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An investigation of the possible existence of an effect of the service tenure upon personality characteristics as measured by the Structured-Objective Rorschach Test (SORT).

Rushing, Charles F.

Monterey, California: U.S. Naval Postgraduate School



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AN INVESTIGATION OF THE POSSIBLE EXISTENCE
OF AN EFFECT OF SERVICE TENURE UPON
PERSONALITY CHARACTERISTICS AS
MEASURED BY THE STRUCTUREDOBJECTIVE RORSCHACH
TEST (SORT)

CHARLES F. RUSHING

FIRD (D)

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Charles F. Rushing

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BY THE STRUCTURED-OBJECTIVE RORSCHACH TEST (SORT)

bу

Charles F. Rushing

Lieutenant Commander, United States Navy

Submitted in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

United States Naval Postgraduate School Monterey, California

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bу

Charles F. Rushing

This work is accepted as fulfilling the research paper requirements for the degree of MASTER OF SCIENCE

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MANAGEMENT

from the

United States Naval Postgraduate School

### **ABSTRACT**

Structured-Objective Rorschach Test (SORT) scores of 218

United States Naval Postgraduate School students were subjected to a multiple regression analysis to determine if there is an effect of service tenure upon personality characteristics. The results obtained indicate that SORT scores, which are a measure of personality characteristics, are probably random in respect to service tenure and age.

The study includes a review of the history of group Rorschach methods, civilian and military, and evaluates the possible future use of the SORT in the Navy. It concluded that the value of the SORT for military group comparisons is undetermined, and that further use of the test at the Naval Postgraduate School is necessary in order that its value definitely may be established.

# TABLE OF CONTENTS

Chapter	Title	Page
	Abstract	ii
	Table of Contents	iii
	List of Tables	٧
1	Statement of the Problem	1
	The Problem	1
	Social Purpose	2
	Definitions of Key Terms	2
	Assumptions	6
	Limitations	7
	Research Significance	9
	Review of the Literature	14
11	The Study	16
	Method	16
	Materials	17
	Respondents	17
	Procedures	18
	Collection of Data	18
	Calculation of SORT Attribute Scores	19
	Preparation of BIMD Programs	20
	Computer Use	20
	Results	20
	SORT Variable Analysis	21
	SORT Attribute Analysis	21
	Analysis of the Results	25
	Matrix Comparison	25
	Removal of High Deviations	25

Chapter	Title	Page
	Discriminant Analysis	25
	Summary and Conclusions	27
	Summary	27
	Conclusions	28
	Recommendations	29
Bibliog	raphy	31
Appendi	x	33

## LIST OF TABLES

Table		Page
1	Table for Converting T-Scores to Ratings	4
2	Subject Group Composition	18
3	SORT Variable Correlation Matrix	22
4	SORT Attribute Correlation Matrix	23
5	Discriminant Analysis, Groups 1 and 4	26

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### CHAPTER I

### STATEMENT OF THE PROBLEM

Since 1921, when Dr. Hermann Rorschach introduced his first model of the projective psychological test, the "ink-blot" technique of personality interpretation has become one of the most valuable tools in the fields of Psychology, Sociology, Psychiatry, and Anthropology. Behavioral scientists have developed, in the past forty years, many types of personality tests for use in the clinic as well as in education and industry. While no one test can stand alone as a panacea in the search for a yardstick of trait characteristics, the Rorschach technique remains pre-eminent.

Over the years, several variations of the original Rorschach methods have evolved, the characteristics of each being dependent upon its intended use. One of these, the "Structured-Objective Rorschach Test" (SORT), was developed by the California Test Bureau for use in education and industry as an aid in vocational guidance and personnel selection.

The military services are now making relatively little use of Rorschach methods. This study will analyse the SORT scores of 218 Naval Postgraduate School students and, through regression and discriminant analysis, relate the results to possible further utilization of the SORT in the naval service.

### THE PROBLEM

This research study was undertaken to investigate the possible existence of an effect of service tenure upon personality characteristics as measured by the SORT. Do organizational stresses and environmental conditions within the Navy operate to

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shift personality differences among naval personnel? If so, are these shifts proportional to individual length of service?

SOCIAL PURPOSE

A study of this nature might benefit the Navy, the other military services and, perhaps, industry in the following ways:

- 1. It would add to the store of knowledge of group personality characteristics, thereby:
- a. permitting a further degree of comparison of an individual with his contemporaries as an aid in the evaluation of his performance, and
- b. aiding in the assignment of personnel to differentiated groups, as an adjunct to other tests and criteria.
- 2. It might reveal the effects of organizational stresses upon group personality characteristics. Identifiable features of the organization might then be changed to offset undesirable trends.
- 3. Information obtained in a study of this type might be useful in other highly structured organizations, such as in industry.
- 4. If it is determined by this and further studies that personality characteristics are consistent over time, pre-enlistment/pre-commissioning personality assessment tests would bear closer relationships to subsequent performance.

### DEFINITIONS OF KEY TERMS

Personality: ... the progressive final integration of all the systems of response that represent an individual's adjustment to his various environments.

-- Gordon W. Allport (1, p.349)

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Service Tenure: The number of years an individual has served on active duty in the military. For this study, service tenure has been computed to the nearest six months as of the date of the test.

Enlisted Service, Commissioned Service, Longevity: The three categories of service tenure as used in this study, the latter being the sum of the other two.

Regression Analysis: Yamane (18, p.368, p.640) defines simple linear regression analysis as the computation of a relation between two variables that are related causally. "Multiple" linear regression analysis, which is used in this study, calculates the relation among one dependent variable and two or more independent variables. Here, we handle three separate measures of service tenure (individually) as dependent variables, and measure the interrelationships of as many as 25 independent variables (SORT scores).

<u>Discriminant Analysis</u>: A means of calculating a best index for discrimination between two or more groups. (17, BIMD 05, p.1)

<u>Structured-Objective Rorschach Test (SORT)</u>: A forced response paper-and-pencil projective ink-blot personality test designed to appraise vocationally significant personality traits. (14)

<u>SORT Variables</u>: The 15 stimulus-responses to the characteristics of ink-blots which the subject may make. See the Appendix for a complete description. They will be referred to in this study by their symbols, i.e.: W, D, Dd, Fch, etc.

<u>SORT T-Scores</u>: A measure of the subject's responses to the various characteristics of the ink-blots. T-Scores are normalized standard scores having arithmetic means equal to 50 and standard

deviations equal to 10. Relationships between T-Scores are interpreted as having similar magnitude of differences all along the scales. This stability of comparison is the specific virtue accounting for the use of T-Scores in the SORT, making it possible to convert T-Scores to ratings as follows: (14, p.13)

TABLE 1
TABLE FOR CONVERTING T-SCORES TO RATINGS

			Expecte	ed
T-Scores	Ratings	Per	Cent of	Cases
66-80	High		7%	
55 <b>-</b> 65	Above Aver	age	23%	
45-55	Average		40%	
35-44	Below Aver	age	23%	
20-34	Low		7%	
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Percentages based on Normative Population of SORT which consisted of over 8000 adults drawn from diverse occupations. (14, p.4-10)

SORT Attributes: The personality "factors" (25 of which are used in this study) derived from interpretation of the SORT Variables. In the case of the SORT, interpretation of attributes relies on basic Rorschach interpretation, which assumes a relationship between the kinds of responses to the stimulus-blots and "behavior domains" (Attributes). (14, p.7-8) A complete description of the Attributes may be found in the Appendix.

SORT Attribute Scores: Derived from the T-Scores through the relationships implied by the definitions of the Attributes. Formulae are included with the Attribute definitions in the Appendix. It should be noted that a constant, 60, was added to all formulae which result in ranges from -60 to +60, changing the ranges to 0-120. This would facilitate plotting and also render input data acceptable to certain BIMD programs.

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Program BIMD 34: One of the BIMD (Biomedical) Series of computer programs, prepared in the Division of Biostatistics, University of California at Los Angeles, with support in part from the National Institutes of Health, U. S. Public Health Service. Available in the USNPGS Computer Facility Library, the programs are written in FORTRAN language and, in this case, were used with the CDC 1604 Computer. The BIMD 34 program calculates multiple regression in a stepwise manner, i.e., at each step an independent variable is added to the regression equation which makes the greatest improvement in "goodness of fit". (17)

<u>Program BIMD 05</u>: This program computes a linear function of n variables measured on each individual of two groups which in a certain sense serves as a best index for discrimination between the groups, e.g., "discriminant analysis". (17)

Correlation Coefficient: A measure of the degree of relationship between two or more variables or, in other words, the degree to which variables or measures vary together. Mathematically, the value may range from a perfect positive correlation (+1.0) through no relationship (0.0) to a perfect negative correlation (-1.0). When correlating variables, the coefficients indicate roughly the following strengths of relationships between the variables: (7, p.219)

Less than .20 ... Slight, almost negligible relation.

- .20-.40 .....Low correlation, definite but slight relationship.
- .40-.70 ......Moderate correlation, substantial relationship.
- .70-.90 ..........High conrelation, marked relationship.
- .90-1.0 ......Very high correlation, very dependable relationship.

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Those who employ tests in guidance and selection consider that a correlation coefficient should be at least .45 for material usefulness and that best results are obtained when the coefficient is above .60.

Level of Significance: The maximum probability with which we would be willing to risk a Type I error (rejection of an hypothesis which should be accepted). Or, conversely, with a significance level of .01, we are 99% confident that we have made the right decision. (15, p.168) Desired significance level for this study is .05.

<u>F-Statistic</u>: A factor which indicates the degree of variance between two groups, such degree of variance being dependent upon the relationship between that factor and the ''degrees of freedom'' which exist. (18, p.610)

<u>Degrees of Freedom</u>: The number of elements that can be chosen freely; or, the number of variables that can vary freely; or, the number of independent variables. (18, p.474)

### ASSUMPTIONS

- 1. It is theoretically possible to separate the effects of age (developmental differences) and service tenure (organizational effect differences), although the two are interdependent and often intuitively inseparable.
- 2. The validity of standard statistical methods as utilized in the BIMD Series is assumed.
- Service in the U. S. Coast Guard would expose a personality to the same organizational stresses as would service in the U. S. Navy.

### LIMITATIONS

The performance of this study and the interpretation and use of its results are subject to the following limitations:

- 1. The number of subjects (observations) was limited by the number of completed SORT tests available at the time of this study. Results from this year's tests were immediately available, while SORT scores from last year's Management group were obtained from the Dreese-Russell study (5, p.43-52).
- 2. Since almost half of the subjects were from last year's group and not located in the area, the only personal information available on all subjects is that which is found in the Navy Register (3) and the Coast Guard Register (16). Access to general service performance records (i.e., fitness reports, etc.) is not attainable.
- 3. It is possible that the sample of 218 subjects is too small to give dependable results. Further, since it was necessary to "mix" aviators with Supply Corps officers, etc., there may be differences in sub-group norms which counteract with one another and spoil correlation of the variables.
- 4. Before the results of this study can be applied to the naval service as a whole, it should be recognized that this subject group is not truly representative of an "average" group of naval officers. With few exceptions, subjects are all "successes" in their fields, and it is presumed that each was picked to attend the Postgraduate School on the basis of promising potential. Not all naval officers on active duty possess the same level of potential as does this group.

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- 5. Mary D. Ainsworth and Bruno Klopfer warn that:
  - ... to fill the "flesh" of the personality in a meaningful way it is highly desirable to consider the Rorschach findings in the context of findings from other psychological tests and case history information. (9, Vol.1, p.251-252)
- 6. The Literature is replete with reminders that the test situation itself can influence Rorschach scores to a marked degree. Gibbey, Kimble, and Lord, in three separate experiments (9, Vol.1, p.457-459), successfully determined (in the order cited) that:
- a. The Rorschach technique is not wholly resistent to deliberate efforts on the part of the subject to change his pattern of response, particularly in the case of normal, flexible subjects.
- b. The standard Rorschach Test, when taken in a "social" situation, produced strikingly different results than when taken individually.
- c. The change in "atmosphere" produced by changing the examiner resulted in different responses by the same individuals in a test-retest situation.

This test was taken by the several sub-groups at different times and proctored by several different examiners. Although the SORT is relatively insusceptible to effects of the test situation (14, p.16), degree of influence cannot be determined since test-retest checking of the results were not conducted.

- 7. Joics B. Stone (14, p.16-17) offers the following cautions in the use of SORT results:
- a. The visual acuity of the subject could have an effect on the SORT score, but such an effect has not been

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documented in the hostory of the SORT. Neither has this possible effect been considered in this study: it has been assumed that poor vision was, in each case, corrected with glasses. (This is required of active-duty naval officers).

- b. Interpretations of temperament must be conditional.

  The inherent dynamic emotional structure of an individual may

  fluxuate from time to time. This study did not utilize test
  retest methods to isolate this factor.
- c. SORT data indicates "tendencies" and not "skills".

  (See the Appendix for a complete description of SORT Attributes.)
- 8. Personality traits are interrelated one to another and each individual trait score should not be perceived out of context with the overall score profile.
- 9. In view of the General Telephone Study, the Brigham Young University Study, and certain Interoccupational Comparisons, all described in the SORT Manual (14, p.6-7) as successful tests of the concurrent validity of SORT, it is considered that the SORT is a valid and reliable test. The validity and reliability of the particular tests taken in this study, however, cannot be checked directly since a study of this exact nature has never been attempted before with the SORT, and naval officer group norms are not available. Comparison of the SORT correlation matrix with this study's matrix is discussed in the Procedures section.

# RESEARCH SIGNIFICANCE

Use of the Rorschach technique in the military since the Korean Conflict has been limited. A search of Department of Defense Documentation Center files reveals only a few examples

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now on record, although Holtzman (8, p.4) and Molish (11) describe an upsurge in the use of Rorschach methods as a preselection device during World War II.

The Molish paper, published in 1956, concerns itself only with the Rorschach test as used in the military in a prognostic, rather than a diagnostic role. Molish, a PhD and Navy Medical Service Corps officer, pointed out that the Rorschach was used in many variations from standard procedures. One of the tests developed for the services which bore a close relationship to traditional methods, however, was the Multiple Choice Rorschach (MCR). Dr. Molish describes the use of this test in large military groups for the purpose of predicting future performance. Procedures for this test included an individual inquiry conducted with each subject by a skilled Rorschach worker. (The MCR, then, is relatively unstructured, when compared with the SORT.) Molish concluded that the use of large scale Rorschach techniques as applied to the problems of selection and screening of large military populations is not too encouraging since "... It would appear that even when applied to normal superior adults, any interpretation of Rorschach scores must be made within the framework of the norms for that subpopulation to which the subject belongs." (11, p.813) In his summary, Molish generalized his review of military use of Rorschach to date (1956) as being of "limited adequacy". (11, p.815)

An abstract of a study by Fokkema, conducted in Europe, describes an unsuccessful attempt to construct a foolproof quantitative Rorschach score for selection purposes in aviation psychology. The author concluded that construction of such a score was not yet possible. (6)

Dreese and Russell (5) used the SORT, together with several other tests, to determine predictors of academic performance in the Management Curriculum at the Navy Postgraduate School. They concluded that SORT, by itself, was not a useful predictor.

After a thorough review of Rorschach research up to this time, although many group studies using military personnel have been made, it appears that no study for the purpose specified herein has ever been accomplished.

It would seem appropriate at this point to reiterate the goal of this study in order that a parallel may be drawn with other research in the field of group comparison techniques. Regression analyses will be performed to determine if there is a correlation among service tenure (and age) on one side of the coin and personality factors (SORT Variables or SORT Attributes) on the other. If high correlations do exist, the results would serve to either confirm or delimit popular intuitive beliefs about naval officers such as: Senior officers are more rigid than junior officers; junior officers tend to pay more attention to detail than senior officers; the longer you stay in the service, the more you conform; etc. It would also seem possible, given a SORT Variable matrix loaded with high correlation coefficients, to take an individual's SORT Variable scores and say, "There is a high probability that this officer is about 34 years old, has been commissioned for ten years, and began his service as an enlisted man for several years before entering the Naval Academy." We could also take his Attribute scores and compare his personality profile with that of his contemporaries' group

norms and determine, for instance, whether or not he is "more rigid" or "more structured" than the average officer in his category.

It is in the latter area that this project differs from other studies in the field of group comparison. According to Klopfer, et. al. (9, Vol.1, p.465-469):

Usually such group comparisons limit themselves to statistical treatment of the various scoring categories and quantitative proportions and omit considerations of qualitative differences.

For example, the SORT Manual (14), in its tabulations of group norms, limits the comparisons to the differences in SORT Variable scores: the SORT Attributes (qualitative scores) are not used in group comparisons but only in analysing the individual.

Quantitative analysis of the SORT Variables is made a part of this study, but only for checking the results of qualitative analysis of the Attributes. Klopfer would argue that this is "skating on thin ice", so to speak:

... it is rare that a group comparison is sufficiently crucial to lend strong positive support to the claim for validity of any given hypothesis, but rather support is to be found in the general congruency of the Rorschach findings with "common sense" of theoretical understanding of the differential character of groups. ... Thus, group comparisons are a means of detecting grossly invalid hypotheses, and sometimes provide a basis for the delimitation of the generality of interpretative hypotheses. (9, Vol.1, p.465-466)

In other words, we could "prove" ourselves right with mediocre correlations, so long as our intuitive beliefs about a naval officer group are generally congruent with the SORT findings -- but it would require very high correlations to convince us that we are wrong, and we could very well be wrong. Perhaps an

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officer with 20 years service should score lower on Conformity than one with 10 years longevity, but such a conclusion would contradict intuition. (Proper use of the "level of significance" guards against such erroneous findings.)

Just such a paradox was uncovered in an experiment by Roe (9, Vol.I, p.466-477). It has long been hypothesized that "M" responses (human movement) were related to "creativity". But Roe found that M responses were less frequent among a group of high-ranking artists, and she therefore concluded that the Rorschach concept of creativity referred to "personality" rather than to "output" in the sense of artistic production. This parallels Stone's reminder that SORT scores indicate "tendencies" and not "skills".

Before leaving the subject of research significance, it would be well to mention that the field of Rorschach group comparisons abounds with examples of relatively successful studies which indicate the existence of organizational and developmental effects upon the personality. Klopfer's anthology (9), and Sherman's volume (13) include many significant contributions in the investigation of organizational (which include cultural and institutional) effects upon groups. This would lend justification to an hypothesis that service in the military does change the personality. In the realm of developmental effects, Holtzman includes a study by Thrope (9, p.181-183) which indicates group norm Rorschach score changes at a level of significance less than 1%. Louise Bates Ames has conducted several experiments with developmental changes (2, p.287-315; 12, p.160-161), especially with children and elderly people.

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These indications that developmental effects do probably occur prompted the inclusion of "age" as a dependent variable in this regression analysis.

The number of studies which have proved "successful" in the areas of institutional and developmental effects is imposing, indeed -- but one cannot help but ponder the number which have produced insignificant data and may have gone unreported. The fact that those responses which produce significant changes vary from one study to another is perhaps indicative of the inconsistencies in this area. For example, Ames (2) reports increasingly high "F" (form) responses with age, while Thorpe's study (9, p.181-183) registers an increase of F in the early stages, tapering off to a decrease in later life. Ames found a change in "A" (animal) response, while Thorpe did not. It seems likely that the responses which change vary as often as the age groups studied vary. The different cultural backgrounds of the groups may also produce differences in developmental changes.

### REVIEW OF THE LITERATURE

It is the opinion of the author that the field of Rorschach Psychology was researched as deeply as necessary for the purpose of this study. It was our intention to outline non-military research only to the extent necessary to justify the hypotheses. A thorough search of military records uncovered no studies which bore a direct relationship to this project. Following is a list of sources investigated:

 A request to the Defense Documentation Center for references to all uses of the Rorschach Test in the military, with no date limit.

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- Correspondence with the Bureau of Medicine and Surgery,Navy Department, Washington, D. C.
- 3. Correspondence with the Psychological Research Branch of the Bureau of Naval Personnel, Navy Department, Washington, D. C.
- 4. An inquiry to the Personnel Research Activity, U. S. Naval Base, San Diego, California.
- Search of the Navy Postgraduate School Library filesfor all pertinent references.
  - 6. Psychological Abstracts
  - 7. Dissertation Abstracts
  - 8. Current Periodicals

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# CHAPTER II

# THE STUDY

### METHOD

The main function of this study was to perform multiple regression analysis of SORT score data and personal history data, using 218 male officer students of the Naval Postgraduate School as subjects. The purpose of the analysis was to find the relationships among the personal data (service tenure classifications and age) and the SORT scores. The problem, in effect, consisted of eight sub-problems:

Sub-Prob	Dependent Variable	Independent Variables
1.	Commissioned Service	15 SORT Variable Scores
2.	Former Enlisted Ser.	15 SORT Variable Scores
3.	Total Service	15 SORT Variable Scores
4.	Age	15 SORT Variable Scores
5.	Commissioned Service	25 SORT Attribute Scores
6.	Former Enlisted Ser.	25 SORT Attribute Scores
7.	Total Service	25 SORT Attribute Scores
8.	Age	25 SORT Attribute Scores

As a check on the results of the regression analysis, a discriminant analysis was performed using two sub-groups of approximately the same size and composition: 96 members of the 1964

Management Class and 100 members of the 1965 Management Class.

This analysis was performed to determine if a significant

"difference" existed between the two groups.

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### MATERIALS

Materials used in both analyses have been described previously in the Description of Terms section. They are: scores taken from the SORT tests, the BIMD 34 program, and the BIMD 05 program. There is a distinction between the SORT and the traditional Rorschach test, and perhaps that distinction should be made clear at this point. The standard Rorschach makes use of ten "ink-blots", and a score is determined by the subject's reaction (responses) to those ink blots. The test is usually given to one subject at a time, with the test administrator taking an active part and allowing the subject to elicit a wide variety of responses. The SORT uses the same 10 ink blots, but the test is administered to groups and the administrator merely acts as a projectionist and proctor. The subject is given limited, multiple-choice response, and the number of responses to each blot is fixed. This structured feature of the SORT permits its use in groups as well as making it possible for administration by field psychologists who are relatively inexperienced in Rorschach methods. Further, the scores are adaptable to quantitative analysis, a valuable feature where this study is concerned.

### RESPONDENTS

Two Hundred and eighteen (218) male officer students at the U. S. Naval Postgraduate School were used as subjects for this study. These subjects were members of four distinct subgroups:

- 1. Members of current Management Curriculum (100)
- 2. Members of current Data Processing Curriculum (15)

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- 3. Miscellaneous students, 1964-65 (7)
- 4. Members of the 1963-64 Management Curriculum (96)

  TABLE 2, below, shows the composition of each group, and the percentages of each category relative to that group. Group designations are keyed to input data in the Appendix.

TABLE 2
SUBJECT GROUP COMPOSITION

GROUP	AVE.	AVE. COMM SERV	SERV ACAD GRADS	GEN LINE	AVIA- TION	STAFF CORPS	MISC.	TOTAL
1	33.7	9.7	31 31%	33 33%	29 29%	25 25%	13 13%	100
2	31.6	8.3	11 73%	3 20%	213%	9 60%	1 7%	15
3	34.4	10.9	0	2 29%	5 71%	0	0	7
4	35.8	12.0	27 28%	35 36%	24 25%	27 10%	10	96
TOTALS (%)	1		69 32%	73 34%	60 28%	61 28%	24 11%	218

## **PROCEDURES**

Collection of Data. SORT scores from the Dreese-Russell study (5, p.43-52) for Group 4 and the scores for the remaining three groups were collected. Since the Dreese-Russell scores were "raw", it was necessary to convert this data by means of the nomagrams (14, p.284).

Subjects were listed by name, along with the T-Scores for each of the 15 SORT Variables. By either direct reference to, or interpolation of, data found in the Navy Register (3) or the Coast

<sup>&</sup>lt;sup>1</sup>Vertical column totals only.

Guard Register (16), the following statistics for each subject were obtained:

- 1. Source of Commission (USNA, USCGA, NROTC, etc.)
- 2. Corps Designator (1100, 1310, 3500, etc.)
- Years Commissioned Service at time test was taken, to nearest six months.
  - 4. Years former enlisted service, to nearest six months.
- 5. Age, to nearest six months at time test was taken.

  Student numbers (001-218) were then assigned to each subject and the names were discarded. Following this step, ADP cards were punched, one card per subject.

Calculation of SORT Attribute Scores. Since one-half of this study was a multiple regression analysis using the Attribute scores, the next step was to calculate the Attribute values as functions of the SORT Variable scores used in the other half of the study. Formulae for this calculation are included with each Attribute definition in the Appendix.

Program REGRESS 1 (see Appendix) was used for this task. In this problem, Y(1,J) through Y(15, J) are the SORT Variables, while TY(1,J) through TY(25,J) are the SORT Attributes. "J" represents the student numbers, and this J value in the DO Loop permits computation of all 25 personality factors for each of the 218 subjects.

The formulae used in REGRESS I were deduced from the SORT Manual descriptions (14, p.13-14) and by analysis of the ABAC tables (14, p.25-27). The ''S-Equivalent'' and ''CF-Equivalent'' factor formulae (SEQ and CFEQ) were obtained through graphical

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Eight of the Attribute scores (8, 9, 17, 18, 19, 21, 23, and 25) begin at negative values, ranging from -60 to +60. To facilitate plotting and to render the scores more adaptable to the BIMD program series, a constant, 60, was added to each such formula. This resulted in a positive range from 0 to 120 for each of those eight variables. This change would not effect the results of the study.

Preparation of BIMD Programs. Control data cards for the BIMD 34 program were then prepared. Since the input data did not include a figure for Total Service, it was necessary to use a transgeneration card in the program to add the values of Commissioned Service and Enlisted Service. This sum, total service, was designated LONGEV and inserted into the problems as a dependent variable.

Computer Use. Two main problems were run with the BIMD 34 program on the CDC 1604 Computer: one was an analysis of the relationship between the service tenure categories and SORT Variables, and the other between service tenure and the SORT Attributes.

# RESULTS

The following results were obtained from the main program:

SORT Variable Analysis: The highest correlation achieved

with this particular analysis was .14306 between Age as the dependent variable and FC (responses involving color and closely resembling the form of the stimulus). This indicates slight, almost negligible correlation.

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SORT Attribute Analysis: The highest correlation in this matrix is .14907, between Enlisted Service as the dependent variable and Moodiness as the independent variable. This also indicates slight, almost negligible correlation.

<u>Correlation Matrices</u>: Tables 3 and 4, beginning on the next page, are the correlation matrices for the two main programs.

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TABLE 3

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TABLE 4

# SORT Attribute COPRELATION MATRIX - Part 1

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### ANALYSIS OF THE RESULTS

As no significant correlations emerged from these two computer runs, the following steps were taken to test the validity of the study to this point:

- 1. Matrix Comparison. The historical SORT Variable correlation matrix (14, p.10) was compared with TABLE 3. Although Holtzman discourages such a comparison (8, p.146), it was felt that a favorable match between the two matrices would supply a clue to validity. The resemblence was slight. This comparison of matrices would have no bearing on comparative naval officercivilian SORT scores, but merely is a test of relationships among the SORT Variables themselves.
- 2. Removal of High Deviations. The cards of all subjects with any one score falling outside the range of plus or minus two standard deviations from the mean were removed from the deck. This was done under the premise that some inaccuracies of the test situation might have upset the correlations. This step did not improve correlations, nor did the new correlation matrix compare favorably (or even closer to) the matrix in the SORT Manual. Only the SORT Variable problem was used for this validity check, since the Attributes are functions of the Variables.
- 3. <u>Discriminant Analysis</u>. A discriminant analysis was run on Groups 1 and 4. A glance at TABLE 2 will show that these two groups are similar in both size and occupational group composition (aviators, general line, staff, etc.), but Average Age and Average Commissioned Service are more than two years greater for Group 4. If it were found, in the BIMD 34 program regression

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analysis, that personality characteristics <u>do</u> change in relation to age and tenure, then a significant "difference" between the two groups from the BIMD 05 calculations would serve to confirm those findings. It would be necessary, however, for the variables which show the greatest differences in the BIMD 05 program to correspond with those BIMD 34 variables with the highest correlations. Results of the discriminant analysis between Groups 1 and 4 are tabulated below:

TABLE 5

DISCRIMINANT ANALYSIS -- GROUPS 1 AND 4

VAR	IABLE	MEAN, GRP 1	MEAN, GRP 4	DIFFERENCE	ORDER
1.	W	51.27	52.82	-1.55	8
2.	D	49.68	49.06	.62	13
3.	Dd	50.18	47.84	2.34	4
4.	S	52.28	54.84	-2.56	3
5.	F	58.32	57.31	1,01	11
6.	F-	49.79	48.03	1.76	6
7.	М	51.20	52.54	-1.34	9
8.	FM	53.19	53.91	72	12
9.	FC	49.84	49.98	14	15
10.	CF	42.04	39.45	2.59	2
11.	Fch	47.69	49.26	-1.57	7
12.	А	51.71	48.67	3.04	1
13.	Н	50.63	50.19	.44	14
14.	Р	47.65	49.61	-1.96	5
15.	0	38.55	39.81	-1.26	10

The above discriminant analysis results in an F-Statistic of 2.84 with 180 degrees of freedom. From Yamane's Table 5 (18, Appendix),

this indicates a significant difference between the two groups at a level of significance of less than 1%. Although time did not permit further analysis, the author intends to perform further discriminant analysis on these two groups as an extension project, treating Age and Commissioned Service as variables along with the SORT scores. This procedure should determine whether or not Age and Commissioned Service are the discriminant factors.

#### SUMMARY AND CONCLUSIONS

Summary. This study was undertaken to investigate the possible existence of an effect of service tenure upon personality characteristics as measured by the Structured-Objective Rorschach Test (SORT). The entire field of Rorschach Psychology was researched in an effort to find examples of quantitative and qualitative experiments which sought for and (if found) measured organizationally and developmentally induced differences in group personality characteristics.

On the quantitative side, sufficient parallels were uncovered which indicated that such effects upon human behavioral characteristics could exist -- enough evidence to justify the continuation of this study beyond the first stages.

Using BIMD computer programs, statistical methods were employed in a multiple regression analysis. Service Tenure (commissioned service, enlisted service, total service of the 218 subjects) and Age served in separate sub-problems as dependent variables. Two sets of SORT scores (one quantitative and the other qualitative) for each subject were used as independent

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variables. All correlations were found to be below a value of .20, and all were considered negligible.

<u>Conclusions</u>. From the results of this study, the following conclusions have been determined:

- 1. Multiple regression analysis reveals no apparent relationship between Service Tenure and Personality Characteristics as measured by the Structured-Objective Rorschach Test (SORT). By the same methods, no apparent relationship exists between Age and SORT personality scores.
- 2. Although BIMD 05 did discriminate between Groups 1 and 4, this procedure failed to substantiate the results of the BIMD 34 regression analysis. In TABLE 5, the most discriminating variables are A, CF, and S, in that order. The BIMD 34 correlation matrix (TABLE 3) shows:

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From TABLE 2, Average Age and Average Commissioned Service for Group 4 are over two years greater than for Group 1, while the group sizes and occupational compositions are comparable. Since the two groups are significantly "different", and differ mostly in the SORT scores for A, CF, and S, it would seem that the regression correlation coefficients for A, CF, and S versus Age and Commissioned Service should be relatively high. This is not the case.

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- 3. If relationships <u>do</u>, in reality, exist among the dependent and independent variables of this study, failure to achieve correlations could be attributed to the following:
- a. This study did not conduct discriminant analyses between the distinct occupational sub-groups (aviators vs General Line, etc.). Differences among these groups may have served to counteract one another.
- b. Influences of the test situation may have caused deviations beyond normal proportions.
- 4. Results indicating that the SORT scores are apparently random do not detract from the value of this study. On the contrary, pre-recruitment and pre-commissioning psychology test administrators would benefit by the knowledge that personality characteristics will maintain consistency throughout subsequent military service.

### RECOMMENDATIONS

In view of the results of this study, the following recommendations are submitted:

- 1. That a discriminant analysis be conducted with this subject group to investigate possible deleterious effects mentioned in paragraph 2.a. of the Conclusions.
- 2. That a discriminant analysis be conducted between subgroups 1 and 4, using Age and Commissioned Service as variables along with the SORT scores, to determine if the former are determinant factors.
- 3. That, in the future, particular emphasis be placed on standardizing the test situation in every detail, and that

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test-retests be given at intervals throughout the group as a check on the test situation.

4. That this study be repeated each year for several years in order that the value of the SORT for military group comparisons definitely may be determined.

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## APPENDIX

Subject Personal Data	•	•	•	34
SORT Variable Scores		٠		37
SORT Attribute Scores		•		42
Program REGRESS I for calculating SORT Attribute Scores				
•				
as functions of the SORT Variables	•		•	46
SORT Variable Descriptions				47
SORT Attribute Descriptions and Formulae				48
,				
Group Means and Standard Deviations for SORT Variables, compared with Industrial Supervisor Scores, and Group				
Means and Standard Deviations for the Attributes			•	53
ABAC Tables for calculating RATINGS from SORT				
Variable scores				55

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106	2	2	1	3		26	150	4	2	1	18	3	39
107	2	2	2	5		27	151	4	2	5	14	7	39
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125	4	1	2	11	1	34	169	4	2	2	14	. 3	36
126	4	2	1	11	3	35	170	4	2	1	18	6	43
127 128	4 4	1	5 5	3 13	5 7	31 40	171	4	2	1	16	4	40
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176 177 178 179 180	4 4 4 4	2 2 2 2 2	8 5 1 2 5	5 11 6 12 14	10 11 3 6	33 33 34 35 39	
181 182 183 184 185	4 4 4 4	2 2 2 2 1	2 2 1 1	15 16 9 10 18	6 5 1	40 40 31 33 42	GRP Group Number  SRC Source Code
186 187 188 189 190	4 4 4 4	1 2 2 1 2	2 1 5 1 8	16 14 13 9 6	1 2 1 15	37 36 37 32 38	1 - Service Academy 2 - Non-Academy  DES Designator Code
191 192 193 194 195	4 4 4 4	2 2 2 2 2	1 1 6 5 2	16 17 11 14 15	4 5 5	37 38 33 36 40	1 - General Line 2 - Aviator 5 - Supply Corps 6 - CAC 8 - Miscellaneous
196 197 198 199 200	4 4 4 4 4	1 2 2 2	5 8 8 1 2	8 4 18 9	15 2 1	30 36 38 31 35	COM SHR Commissioned Service  FIX SHR Enlisted Service  AGE Age
201 202 203 204 205	4 4 4 4 4	1 2 2 1	6 5 5 2	15 12 14 8 18	2 6 1 2	39 34 38 30 41	
206 207 208 209 210	4 4 4 4	2 2 2 2 2	8 1 2 2 1	12 11 14 13 10	7 1 1 2 1	39 33 38 35 34	
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# VARIABLE SCORES

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186 187 188 189	58 60 76 36 35	40 45 36 58 51	57 45 35 55 72	60 45 42 60 55	47 50 77	62 57 40 52 75	25 62 50 47 45	35 55 50 55 50	45 47 47 45 32		80 42 70 40 55	45 45 36 45 55	28 55 62 56 37	36 53 51 36 25	45 45 40 40 62
191 192 193 194 195	55 65 36 36 61	58 46 63 65 43	30 35 50 45 50	37 50 50 65 45	57° 50 57 77 52	45 42 47 50 42	72 45 50 47 30	57 55 50 50 55	50 60 50 40 55	50 50 45 52 55	30 60 55 37 65	45 45 57 53 55	60 45 41 55 43	60 50 53 46 43	30 30 35 62 50
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142 143 144	61 50	3 41 . 50 . 51	1 55 1 35 1 42	5 118 5 10 2 110	3 10: 8 10: 1 9: 0 11: 5 10:	l 69 0 40 l 37	5 57 32 7 52	50 70 45 62 53	80 49 80	) 52 9 40 ) 43	2 60 5 5 2 3 48	2 37 3 50	) 55 7 40 ) 37	72	2 99	7 77 5 110 7 104	59 51 74	7 (	3 3	7 42 0 60 4 71 5 42 4 47	5 ( 7 (	0 47 0 60 5 40 9 60 5 60	50 75 58	111 109 90 105 123	_
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152 153 154	36	55 51 55	45 42 65	93 114 66	3 100 3 100 4 109 5 85 106	62	77 60 80	70 87 63 98 75	53 64 46	35 55 41	51 53 41	43 45 55	62 45 62	107 122 118 110 122	107 113 70	92 95 92	36 64 72 38 70	37 55 73 33 80	95	3 45 3 35 3 37 1 50 1 45	49 52 55	47 45 58 30 60	33 57 22	104 111 116 74 103	58 68 68 46 92
157 158 <b>1</b> 59		51 53 53	55 50 50	84 88 103	93	62 62 55		78 80 50 70 63	33 57 53	40 55 65	36 52 40	4 0 3 5 4 3	62 62 55	110	89 102 102	77 102	59 48 51 51 66	57 45 40 55	106 54 70	47 20 47 55 52	5.8 7.5 5.8	47 42 40 55 65	40 70 50	107 101 101 111 111	63 56 77 57 103
162 163 164	55 40 65	43 55 46	57 57 35	85 90 115	105	60 55 57	57 77 52	68 57 90 60 50	47 61 80	40 50 47	40 52 63	35 40 37	60 55 57	118 87 127 102 107	90 90 105	90 80 100	62 50 55 78 73	68 35 60 75 75	66 97 63	50 57 45 60 47	74 45 53	58 30 50 50 70	63 30 60	113 95 100 105 135	72 65 72 86 81
167 168 169	56 63 35	45 41 70	52 45 40	116 108	115	50 57	62 40 80	82 77 48 90 68	57 56 48	*52 40 35	52 52 42	40 35 50	50 57 57	120 122 85 125 110	120 92 92	85 92 99 79 92	62 70 46 56 59	63 70 45 55 65	87 52 100	55 45 57 42 57	47 74 48	58 60 45 45	43 72 30	121 124 93 103 111	75 72 77 52 66
	38 52 55	61 50 45	50 45 55	127 105	106 125	60 42 62	67 65 55	73 75 88 60 45	62 80 60	55 66 52	33 43 38	55 50 60	60 42 62	115 112 140 105 110	87	87 77 85 82 72	73 44 65 52 51	70 45 80 53 58	82 86 66	50 45 37 50 42	60 36 64	50 45 75 50 55	45 32 60	112 99 128 106 109	60 38 53 38 5
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182 183 184	58 55 61	45 50 53	50 45 27	108 97 116	83 95 92 108 108	50 60 47	47 60 35	53 52 73 45 60	64 48 49	52 35 47	55 46 52	37 20 40	50 60 47	87 97 102 90 107	100 89 122	100 100 87 99 97	54 55 48 61 58	45 55 45 55 65	70 70	60 50 55 57 52	67 61 70	42 50 42 55 62	68 47 75	102 100 96 123 111	85 78 86 72 76
186 187 188 189 190	60 76 36	45 36 58	45 35 55	126 83	65 107 86 105 96	45 42 60	47 50 77	48 50 70 85 40	69 81 61	55 62 56	53 51 36	4 O	45 42 60	75 109 100 124 100	70 109 97 92 77	85 92 87 77 67	60 60 59 51 49	50 67 60 52 55	69 55	80 42 70 40 55	55	62 50 47	50	78 113 104 104 94	51 68 71 56 24
191 192 193 194 195	65 36 36	46 63 65	35 50 45	110 86 83	130 91 113 112 73	50 50 65	50 57 77	70 87	63 50	45 41 55	50 53 46	30 35 62	50 50 65	129 95 107 124 82	105 100 87	100 110 95 92 110	64 58 60 54 48	75 50 60 57 35	77 68 77 91 62	60 55 37	47 61 55 48 68	45 50 47	48 52 50 33 50	100	90 80 78 44 53
196 197 198 199 200	55 38 58	51 60 45	42 50 50	105 83 103	108 101 105 90 98	57 60 60	67 75 67	82 95 75	57 56 51	52 40 43	51 51 40	37 30 37	57 60 60	115 117 120 112	100 92 80	82 75 79 70 105	51 45 51 50 48	55 45 50 55 48	76 84 85 74 69	47 55 62	55 57 48 55 53	50 45 45	45 38 25 45 33	113	73 74 81 63 57
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STU 6 9 10 11 12 13 14 17 16 17 18 19 20 21 22 23 24 223 61 47 56 40 66 20 65 125 108 53 55 50 43 55 120 98 52 119 98 55 57 96 72 214 46 53 50 104 111 55 62 20 50 6.8 79 52 50 58 48 108 205 67 43 37 122 74 55 98 47 57 69 47 70 25 47 112 95 5.0 58 51 55 40 113 105 206 50 53 45 95 98 50 50 103 45 43 48 43 50 125 85 75 41 43 93 50 47 45 17 98 65 54 56 51 43 60 130 100 77 207 45 63 37 100 118 60 75 65 7.0 93 40 45 55 40 112 80 68 96 47 40 5.3 64 55 53 43 47 95 208 65 41 37 120 95 110 60 60 51 67 61 55 62 113 70 77 209 52 45 57 114 107 65 62 77 71 62 32 43 65 124 90 53 65 50 49 62 43 111 49 210 50 48 55 100 98 50 60 70 53 58 48 55 50 110 50 109 53 96 103 55 80 56 45 52 35 55 130 112 89 50 110 25 211 46 53 50 49 56 48 50 25 118 77 212 67 41 35 127 101 55 47 57 80 65 51 30 55 107 102 8.2 51 60 64 52 62 60 63 111 81 213 63 46 45 108 91 42 47 60 31 25 50 25 42 92 105 105 48 40 62 50 70 45 85 214 55 51 42 115 111 50 65 90 64 47 61 35 50 125 110 85 65 70 85 55 40 60 30 118 86 57 37 62 30 65 107 100 215 38 60 50 83 105 65 62 75 48 43 61 45 92 45 105 216 52 50 42 122 120 47 45 55 63 58 50 43 47 115 120 95 75 65 67 45 55 70 65 123 67 56 50 31 45 60 130 87 217 30 55 65 80 105 60 80 100 72 55 103 30 49 43 50 20 101 46 218 42 53 57 104 115 67 62 75 75 58 51 25 67 124 109 99 65 72 75 35 47 62 45 110

### LEGENT

STU NUM -- Student Number.

- Numerical COLUMN HEADINGS (1-25) -- Numbers are keyed to the SORT Attribute numbers found in SORT ATTRIBUTE DESCRIPTIONS, pp. 49-53.
- \* -- Indicates those Attribute scores where a constant, 60, has been added to the true SORT score. See notes in SORT ATTRIBUTE DESCRIPTIONS, p. 49, for explanation.

TU NUM -- Student would

Mumerical COLUNA MANAGEMENT COLUNA ARTERIA MANAGEMENT COLUNA AR

been of the ATTRIBUTE DISCRETE

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PROGRAM REGRESS 1
   DIMENSION Y(15,218), Y(25,218)-IY(25,218)
   = 218
   \forall EAD 10, (((1,J), T=1,15), J=1,L)
10 FORMAT(14X, 15F3.0)
   PRINT 50
50 FORMAT(1H1//)
12 no 17 J=1, L
                                   SHE ATTRIBUTE SCORE DEFINITIONS
   |Y(1,J)=Y(1,J)
                                   IN DEFINITIONS OF REY TERMS SHOW
   1Y(2,J)=Y(2,J)
                                   TION FOR EXPLANATION OF ADDITION
   1Y(3,J)=Y(3,j)
                                   OF COLUMNIT, 60, TO EIGHT OF
   1Y(4,J)=Y(1,J)+Y(7,J)
                                   THESE FORMULAE.
   Y(5,J) = Y(2,J) + Y(7,J)
   1Y(6,J) = Y(4,J)
   (7,J) = (5,0)
   |Y(8,J)=Y(5, )-Y(6,J)+60
   +Y(9,J)=(Y(14,J)+Y(13,J))/2.-(((12,J))+60.
   [Y(10,J)=Y(13,J)]
   Y(11,J)=Y(14,J)
   |Y(12,J)=Y(15,J)
   TY(13,J)=Y(4,J)
   +Y(14,J)=Y(5,J)+Y(7,J)
   +Y(15,J)=Y(9,J)+Y(7,J)
   Y(16,J)=Y(10,J)+Y(9,J)
   Y(17,J) = ((Y(9,J)+Y(7,J))/2.)-Y(8,J)+60.
   TY(18,J)=Y(7,J)-Y(8,J)+60.
   IF(Y(4,J)-50.)13.14.15
13 SEQ=125, -(Y(4,J)*2.)
   GO TO 16
14 SEQ=25.
   GO TO 16
15 \text{ SEQ} = (Y(4,J) * 2.) - 75
16 TY(19,J)=Y(5,J)-((SEQ+Y(11,J))/2.)+60.
   [Y(20,J)=Y(11,J)]
   1Y(21,J)=((Y(8,J)+Y(6,J))/2.)-(Y(5,J)+Y(7,J))/2.+60.
   1Y(22,J)=Y(7,J)
   1Y(23,J)=Y(6,J)-Y(5,J)+60.
   CFEQ=100.-Y(10,J)
   TY(24,J)=((CFEQ+Y(9,J))/2.)+Y(7,J)
17 |Y(25,J)=Y(14,J)-Y(15,J)+60.
   00 \ 20 \ I=1.25
   DO 20 J=1,L
20 \text{ IY}(I,J) = \text{IY}(I,J) + .5
18 PRINT 19.((ly(I,J),[=1,25),J=1.L)
19 FORMAT(1H0,3x,312,213,212,213,412,613,112,113,112,313)
   END
   END
```

<u>Note:</u> Following is a cample input data card for Student #83: 08315111000700038.88.87.88.207.88.20.47.88.88.40.37.53.50.43.45.
Columns 10-89 am. the ... A Viniable cores.

# SORT VARIABLE DESCRIPTIONS (14, p. 3)

Number	Symbol	Description
1	W	Whole-blot responses
2	D	Major blot-details
3	Dd	Minor blot-details
4	S	White-space responses
5	F	Responses closely resembling the form of the stimulus.
6	F-	Responses poorly resembling the form of the stimulus.
7	М	Responses involving human movement or posture-tension.
8	FM	Responses involving animal movement or posture-tension.
9	FC	Responses involving color and closely resembling the form of the stimulus.
10	CF	Responses involving color and poorly resembling the form of the stimulus.
11	Fch	Responses involving textural density of gray or shading.
12	Α	Responses involving whole animals or parts of animals.
13	н	Responses involving total human figure or parts of humans.
14	Р	Modal responses (Statistically derived)
15	0	Rare responses (Statistically derived)

## SORT ATTRIBUTE DESCRIPTIONS

- Notes: (1) From the SORT Manual (14, p. 15-16)
  - (2) Each description is accompanied by a formula for calculating the attribute as a function of the SORT Variables.
  - (3) Those marked with an asterisk (\*) indicate that a constant, 60, has been added to the formula to render the results positive. For true SORT Attribute scores, subtract 60.
- 1. Theoretical: Facility for thinking in broad, general or abstract terms; facility for getting perspective, visualizing the overall picture, and seeing relationships between the parts.
- 2. <u>Practical</u>: Tendency for thinking or attacking problems on the basis of practical, concrete, or very definite details. D
- 3. <u>Pedantic</u>: Preference for thinking and attacking problems from the standpoint of fine, minute details; tendency to be perfectionistic and to focus on precise, sometimes trivial details. Dd
- 4. <u>Induction</u>: Facility for logical thinking based upon inferences from elements; utilization of their accumulative synthesis to lead to conclusions, principles, or generalizations; ability to organize details into a meaningful whole.

  W + M
- 5. <u>Deduction</u>: Readiness to employ the logical approach in which established or speculative theories, principles, or generalizations are applied to data or details for the purpose of analysing their relationships to one another (and to the principle probably involved). A balance between facilities

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for inductive and deductive thinking, especially when both are high, would point toward a mental adaptiveness or "efficiency" wherein such intellectual potential as the individual has is the more effective because of versatility in logical processes. D + M

- 6. Rigidity: Tendency toward the dogmatic or toward fixed ideas. Higher scores suggest an unwillingness to change a point of view in spite of evidence to the contrary; low scores suggest an uncritical acceptance of others' viewpoints.
- 7. Structuring: Facility for mental alertness and precision and exactitude in perception of reality. Occasionally this relates to a somewhat rigid and formalistic way of solving problems, but usually indicates an awareness of and conformity to the environment and its demands. F
- \* 8. <u>Concentration</u>: Capacity for attending to the task at hand or for avoiding distractions from one's environment or from one's own extraneous thoughts. F-FNeg + 60
- \* 9. Range: Tendency of interests to be either expansive or to be narrow and confined.  $\frac{P+H}{2}$  A + 60
- 10. <u>Human Relationships</u>: Disposition toward the perception of and attention to elements having human connotations. H
- 11. Popular: Tendency to perceive the same features in
  the same way as others; to see things as other persons do;
  empathic tendencies. P
- 12. <u>Original</u>: Disposition to perceive the unique, the different, and the non-conforming, perhaps even the eccentric; emphasis on individualism of actions. 0

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- 13. Persistence: The determination not to deviate from a set course. It may appear as doggedness or stick-to-itiveness. It can range from inability to stick to or complete a task along to the further extreme of stubbornness, defiance, or contentiousness. S
- 14. <u>Aggressiveness</u>: The aspiration toward goals by means of well-accepted and morally developed procedures; willingness and desire to work; sense of a mature self-control with social conformity. F + M
- 15. <u>Social Responsibility</u>: Willingness to subserve one-self, even though no personal gains are evident; energetic acceptance of one's obligations to himself, to his family, and to society. FC + M
- 16. <u>Cooperation</u>: Willingness to use a teamwork approach; sensitivity toward others in combination with appreciation and responsiveness in human relationships. Willingness to submerge one's immediate needs to the long-range interests of other persons is implied. CF + FC
- \* 17. Tact: Control of impulses and biases; maturity expressed in the ability to maintain stable relationship with superiors, peers, and inferiors. There is balance between inner impulses, conscious self-control, and demands of the social environment.  $\frac{FC+M}{2}$  M+60
- \* 18. <u>Confidence</u>: Ego-strength, self-confidence, morale; inner feelings of prestige or personal worth, ranging from feelings of inferiority to strong feelings of self-assurance.

It implies ability to withstand stresses and strains and to maintain feelings of self-worth (prestige) in the face of adversity. M-FM+60

- \* 19. <u>Consistency of Behavior</u>: Predictability of actions; tendency for characteristic behavior patterns to be stable and well established.  $F-\frac{SEQ+Fch}{2}+60$
- 20. Anxiety: Generalized apprehensiveness, uneasiness, or internal disquietude; self-concern and preoccupation with personal well-being, feelings, emotions, and sensations, resulting from a feeling of insecurity. A low anxiety score indicates composure; however, excessive composure, or almost complete absence of anxiety, may indicate a tendency to smother feelings to the point of seeming cold and insensitive. Anxiety may reflect itself in feelings of insecurity, expressions of inadequacy, or constriction of behavior; it may also reflect itself in erratic behavior. Fch
- \* 21. <u>Moodiness</u>: Sharp fluctuations in mood, ranging from elation to depression. The intensity and duration of either phase may vary greatly.  $\frac{FM+FNeg}{2} \frac{F+M}{2} + 60$
- 22. Activity Potential: Control of emotional energy; energy endowment; capacity to follow through on a planned course of action; concentration of energies in a given direction, as opposed to dissipation of strength in non-productive channels.
- $\div$  23. Impulsiveness: Tendency to act upon impulse rather than on a basis of a considered plan; reflected in spur-of-the-moment decisions. FNeg F + 60

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24. Flexibility: Adaptability; faculty for accepting and handling most life situations in a mature manner; capacity to adjust readily from one type of situation to another.  $\frac{\text{CFEQ} + \text{FC}}{2} + \text{M}$ 

\* 25. <u>Conformity</u>: Tendency to accept and be directed by the socially accepted codes, customs, mores. P - 0 + 60

FNeg: F-

CFEQ: CF Equivalent (See ABAC Tables)

SEQ: S Equivalent (See ABAC Tables)

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### GROUP MEANS

Following are the group means and standard deviations for this 218 person subject group for the variables used in this study. In the case of the SORT Variables, a comparison is made with the scores for Industrial Supervisors (14, p.7), intuitively chosen as the civilian group most closely comparable with the subjects in this study. Comparative means for the Attributes are not available. The constant, 60, has been subtracted from the Attributes to which it was added earlier. This permits entry to the ABAC Tables (rear of Appendix) for calculation of ratings.

T- SCORE						
VARIABLE	G R O U P Ind. Super.	M E A N S Study Grp.	Study Group STD. DEVIATIONS			
1. W 2. D 3. Dd 4. S 5. F 6. F- 7. M 8. FM 9. FC 10. CF 11. Fch 12. A 13. H 14. P 15. O	58.0 48.1 41.1 52.5 60.5 46.1 50.5 55.4 46.1 32.5 42.0 45.5 31.1 50.9 35.9	51.7 49.6 49.0 53.5 57.8 49.0 52.2 53.4 50.6 48.3 49.9 50.5 48.6 39.5	10.5 8.1 9.7 9.7 8.1 12.7 7.0 10.6 8.0 8.0 8.2 9.6 9.6 9.6 9.0			
COMM. SERV.		10.6	3.9			
ENL. SERV.		2.4	3.3			
AGE		34.3	3.9			
LONGEVITY		13.1	4.9			

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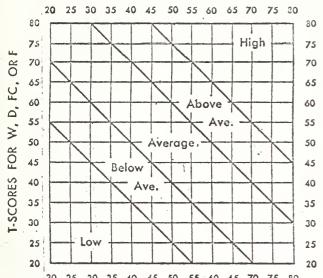
# GROUP MEANS (CONTINUED)

ATTRIBUTE		MEAN	STD. DEV.	RATING
1.	Theoretical	51.74	10.52	Average
2.	Practical	49.64	8.04	Average
3.	Pedantic	48.98	9.74	Average
4.	Induction	103.95	16.98	Average
5.	Deduction	101.85	11.83	Average
6.	Rigidity	53.48	8.05	Average
7.	Structuring	57.84	12.66	Above Av.
8.	Concentration	8.88	14.68	Average
9.	Range	-1.92	14.49	Average
10.	Human Rel.	50.54	9.63	Average
11.	Popular	48.63	9.03	Average
12.	Original	39.55	10.18	Below Av.
13.	Persistence	53.48	8.05	Average
14.	Aggressiveness	110.06	13.86	Above Av.
15.	Social Resp.	102.19	12.29	Average
16.	Cooperation	90.56	10.51	Average
17.	Tact	-3.87	10.00	Average
18.	Confidence	-2.76	12.82	Average
19.	Consistence	14.24	12.48	Above Av.
20.	Anxiety	48.32	9.58	Average
21.	Moodiness	-4.42	8.95	Average
22.	Activity Potential	52.21	10.59	Average
23.	Impulsiveness	-9.12	14.67	Average
24.	Flexibility	107.17	11.54	Average
25.	Conformity	9.08	17.66	Above Av.

	11.10	

ABAC 1 RATINGS FOR INDUCTION (W:M), DEDUCTION (D:M), SOCIAL RESPONSIBILITY (FC:M) AND AGGRESSIVENESS (F.M)

### T-SCORES FOR M

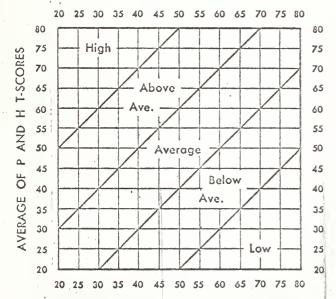


20 25 30 35 40 45 50 55 60 65 70 75 80

ABAC 3

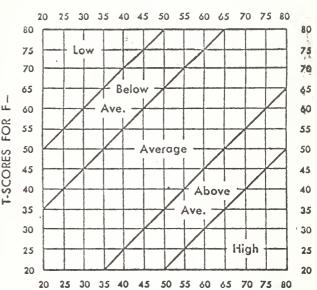
RATING FOR RANGE OF INTERESTS (P:H::A)

T-SCORES FOR A



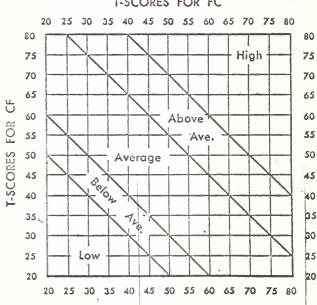
### ABAC 2 RATING FOR CONCENTRATION (F-:F)

T-SCORES FOR F



ABAC 4 RATING FOR COOPERATION (CF:FC)

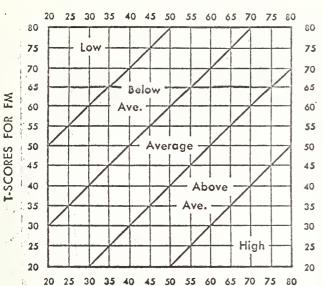
#### T-SCORES FOR FC



These tables are for use in calculating SORT NOTE: Norm RATINGS of Attributes, using SORT Variable scores to enter tables. (14, p. 25-27)

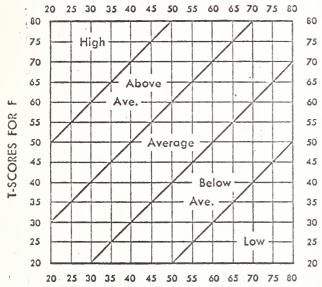
# ABAC 5 RATING FOR TACT (FM::FC:M)

### AVERAGE OF FC AND M T-SCORES



# ABAC 7 RATING FOR CONSISTENCY (F::S:Fch)

### AVERAGE OF S EQUIVALENT AND Fch T-SCORES

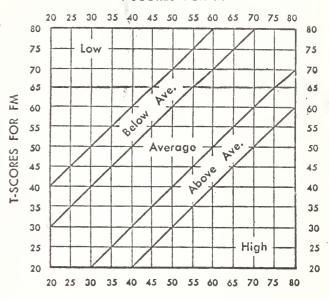


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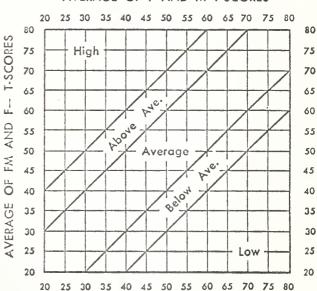
# ABAC 6 RATING FOR CONFIDENCE (FM:M)

#### T-SCORES FOR M



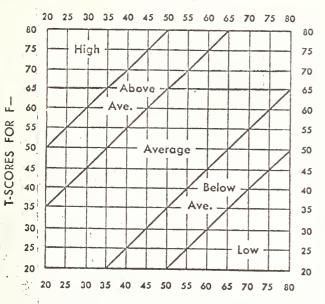
# ABAC 8 RATING FOR MOODINESS (FM:F-::F:M)

### AVERAGE OF F AND M T-SCORES



# RATING FOR IMPULSIVENESS (F-:F)

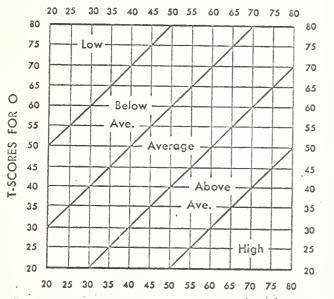
### T-SCORES FOR F



# ABAC 11 RATING FOR CONFORMITY (O:P)

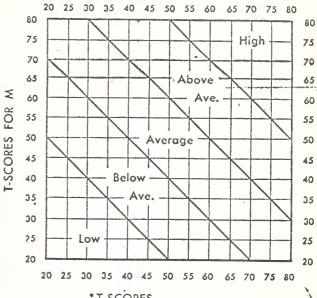
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### T-SCORES FOR P



# ABAC 10 RATING FOR FLEXIBILITY (M::CF:FC)

# AVERAGE OF CF EQUIVALENT\* AND FC T-SCORES



# \*T-SCORES FOR CF EQUIVALENT

25		75
35	***************************************	65
45		55
50		50
55		45
65		35
75		25







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