother, my father _____          |
| 17. I have fun _____                 | 35. My major concern _____                       |
| 18. I worry _____                    | 36. Mercy killing _____                          |

## APPENDIX II

### Sentence Completion Form M-1

#### Instructions

Below is a list of unfinished sentences numbered 1 through 47. Immediately beneath each unfinished sentence are three possible ways of completing it. These possible responses are lettered a, b, or c, and each letter is preceded by parenthesis marks. Place a 1 in the parenthesis preceding the response most similar to what you might have written yourself. Similarly, place a 2 in the parenthesis by the response which is next most similar to what you might have written; place a 3 in the parenthesis preceding the response least similar to what you might have written.

For example, one person answered item 48 as follows:

48. Most high school teachers:  
(2) a. Are college graduates.  
(1) b. Use notes for lectures.  
(3) c. Are women.

In this example, this person indicated that response b is most similar, response a next most similar and response c least similar to what he might have written in completing unfinished sentence No. 48.

- \*1. I like:  
( ) a. Music, travel, and stimulating books.  
( ) b. Participating in sports and other competitive activities.  
( ) c. The responsibility of supervising or directing the activities of others.
- \*2. I always:  
( ) a. Ask someone who knows when I need some kind of help.  
( ) b. Try to be friendly and to get along with everyone.  
( ) c. Have to give a thing a try before I can intelligently decide if I like it.
- \*3. Those who trust most people:  
( ) a. Are sometimes taken in.  
( ) b. Are usually trustworthy themselves.  
( ) c. Are usually well-liked but often disappointed.
- \*4. Five years from now:  
( ) a. I hope to have a commission in the regular Navy and be well established in a career in Naval Aviation.  
( ) b. I really wonder what I'll be doing.  
( ) c. I hope to be back in school or doing well in my chosen occupation in civilian life.

APPENDIX II (Cont'd)

- \*5. I am a person:
- ☐ a. Who intends to strive hard in whatever I undertake.
  - ☐ b. Who is attracted by many things and find difficulty choosing among them.
  - ☐ c. Who believes that friendship and fun are the most essential parts of living.
6. Early marriage:
- ☐ a. Is all right but should be discouraged.
  - ☐ b. Is all right but it depends on the couple.
  - ☐ c. Is all right if the couple is able to provide for themselves.
- \*7. To change plans:
- ☐ a. Is really difficult only when there is a big decision as to what to do next.
  - ☐ b. Is poor policy and should be avoided if possible.
  - ☐ c. Is a normal means of progressing.
8. I blame:
- ☐ a. Ignorance and misinformation for many of our misfortunes.
  - ☐ b. Myself for not taking better advantage of my opportunities.
  - ☐ c. Myself only when I'm completely sure I'm at fault.
9. Intellectuals:
- ☐ a. Are to be admired if they don't try to impress you.
  - ☐ b. May lead a full life, but it's questionable.
  - ☐ c. Can be very boring if they are not careful.
- \*10. My friends regard me:
- ☐ a. As rather quiet but reliable and friendly.
  - ☐ b. As a person who is really carefree.
  - ☐ c. As just another member of the group.
- \*11. Other people:
- ☐ a. Always impress or interest me.
  - ☐ b. Are sometimes irritating or upsetting.
  - ☐ c. Are generally considerate, friendly, and helpful.
12. Practical jokers:
- ☐ a. Are all right if they pick the right time and place for their jokes.
  - ☐ b. Are a pain in the neck -- they have no place in my crowd.
  - ☐ c. Are good for adding needed divergence and relieving tension.
- \*13. If I:
- ☐ a. Get my wings, I know I'll feel successful and happy.
  - ☐ b. Could, I'd make absolutely certain that flight training and aviation is the thing for me.
  - ☐ c. Like it in the military, I may make Naval Aviation a career.

APPENDIX II (Cont'd)

- \*14. When I get angry:  
☐ a. I keep it to myself.  
☐ b. I try hard to self-control but sometimes don't control myself as I'd like to.  
☐ c. I generally "get it off my chest" one way or another.
15. Fraternities:  
☐ a. Are a necessary and enjoyable evil of snobishness.  
☐ b. Of a professional nature are the only ones worthwhile.  
☐ c. Are a wonderful means of learning to get along with others.
- \*16. When I'm in a strange place:  
☐ a. I try to act calmly and adapt myself as soon as possible.  
☐ b. I find pleasure in exploring it and meeting new people.  
☐ c. I sometimes feel a little uncomfortable.
- \*17. What annoys me:  
☐ a. Is almost the same thing that annoys everyone else.  
☐ b. Is small minded, unthinking people, or people who joke about serious things.  
☐ c. Is having to wait so long to get started in what I want to do.
18. People who conform:  
☐ a. To beliefs they have thoroughly thought out are most at peace with themselves.  
☐ b. To the ways of the group get along better.  
☐ c. To certain rules too closely, sometimes get into difficulty.
- \*19. What I lack most:  
☐ a. Is more education.  
☐ b. Is more confidence in myself and my abilities.  
☐ c. Is poise -- more ability to contribute to and enjoy social situations.
- \*20. The future:  
☐ a. Generally looks good.  
☐ b. Can be modified by personal effort.  
☐ c. Seems unpredictable and somewhat undesirable.
21. Most congressmen:  
☐ a. Are not quite big enough to fill such a crucially important position.  
☐ b. Are conscientious men who do a capable job in government.  
☐ c. Are looking out for their jobs and their party.
- \*22. When my parents disapprove:  
☐ a. We discuss it and try to reach a compromise.  
☐ b. I generally try to arrange things so they can approve.  
☐ c. I usually go ahead with what I'm doing.

APPENDIX II (Cont'd)

- \*23. My chief regret:
- ☐ a. Is that I am not a little more sure of myself.
  - ☐ b. Is that I haven't fulfilled my obligations to others.
  - ☐ c. Is that present conditions make it necessary for me to do military service.
- \*24. When I see a fist fight:
- ☐ a. I usually try to see what it's all about, and may try to break it up.
  - ☐ b. I experience very strong emotions if either person is being hurt badly.
  - ☐ c. I am either repulsed or disgusted and feel like getting away from it altogether.
- \*25. When I go out with a crowd:
- ☐ a. I usually help set the pace and take part in leading the group.
  - ☐ b. I'd rather just be one of the group than do any of the leading.
  - ☐ c. I don't hesitate to leave when things don't go to suit me.
26. Most socialists:
- ☐ a. Are impractical idealists.
  - ☐ b. Are either not very ambitious or else frustrated.
  - ☐ c. Are looking out for the underdog.
27. My major concern:
- ☐ a. Is whether I can successfully complete this program.
  - ☐ b. Is whether flying will really hold my interest and be the right thing for me.
  - ☐ c. Is getting established in the occupation best suited for me while I am still young.
- \*28. Compared to others:
- ☐ a. I'm probably average.
  - ☐ b. In my group, I sometimes feel I may fall short in some ways.
  - ☐ c. I am as apt to get my wings as anyone here.
29. Women bosses:
- ☐ a. Are often hard people to work for.
  - ☐ b. Are sometimes more efficient and business-like than men.
  - ☐ c. Are satisfactory in charge of other women.
- \*30. The only trouble:
- ☐ a. Now, is adjusting myself to a completely new kind of life.
  - ☐ b. With Pre-Flight is that it is so confining -- too little liberty.
  - ☐ c. With the NavCad program is the length of time it takes to complete it.

APPENDIX II (Cont'd)

- \*31. Mo past achievements:  
    ☐ a. Are quite satisfactory to me.  
    ☐ b. Are actually small.  
    ☐ c. Have been easy.
32. Most foreigners:  
    ☐ a. Are hesitant to give up their old ways and adjust to our way of life.  
    ☐ b. Are hard working people who usually get along well.  
    ☐ c. Are just other people like ourselves, some good and some bad.
- \*33. I get disgusted:  
    ☐ a. With red tape, and with regimentation when it's overdone.  
    ☐ b. With people who complain a lot and yet don't really seem to try.  
    ☐ c. With myself for making mistakes and not measuring up when I feel I could do better.
34. Sensitive people:  
    ☐ a. Hinder or annoy other people because they get their feelings hurt so easily.  
    ☐ b. Should be better understood -- they can be a real asset.  
    ☐ c. Have a weakness which they should try to overcome.
- \*35. I am afraid:  
    ☐ a. Of not measuring up to what others expect of me.  
    ☐ b. Of my own weaknesses more than anything else.  
    ☐ c. Of only those things I can't understand or control.
- \*36. When I have fun:  
    ☐ a. I try not to do anything I'll regret later.  
    ☐ b. I like to be in a group where everyone is having fun.  
    ☐ c. I try to forget my problems, relax and really enjoy myself.
- \*37. I can't forgive:  
    ☐ a. People who violate the laws of God or society.  
    ☐ b. People who betray their own conscience.  
    ☐ c. Myself for not utilizing my talents and abilities more fully.
38. Mercy killing:  
    ☐ a. Imposes too great a responsibility on too few men.  
    ☐ b. Is something I've thought of but not reached any conclusion.  
    ☐ c. Should be legalized under carefully controlled conditions.
- \*39. Before an exam:  
    ☐ a. I use every available minute to get prepared.  
    ☐ b. I tend to take it easy and relax.  
    ☐ c. I sometimes worry or get nervous to a degree.

APPENDIX II (Cont'd)

- \*40. I can't:
- ☐ a. See why people knock themselves out trying to do something they are not suited for.
  - ☐ b. Understand why some people just don't relax and take it easy.
  - ☐ c. Understand why some people have to work so hard at finding their place in life.
- \*41. When I am criticized:
- ☐ a. I feel badly and consequently don't do as well.
  - ☐ b. I generally accept it and try to profit by it.
  - ☐ c. I spend some time sizing up the criticism and the reason for it.
- \*42. If I could change:
- ☐ a. I would go back and do a better job in my school work and in acquiring certain skills.
  - ☐ b. My life, I wouldn't make any real changes.
  - ☐ c. Things, I would make for less friction between people.
- \*43. I failed:
- ☐ a. To realize the importance of social relations and friendship.
  - ☐ b. To get as much out of my education and school life as I wanted.
  - ☐ c. To realize in my earlier years how much my needs and goals would change by now.
44. The American Press:
- ☐ a. Is often guilty of exaggerating or distorting the news.
  - ☐ b. Is largely made up of big syndicates which cater too much to big business.
  - ☐ c. Does a good job of keeping the people informed on all important issues.
- \*45. To understand others:
- ☐ a. Is not as difficult as finding what you yourself want and are suited for.
  - ☐ b. Is often over emphasized -- you can't please everyone.
  - ☐ c. Is far more difficult and complex than most people think, but is a very desirable characteristic.
- \*46. I worry:
- ☐ a. Only about big things which I feel I can do nothing about.
  - ☐ b. About some things which actually seem to be well within my ability to handle.
  - ☐ c. Very little, if any, because things seem to work out by themselves.

APPENDIX II (Cont'd)

47. I admire:

- ( ) a. People who really enjoy life, who can laugh and see the brighter side of things.
- ( ) b. Anybody who has mastered the technical skills to utilize the products of modern science and engineering.
- ( ) c. The person who has attained success or a position of leadership in his field.

### APPENDIX III

#### ESTIMATION OF AN INDIVIDUAL'S ADEQUACY OF SOCIAL LIVING

For the past few months you and the members of your section have been living and working together as a group. You know by now that some of them seem to work together and (discounting athletic performance) contribute more to the over-all efficiency of the whole group than have certain other members of the class. This is, in general, what is meant by being socially adequate. The person who is to be considered as the most socially adequate (or the most socially responsible) in your section, then, is the one who has shown the most of this ability to contribute the greatest amount to the over-all efficiency and well being of your group in the everyday give-and-take relationships of military life.

It is important to remember that the desirability of any candidate you choose as being socially adequate does not necessarily have to be the person who is most intelligent. A person of mediocre ability might stand very high in social adequacy because of his ability to contribute more than others to the over-all success of the group. Neither does he have to be the best performer in the class or be the one that has the most money, prestige, or athletic ability.

In general, then, we can say that the person who stands highest in social adequacy is the one who can help others and the group as a whole while receiving the same benefits for himself without self-sacrifice or "boot-licking" on his part.

Choose the individual in your class who most nearly fits this definition and place his name in the space labeled Highest (H-1). In the space labeled lowest (L-1), place the name of the individual who least fits the above definition. Then proceed according to instructions you followed in the leadership form to fill in the spaces labeled H-2, L-2, H-3, and L-3. THE MEN YOU SELECT NEED NOT BE THE ONES YOU NAMED ON THE LEADERSHIP BLANK

Highest \_\_\_\_\_ (H-1)

\_\_\_\_\_ (H-2)

\_\_\_\_\_ (H-3)

\_\_\_\_\_ (L-3)

\_\_\_\_\_ (L-2)

Lowest \_\_\_\_\_ (L-1)

FORM S

If your section were ranked on the above topic from 1 to N (no. in group), I believe my classmates would probably rank me \_\_\_\_\_.