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SORT EVALUATION OF MIDSHIPMEN IN THE FIRST YEAR NAVAL RESERVE OFFICERS' TRAINING CORPS PROGRAM

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CHAPTER I

INTRODUCTION

One important source of acquiring commissioned officers for the Naval Service is the Naval Reserve Officers' Training Corps (NROTC). This program operates at 53 college and university campuses in the United States, training men for both the Navy and the Marine Corps. The program is expected to grow, perhaps double, in the near future.[1, 2] NROTC is expensive because a limited number of these students receive four years of education while subsidized by the federal government, at an average cost exceeding 8,000 dollars per student.[3] Those NROTC students who do not qualify for full

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[1]U.S., Department of the Navy, Bureau of Naval Personnel, BuPers Instruction 1533.60, Pers-C24-vt, Washington, D. C., December 29, 1961, p. 1.

[2]U.S., Department of the Navy, Bureau of Naval Personnel, NROTC Newsletter, Pers-C24-rbk, Washington, D. C., December 18, 1961, p. 2.

[3]U.S., Department of the Navy, Bureau of Naval Personnel, Enclosure (1) to Recruiting Service Note 141 of 1960, Washington, D. C., 1960, p. 4.

subsidization of their education receive a smaller amount of assistance, at a cost of about 1,000 dollars per student. Since NROTC is costly it must be justified in terms of producing men who are successful both in the training program and in the fleet or field, after they have been commissioned. Between 1950 and 1957, NROTC produced from 1,200 to 2,700 officers per year,[1] but the number of commissioned graduates is a fraction of the input and the input is a fraction of the applicants.

NROTC applicants are tested for academic ability, their life history is reviewed, and they are interviewed to determine that each applicant, "Be morally qualified and possess officer-like qualifications and character as evidenced by appearance, scholarship, extracurricular activities, and record in his home community."[2] Assessment of these "qualifications" and this "character" requires some judgments of personality and temperament. But, at the present time, there seems to be no reasonably standardized method of screening applicants with regard to personality adjustment, although the Naval Personnel Research Field Activity, San Diego, California,

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[1] Gene M. Lyons and John W. Masland, Education and Military Leadership (Princeton, New Jersey: Princeton University Press, 1959), p. 247.

[2] U.S., Department of the Navy, Bureau of Naval Personnel, Naval Reserve Officers' Training Corps Regulations, NAVPERS15034G, Washington, D. C., 1960, p. 11.

has been exploring the area of personality. This exploration has been done by collection of peer judgments of officer potential and career motivation.[1]

While serving as Head, Occupational Research Section, Personnel Research Branch, G-1 Division, Headquarters Marine Corps, in 1959, the author was faced with problems of selection of personnel for various military occupations. An estimate of learning ability as revealed by the Army General Classification Test (AGCT) score, was available for all personnel. However, this did not seem to be sufficient basis for duty assignments, since the AGCT does not take into account the personality variables upon which pride in any occupation, and job satisfaction seem to be partially built. It appeared that a standardized projective technique of some sort, which could differentiate between people who would be quite successful and those who would be less successful in a particular field, would be very helpful in solving these selection problems.

The purpose of this research was to determine whether or not a standardized projective instrument could be used to improve personnel selection practices in NROTC.

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[1] U.S., Department of the Navy, Navy Personnel Research Field Activity, Personnel Research Activity Form 188, San Diego, California, April 4, 1961.

The Problem

The primary problem of this study was to determine whether or not differentiation between successful and non-successful midshipmen students could be established early in the NROTC program at the University of Oklahoma.

The secondary problem of this study was to determine whether or not there appeared to be any differentiation between fully subsidized (Regular), and partially subsidized (Contract) midshipmen students at the University of Oklahoma on the basis of temperament and personality.

Hypotheses

The following null hypotheses to be tested were drawn from the statement of the primary and secondary problems of this study:

1) A measurement of temperament and personality does not significantly differentiate between successful and non-successful first-year Regular midshipmen at the University of Oklahoma.

2) A measurement of temperament and personality does not significantly differentiate between successful and non-successful first-year Contract midshipmen at the University of Oklahoma.

3) A measurement of temperament and personality does not significantly differentiate between successful Regular and successful Contract first-year midshipmen at the University of Oklahoma.

4) A measurement of temperament and personality does not significantly differentiate between non-successful Regular and non-successful Contract first-year midshipmen at the University of Oklahoma.

Population Description

The population in this study was the aggregate of all NROTC midshipmen who had been fourth classmen (first-year) of the NROTC program at the University of Oklahoma. Two samples, the fourth class of 1960-1961, numbering 66, and the fourth class of 1961-1962, numbering 84, were drawn from this population. Since students have become NROTC midshipmen by the same general processes since 1946,[1] and will continue to be so selected in the foreseeable future, these samples were held to be representative of the population.

NROTC midshipmen comprise two groups: Regulars and Contracts. The division is based on the manner in which each man enters the program. Regular midshipmen are selected from a list of currently graduating high school applicants throughout the country, who have submitted to an examination of their academic abilities. The Regular applies to NROTC unit institutions in the order of his choice until a school accepts him as a student. The accepted Regular is then ordered by the Navy to that institution for four years of education,

[1] Lyons and Masland, p. 76.

which is paid for by the federal government. Upon graduation, the Regular midshipman receives either a commission of Ensign in the Navy or of Second Lieutenant in the Marine Corps, with a stipulated period of four years of service.

Contract midshipmen are selected locally at each unit by the Professor of Naval Science, from among freshmen applicants who have been admitted to the institution and who desire a service affiliation which leads to a reserve commission and to a minimum of three years of active duty. The Contract midshipman is subsidized only to the extent of uniforms and naval science text books for the first two years of college, and approximately 500 dollars in cash during the last two years of his college assignment.

These two groups receive identical naval science classroom instruction and military drill. The Contract midshipman makes one summer cruise at sea during his four years of training. The Regular midshipman makes two summer sea cruises and one cruise of amphibious operations and aviation orientation. Since none of these cruises take place until after the first academic year, this difference in training will have no effect on this research.

The Criterion

Among the data available concerning midshipmen, one item of information is defined as a measurement of "aptitude for the service," for which "The qualities to be observed and evaluated are, for the most part, the same as those appearing on the

Report of Fitness of Officers."[1] This measure (aptitude evaluation), results in a class ranking by the fourth class instructor, from "honor-man" to "anchor-man." This evaluation reflects temperament, common sense, and personality under the rubrics, "Appearance and Bearing, Attitude Toward Service, Courtesy, Initiative, Dependability, Intelligence, Leadership, Moral Courage, Judgment, and Cooperation."[2] Evaluation of these officer-like qualities is not to be influenced by academic or naval science grades, according to the regulations for evaluating aptitude.[3]

Class rank, according to aptitude evaluation, was separate from other types of evaluation and de-emphasized academic achievement, while emphasizing personal adjustment. Class rank was selected as the criterion against which another measure of personality and temperament could be evaluated.

Super, citing Thorndike and others, distinguishes between available immediate, intermediate, and ultimate criteria. He pointsout that one must prove, or assume, relevance between the selected criteria and the ultimate criteria.[4] In this

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[1] U.S., Department of the Navy, Bureau of Naval Personnel, The Naval ROTC Aptitude Evaluation System, NAVPERS9182C, Washington, D.C., n.d., p. 2.

[2] Ibid., p. 3.

[3] Ibid., p. 2.

[4] Donald E. Super, Appraising Vocational Fitness (New York: Harper and Brothers, 1949), pp. 34-35.

case, success in combat was *per credo* the ultimate criterion, but it was not available. The available immediate criterion was class ranking by aptitude evaluation for one semester of NROTC training. Relevance was assumed because it could not be proven unless every member of each class could have entered combat under similar conditions and have had their performance measured; a condition not likely to be met.

The Instrument

A relatively unstructured technique of measurement was sought for this study in order to expose as much depth of personality and temperament as possible. However, a total lack of structure in the technique could not be accepted because no one was available with the training required to interpret the results.

Review of the projective techniques listed by Buros[1] led to examination of *The Rotter Incomplete Sentences Blank* (ISB),[2] and *The Structured-Objective Rorschach Test* (SORT).[3] The ISB was discarded on the grounds that its scoring methods

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[1]Oscar K. Buros (ed.), *The Fifth Mental Measurements Yearbook* (Highland Park, New Jersey: The Gryphon Press, 1959), pp. 212-324.

[2]Julian B. Rotter and Janet E. Rafferty, *The Rotter Incomplete Sentences Blank: College Form* (New York: The Psychological Corporation, 1950).

[3]Joics B. Stone, *The Structured-Objective Rorschach Test* (Los Angeles, California: California Test Bureau, 1958).

were too complicated to be used by clerks and military personnel, untrained in psychology, who would normally be required to administer and interpret the instrument. The SORT was selected as the measurement device for this study because it offered a depth analysis of personality and temperament while retaining objective testing features which permitted simplicity of administration.

The SORT uses the original ten Rorschach ink blots, but administration of the test differs from administration of the traditional Rorschach Test in several ways. First, the stimulus-responses are provided the subject. Second, the total number of responses is fixed at 100 by means of forced choices among 300 standard stimulus-responses. Third, there is no "inquiry" phase on the SORT as there usually is in the Rorschach Test.

Little research, other than that conducted by Stone, has been reported for the SORT. Stone, however, conducted a variety of studies in building the test. Two test-retest reliability studies involving 79 college students and 94 industrial supervisors respectively, have shown correlation coefficients for the fifteen scored variables, ranging from $r = 0.62$ to $r = 0.90$, with a majority of coefficients of correlation between $r = 0.70$ and $r = 0.80$.[1]

Stone conducted no studies of predictive validity, but concurrent validity was tested in a scholastic environment

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[1] Ibid., p. 4.

by administering the SORT to 2,600 freshmen at Brigham Young University. First year grade point averages were obtained on 968 students. Coefficients of correlation between grade point and the fifteen scored variables of the test ranged from r = -0.46 to r = 0.417, with five of the fifteen scores correlating with the criterion at r = 0.30, or higher. A multiple correlation coefficient using four scored variables amounted to R = 0.641.[1]

In another type of study, using 412 subjects, supervisors in a steel plant, an aircraft factory, and a municipal fire department rated their personnel on twenty of the traits for which interpretations are produced by the SORT. Supervisor ratings and SORT interpretations were compared and found to be the same in 62.5 per cent of the total of 8,240 ratings.[2]

The SORT is not intended for clinical use,[3] but supplements other information to round out personal background information for, "... selection, placement, up-grading, or counseling."[4] The test is, therefore, a screening device.

The normative population for the SORT consisted of 8,061 adults distributed among various occupational groups approximating the census population of the United States, except

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[1] Ibid., p. 7.

[2] Ibid., p. 10.

[3] Ibid., p. 3.

[4] Ibid., p. 11.

there are no farm or service personnel represented, and college students are represented more heavily than in our adult population.[1]

The SORT can be administered individually or in groups by use of Rorschach cards, illustrated booklets, or projected slides. The projection method is suitable for groups of ten to 50 examinees. Examinees mark their answers on a special answer sheet which is easily scored and interpreted without special training, and is susceptible to machine scoring. Administration of the test is simple and requires no special training. Minimum testing time is twenty minutes and no specialized equipment is required other than a standard slide projector and a room which can be semi-darkened.

The scores obtained from the SORT are in Rorschach symbols grouped into four classes. Fifteen scores are obtained; four refer to Area, seven to Determinants, two to Content, and there are two scores derived from the frequency of popular and rare responses on a given answer sheet.[2] The obtained scores are interpreted in terms of 25 attribute ratings and five efficiency reducing critical scores. The ratings comprise a five-step continuum of Low, Below Average, Average,

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[1] Ibid., p. 23.

[2] Ibid., p. 3.

Above Average, and High. The attributes are divided, for interpretation, into five groups as shown below:[1]

1) Mental Functioning: Theoretical, Practical, Pedantic, Induction, Deduction, Rigidity, Structuring, Concentration.

2) Reductives (Factors that result in lowering of intellectual performance below one's mental potential): Low Generalization, Perfectionism, Poor Control, High Anxiety, Compulsivity.

3) Interests: Range, Human Relationships.

4) Responsiveness: Popular, Original.

5) Temperament: Persistence, Aggressiveness, Social Responsibility, Cooperation, Tact, Confidence, Consistency of Behavior, Anxiety, Moodiness, Activity Potential, Impulsiveness, Flexibility, Conformity.

From careful examination of the SORT it appeared that this test met the situational requirements and offered a relatively simple means of comparing the aspects, personality, and temperament, of people that have not been compared in NROTC processing.

Design of the Study

The method of procedure was to categorize midshipmen students as successful or non-successful in terms of the criterion, NROTC aptitude evaluation. All midshipmen were ranked

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[1] Ibid., pp. 14-16.

by their respective instructors in descending order, from highest aptitude evaluation to lowest aptitude evaluation. Those who ranked in the top one-half of their year-group were defined as successful students. The lower one-half of the year-group were defined as non-successful students for the purposes of this study.

The method outlined above resulted in the formation of four sub-groups for each year-group: Regular-Successful, Regular-Non-successful, Contract-Successful, and Contract-Non-successful. The two year-group samples (1960-1961 and 1961-1962) were examined separately, both quantitatively and qualitatively, in order to cross validate findings. In each year-group sample Regular and Contract midshipmen were considered separately, to determine whether or not the two groups performed similarly on the SORT.

Quantitative Processing

Data were programmed for two phases of statistical processing. Phase one was to determine the extent to which each scored variable of the SORT would differentiate between Regulars evaluated in the top one-half of a year-group (Success), and Regulars evaluated in the bottom one-half (Non-success); between Contracts evaluated in the top and bottom halves; between Regulars and Contracts in the top one-half of a year-group; and between Regulars and Contracts in the bottom one-half. In addition, it was determined whether or not there was a significant difference between year groups in terms of

the SORT. All of these determinations were made by testing the significance of differences in mean scores, for each variable, between combinations of the eight categories specified above.

Phase two was to determine the extent to which extreme scores, those more than one standard deviation (ten score points) above or below the T score mean of 50 in any of the scored variables, would differentiate between midshipmen of the criterion categories established in phase one. For phase two processing, each year-group remained separated into its categories: Regular-Successful, Regular-Non-successful, Contract-Successful, and Contract-Non-successful. For each of the fifteen scored variables of the SORT, within each category, cases achieving a score higher than one standard deviation above the mean were tabulated. In like manner, those cases achieving a score more than one standard deviation below the mean were tabulated. The tabulated frequencies were converted to percentages of the total number of cases in the respective category. The significance of the difference between these percentages was tested with the "z" test for the same combinations of categories as in phase one, except that each combination was tested twice; once for significance of the proportion of high scores, and once for the significance of the proportion of low scores.

The results of quantitative processing indicated the consistency and degree of significance of difference exhibited by SORT scores in differentiating between successful and non-

successful NROTC midshipmen over fifteen variables at the University of Oklahoma.

Qualitative Processing

The fifteen scores of the SORT for each midshipman were interpreted in terms of the 25 attribute ratings and five efficiency reducing critical scores established by Stone as shown on his Worksheet (see Appendix D). A profile of ratings was constructed for each midshipman, and the profiles separated into the same four categories for each year-group as used in the quantitative analysis, i.e., Regular-Success, Regular-Non-success, Contract-Success, and Contract-Non-success. Individual profiles were compared within sub-groups to discover any patterns of response or similarities of profiles. Results were indicated in terms of characteristic personality and temperament patterns of midshipmen, as exhibited through the SORT.

CHAPTER II

REVIEW OF RELATED RESEARCH FINDINGS

There have been many studies conducted with the individually administered Rorschach Test and its group testing deriviatives during the past 40 years. The evolution of ink blot testing is well known. However, very little research has been reported on the SORT, other than that by Stone and the California Test Bureau prior to publication of the test. Only one published report was found in the literature.

Hampton[1] reported that the Psychological Services Department of the University of Akron used the SORT as one test in a selection battery of tests to select supervisors for industries in Ohio. They felt that the test was promising for three reasons:

1) Other tests are valuable in assessing learning abilities, intelligence, and alertness of a subject. But, these tests do not tell much about actual use of ability by the candidate. The SORT not only purports to indicate the use a person makes of his intelligence, but also, to what extent

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[1]Peter J. Hamptpn, "Use of Rorschach Test in Selecting Factory Supervisors," Personnel Journal, XXXIX (1960), pp. 46-48.

mental abilities are impaired by mental efficiency reducing factors. Findings on the S-O Rorschach Test in connection with mental functioning of a supervisory candidate have increased the effectiveness of predictions of supervisory success.

2) The SORT can be used to check on the temperament of a subject as revealed by other tests. Responses to the ink blots are more difficult to bias toward social acceptance than responses on the other tests used.

3) The SORT provided additional knowledge of a candidate's motivational depth structure. "A supervisor's worth is not only made up of what he has been and what he is, but also of what he is capable of becoming."[1]

Since so little work has been done with the SORT, two allied fields of Rorschach research were examined to throw some light on the appropriateness of this type of device in mass screening, particularly military screening; and upon the qualitative bases for interpretation of the SORT in the manner prescribed by Stone.

The Use of Ink Blots in Screening

The traditional, individually administered Rorschach Test can hardly be referred to as a screening device, although it has been given to rather large numbers of people by the same examiner, or to rather large numbers at the same time by a number of examiners. The time required and the number of

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[1] Ibid., p. 48.

examiners necessary would prohibit the use of such a method routinely for, as an example, men desiring to join the Army. Therefore, only the group methods are reviewed here.

In civilian situations various forms of the Rorschach have been used. Thompson, using the Harrower-Erickson Group Rorschach Test, and a scoring system of her own, felt that scholastic achievement prediction by adjustment test was promising, although test-retest reliabilities were low and test results correlated 0.43 with scholastic honor points.[1]

Harrower-Erickson considered the original multiple choice test to be successful at the University of Wisconsin, where it screened 89 students from 308, and 39 of those screened out were later determined definitely to be in need of psychotherapy.[2] She also made the point that with this rather gross type of screening if one wants to detect the maximum number of cases showing significant disturbances, one must be prepared to deal with a number of false positives.

Challman used the multiple choice form of the test in a hospital, where it detected 69 per cent of the psychopathic patients, but also "detected" 23 per cent of the normal hospital employees.[3]

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[1]Grace M. Thompson, "College Grades and the Group Rorschach: A Follow-Up Study," Journal of Genetic Psychology, LXXVIII (1951), pp. 39-46.

[2]Mollie R. Harrower-Erickson, Development of the Rorschach for Large Scale Application," Rorschach Research Exchange, VIII (1944), pp. 125-140.

[3]R. C. Challman, "The Validity of the Harrower-Erickson Multiple Choice Test as a Screening Device," Journal of Psychology, XX (1945), pp. 41-48.

Balinsky tried the multiple choice form in screening job applicants whose abilities had already been determined and whose employability had been assessed into categories. The test failed to indicate 49 of the 59 individuals assigned to the lowest group and did "detect" four of nineteen people who had been assigned the highest category. Balinsky concluded that the test was no better than chance in screening employment applicants.[1]

Malamud and Malamud used the amplified form of the multiple choice test with 100 psychotic patients and 100 normal people. They found the percentage of "poor" answers of the two groups almost completely overlapped and concluded that the test, as it then existed, could not be used for screening out aberrant personalities.[2]

Engle attempted to differentiate well adjusted from poorly adjusted high school students with the multiple choice technique. He reported that the test did differentiate between the extreme groups of boys, but not girls.[3]

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[1] B. Balinsky, "The Multiple Choice Group Rorschach Test as a Means of Screening Applicants for Jobs," Journal of Psychology, XIX (1945), pp. 203-208.

[2] R. F. Malamud and D. I. Malamud, "The Validity of the Amplified Multiple Choice Rorschach as a Screening Device," Journal of Consulting Psychology, IX (1945), p. 224.

[3] T. L. Engle, "The Use of the Harrower-Erickson Multiple Choice (Rorschach) Test in Differentiating Between Well Adjusted and Maladjusted High School Pupils," Journal of Educational Psychology, XXXVII (1946), pp. 550-556.

Turning from group Rorschach testing in the civilian environment to the military situation, we find the same mixed sets of results. The military screening problem is concerned with prediction of adjustment to a particular type of situation -- to latent, rather than current, psychopathology. Consequently, diagnostic studies are not considered here.

Jensen and Rotter compared the responses of 56 "excellent" officers on the Harrower-Erickson multiple choice test, with responses of 257 officer candidates and found the officers gave a larger proportion of "unhealthy" responses than did the officer candidates.[1]

Winfield used both the multiple choice technique and the Minnesota Multiphasic Personality Inventory with service women, and concluded, "Since there was no correspondence between the scores made on the Multiple Choice Rorschach (MCR) and the Minnesota Multiphasic Personality Inventory (MMPI), nor any observed behavior which warranted a diagnosis of maladjustment such as the extreme scores made on this test would indicate, it must be concluded that the MCR differentiates something other than it purports to do and that further research and standardization are necessary before the test can be used on a similarly selected sample for the screening of maladjusted individuals."[2]

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[1]M. B. Jensen and J. B. Rotter, "Multiple Choice Rorschach in Officer Selection," Psychological Bulletin, XXXXII (1945), pp. 182-185.

[2]M. C. Winfield, "The Use of the Harrower-Erickson Multiple Choice Rorschach Test with a Selected group of Women in Military Service," Journal of Applied Psychology, XXX (1946), pp. 481-487.

Eysenck, with his Rorschach Ranking Test modification of the Harrower-Erickson multiple choice technique, using her responses was able to screen out 74 per cent of the neurotics in a group, along with 42 per cent of the normals.[1]

Abt used 1,000 Marine Corps Recruits as his sample and administered the group Rorschach along with the Wilkins Miles Self-Description Inventory and the Kent Direction A Test. The combination of tests screened out 26 of the total of 30 men subsequently discharged as neuropsychiatric disability cases. The group Rorschach detected seventeen of the total of 30 men when used by itself.[2]

Wittson, Hunt, and Older tested five groups of Naval personnel, three of which were normal, one of which was awaiting psychiatric discharge, and one composed of men serving on trial because of psychiatric difficulties. Screening on the basis of four "poor" responses, which is the critical score recommended by Harrower-Erickson, they "detected" 40 per cent of the first group of normals, 36 per cent of the second group of normals, and 44 per cent of the third group of normals. Among those known to have psychiatric difficulties,

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[1] H. Eysenck, "A Comparative Study of Four Screening Tests for Neurotics," Psychological Bulletin, XXXXII (1945), pp. 659-662.

[2] L. E. Abt, "The Efficiency of the Group Rorschach Test in Psychiatric Screening of Marine Corps Recruits," Journal of Psychology, XXIII (1947), pp. 205-217.

59 per cent of each group were screened out. The investigators concluded that the multiple choice technique seemed to be unsuitable for military selection.[1]

Molish reviewed a number of other military experiments, many of which were never published or are not now available. He concluded that the status of the Rorschach test in military selection and screening is, "... of limited adequacy." His review, however, reports some successes.[2]

In considering this review of the use of group Rorschach techniques for screening, one point is believed to be of particular importance for this study: despite some complete failures, the multiple choice Rorschach has generally "detected" more abnormals in a population than normals. Had a cutting score of three "poor" responses been used in the Wittson, Hunt, and Older study, the percentages of false positives in the normal groups would have been increased to 59, 48, and 52. The percentages of true positives detected by the test, however, would have been increased to 77 and 79.[3] These results, together with those of Eysenck reported above,[4]

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[1]C. L. Wittson, W. A. Hunt, and H. J. Older, "The Use of the Multiple Choice Rorschach Test in Military Screening," Journal of Psychology, XVII (1944), pp. 91-94.

[2]Herman B. Molish, "The Rorschach Test in Military Psychology and Psychiatry," American Journal of Orthopsychiatry, XXVI (1956), pp. 807-817.

[3]Wittson, Hunt, and Older, Journal of Psychology.

[4]Eysenck, Psychological Bulletin.

suggest that if one is willing to screen out about one-half of the normals in a population in order to eliminate three-quarters of those who definitely cannot adjust to a military situation, the multiple choice Rorschach technique might be suitable by itself, and as a part of a battery might perform with considerable profit. In the situation under consideration about 1,500 Regular, subsidized midshipmen are selected from as many as 20,000 applicants. In such a situation, such screening as the multiple choice technique provides might be quite feasible.

Bases for Interpretation

Rorschach experimented with 117 normal and 288 abnormal adults. As responses to his ten ink blot plates accumulated, he determined that there were categories of responses common to some sets of his subjects and uncommon to others. He formalized these categories and, noting 23 of them by symbols, undertook to diagnose through the use of various combinations of categorized responses to his test. As a result of these experiences, his second conclusion in the summary of Psychodiagnostics indicates his belief that he had, however tentatively, discovered a revolutionary means of psychiatric diagnosis:

> II. The problems of the experiment deal primarily with the formal principles (pattern) of the perceptive process. The actual content of the interpretations comes into consideration only secondarily. The clarity of form visualization, the relationships between kinaesthetic and color factors, the manner in which the plates are apperceived,

> whether as wholes or as parts, and also a number of other factors which may be computed from the protocol of the experiment; all these show typical relationships which are characteristic of the various categories of normal individuals and of the psychoses.[1]

This passage also indicates that Rorschach was not interested in content of responses. Content analysis, however, has grown to be one of the major functions in interpretation as the test has evolved.

Since the interpretive work that has been done with Rorschach protocols is so extensive and has been done by so many groups with somewhat varying concepts of the test, McCall's critical synthesis of common interpretive practice is offered for those test factors used by Stone in the SORT.[2] Scores are divided into four classes within which the various factors are grouped, as shown below:

1) Responses to blot area (Location)
   a) Whole-blot (W) -- considered to be an indicator of intelligence.
   b) Major blot-details (D) -- concerned with the practical and concrete.
   c) Minor blot-details (Dd) -- positively related to obsessive-compulsive trends.
   d) White-space (S) -- negativistic tendencies, or at least, indecisiveness.

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[1] Hermann Rorschach, Psychodiagnostics, trans. Paul Lemkau and Bernard Kronenberg (Berne, Switzerland: Verlag Hans Huber; 2nd edition, 1942), p. 181.

[2] R. J. McCall, review of the Rorschach test in Buros, pp. 278-285.

2) Determinant factors

a) Responses closely resembling the form of the stimulus (F) -- "... chief sign of ego-strength and self-control."[1]

b) Responses poorly resembling the form of the stimulus (F-) -- chief sign of "ego-weakness and regression."[2]

c) Responses involving human movement or posture-tension (M) -- reveals creative lability, intellectual productivity, and originality.

d) Responses involving animal movement or posture-tension (FM) -- reveals id impulses.

e) Responses involving color and closely resembling the form of the stimulus (FC) -- "... most common in normals and indicate the kind of emotional ability necessary to achieve environmental rapport."[3]

f) Responses involving color and poorly resembling the form of the stimulus (CF) -- "... the urge to live outside oneself, ... emotional instability, irritability, sensitivity, suggestibility, and egocentricity."[4]

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[1] Ibid., p. 282

[2] Ibid.

[3] Ibid., p. 280.

[4] Ibid.

g) Responses involving textural density of gray or shading (Fch) -- reveals disposition to be depressed and unadaptable.

3) Content factors

a) Responses involving whole animals or parts of animals (A) -- "... an indicator of stereotyped thinking,...."[1]

b) Responses involving total human figure or parts of humans (H) -- the significance of whole humans does not appear except as contrasted with parts of humans, which are seen more frequently by, "... the anxious, the depressed, and the unintelligent,...."[2]

4) Statistically derived scores

a) Modal responses (P) -- the number of common responses recorded in a protocol.

b) Rare responses (O) -- responses occurring only once per thousand records. Their importance lies in whether they are good or poor form. Good form indicates creativity; poor form indicates some psychopathology.

These basic factors are combined in various ways to provide supplementary information as in Stone's explanations of his interpretations.[3]

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[1] Ibid., p. 283.

[2] Ibid., p. 284.

[3] Stone, pp. 14-16.

Summary

Three lines of research have been reviewed with regard to their effect on the Structured-Objective Rorschach Test. The small amount of published research that exists indicates that the SORT is a useful selection tool. The use of group Rorschach techniques, particularly in the screening of military personnel, has offered enough partial successes to encourage experimentors to continue in the field. Interpretation of the SORT, as proposed by Stone, lies within the interpretative framework of other Rorschach specialists and is, therefore, linked with a much broader band of research than those studies conducted by its author.

CHAPTER III

THE ADMINISTRATION OF THE SORT

Upon completion of each academic term all NROTC instructors prepare aptitude evaluation forms (see Appendix D) for every midshipman in their class. These evaluations are prepared from the instructor's own observations of midshipmen. After the forms have been prepared, midshipmen are ranked on the basis of their aptitude evaluation score.

In the spring of 1961, aptitude evaluation ranks of midshipmen in the fourth class (first year) of the NROTC program at the University of Oklahoma, for the first semester of school year 1960-1961, were obtained. This fourth class was administered the SORT prior to the end of the school year 1960-1961. Of the 69 midshipmen in the class, 25 were Regular midshipmen, and the remaining 44 were Contracts. Because one Regular and two Contract midshipmen students were absent on the day the SORT was administered, it was necessary to decrease the sample size accordingly. As a result of these absences, sample size for year-group 1960-1961 became 24 Regular midshipmen and 42 Contract midshipmen.

The SORT was administered without advance notice to all midshipmen on one day in regularly assigned class periods. Regular and Contract students were intermixed in each of three class groups by whatever chance had led them to enroll in Naval Science for that particular hour. The three groups were of approximately equal size, i.e., slightly more than twenty students in each class.

Tests were administered in a Navy classroom at the University of Oklahoma Armory, which was the usual class room for the fourth class midshipmen. The class room has no windows, it is furnished with student chairs having a writing surface provided on the chair arm, speaker's stand, training charts, motion picture screen, and a stand at the rear with projectors and allied equipment on it.

The class room can be semi-darkened when using the slide projector assigned to that room, by removing the top from the projector light source housing. Prior to assigned class periods, both the fourth class instructor and the test administrator tested all parts of the room to make sure that all students could see the blots on the screen, read the SORT test booklets, and mark the SORT answer sheet with no difficulty.

Classes met as usual, the instructor announced that the examiner had undertaken a research project concerning midshipmen and would like their cooperation in an experiment. The examiner distributed test booklets, answer sheets, and pencils. The instructions for examiners, using projected

blots, as presented by Stone[1] were followed in every case, except that the personal information section of the answer sheet was not filled out completely. At the completion of the general instructions, the examiner darkened the room for about two minutes, then turned on the slide projector and commenced the test by projecting the stimulus material (ink blots) on the screen. The subjects marked the answer sheets according to their interpretations of the ink blots. Upon completion of the test the class room was lighted while the examiner collected materials and the instructor dismissed the students. Although the SORT is not rigidly timed, the examiner did not expose the blots beyond the recommended two minutes time limit. Total time consumed was about 40 minutes of each class hour.

The SORT was administered at the beginning of school year 1961-1962 to the second group in the sample. The fourth class of school year 1961-1962, was composed of 86 midshipmen; 30 Regulars, and 56 Contracts. Two of the Contract midshipmen were absent on the day of testing, therefore the tested sample for year-group 1961-1962 was 30 Regular midshipmen and 54 Contract midshipmen.

The SORT was administered by the same examiner in the same class room with the same equipment and on the same class schedule as before. Even though class groups were larger, the class room was not overcrowded. All of the 84 midshipmen who were tested, survived to be evaluated at the end of the

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[1]Stone, pp. 19-21.

first semester. Once again their class rank according to aptitude evaluation by their instructor was obtained by the test administrator. This concluded the collection of basic data (Appendix A lists the basic data).

Statistical Processing

In accordance with the research design, the SORT data were categorized into four sub-groups within each year-group. SORT T scores of Regular midshipmen who were ranked in the top one-half of their year-group by aptitude evaluation were segregated into a Regular-Success sub-group. SORT T scores of Regular midshipmen who were ranked in the bottom one-half of their year-group by aptitude evaluation were segregated into a Regular-Non-success sub-group. SORT T scores of Contract midshipmen were segregated in the same manner as Regulars. Within each of these eight sub-groups mean T scores for each of the fifteen scored SORT variables were determined and standard deviations calculated. The significance of the differences between mean T scores for the combinations of sub-groups shown below were determined by use of the "t" test:[1]

Regular-Success versus Regular-Non-success, 1960-1961

Contract-Success versus Contract Non-success, 1960-1961

Regular-Success versus Contract-Success, 1960-1961

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[1] J. P. Guilford, Fundamental Statistics in Psychology and Education (New York: McGraw-Hill Book Company, Inc., 1950), p. 228.

Regular-Non-success versus Contract-Non-success, 1960-1961

Regular-Success versus Regular-Non-success, 1961-1962

Contract-Success versus Contract-Non-success, 1961-1962

Regular-Success versus Contract-Success, 1961-1962

Regular-Non-success versus Contract-Non-success, 1961-1962

Regular-Success, 1960-1961, versus Regular-Success, 1961-1962

Regular-Non-success, 1960-1961, versus Regular-Non-success, 1961-1962

Contract-Success, 1960-1961, versus Contract-Success, 1961-1962

Contract-Non-success, 1960-1961, versus Contract-Non-success, 1961-1962

Tables 1 through 6 show the results of the obtained statistical tests of significance. Table 1 indicates that the mean T score for SORT variable M was significantly higher ($P < 0.05$) for the Regular-Success sub-group for 1960-1961, than for the Regular-Non-success sub-group. The same table shows that the mean T score for variable FC was significantly higher ($P < 0.05$) for the Regular-Non-success sub-group of 1960-1961, than for the Regular-Success sub-group. There were no statistically significant differences between Contract-Success and Contract-Non-success sub-groups for 1960-1961.

Table 2 shows that the mean T score for SORT variable CF was significantly higher ($P < 0.05$) for the Contract-

Success sub-group of 1960-1961 than for the Regular-Success sub-group of that same year. The same table also shows that the mean T score for variable FC was significantly higher ($P < 0.01$) for the Regular-Non-success sub-group of 1960-1961 than for the Contract Non-success sub-group of the same year.

Tables 3 and 4 show no significant differences between any of the sub-groups for the year-group 1961-1962. Table 5 shows that the mean T score for the SORT variable Fch was significantly higher ($p < 0.01$) for the Regular-Success sub-group of 1961-1962 than for the Regular-Success sub-group of 1960-1961. This table also indicates that the mean T scores for variables Dd, F, and FC were significantly higher ($P < 0.05$) for the Regular-Non-success sub-group of 1960-1961, than for the Regular Non-success sub-group of 1961-1962. This same set of tests also shows that the Regular-Non-success sub-group of 1961-1962 T score for variable Fch was significantly higher ($P < 0.05$) than the mean Fch T score for the Regular-Non-success sub-group of 1960-1961. Table 6 shows that no significant differences were found between mean T scores on any of the SORT variables for the Contract-Success sub-groups of 1960-1961 and 1961-1962, or for the Contract-Non-success sub-groups of 1960-1961 and 1961-1962.

TABLE 1. -- Significant differences between mean T scores on SORT variables of NROTC aptitude evaluation sub-groups for success and non-success in year-group 1960-1961

SORT	Regular Success (n = 16)		VERSUS	Regular Non-Success (n = 8)		Contract Success (n = 17)	VERSUS	Contract Non-Success (n = 25)	
Variables	Mean	S.D.		Mean	S.D.	Mean	S.D.	Mean	S.D.
W	44.12	9.93		40.75	9.54	46.76	8.86	45.80	9.85
D	50.81	7.83		53.00	6.41	50.94	6.75	49.92	6.61
Dd	58.12	9.72		60.12	8.51	54.94	9.89	59.24	12.18
S	56.75	5.44		54.00	8.36	55.59	6.20	54.20	7.73
F	64.06	12.50		66.50	7.56	61.24	12.86	62.52	13.46
F-	53.06	7.55		50.75	9.54	53.82	5.12	54.32	8.37
M	54.69	10.77		44.62	6.55*	49.76	8.39	49.44	11.45
FM	54.56	6.76		51.75	9.04	51.24	9.73	52.00	8.83
FC	45.19	7.84		53.38	9.21*	45.18	7.07	44.40	7.03
CF	37.75	7.67		42.00	8.36	44.00	7.95	40.68	7.49
Fch	41.12	9.67		41.12	8.87	46.18	9.75	46.12	5.83
A	50.56	7.82		53.00	10.99	54.65	9.83	50.80	9.71
H	53.50	9.18		46.75	7.41	50.12	8.82	54.24	9.97
P	43.81	7.88		42.25	11.08	44.29	6.76	40.80	8.43
O	45.88	9.34		45.25	6.91	43.29	12.33	47.96	13.06

*Significant at the .05 level of confidence.

TABLE 2. -- Significant differences between mean T scores on SORT variables of NROTC aptitude evaluation sub-groups for Regular and Contract students in year-group 1960-1961

SORT	Regular Success (n = 16)		VERSUS Contract Success (n = 17)		Regular Non-Success (n = 8)		VERSUS Contract Non-Success (n = 25)	
Variables	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
W	44.12	9.83	46.76	8.86	40.75	9.54	45.80	9.85
D	50.81	7.83	50.94	6.75	53.00	6.41	49.92	6.61
Dd	58.12	9.72	54.94	9.89	60.12	8.51	59.24	12.18
S	56.75	5.44	55.59	6.20	54.00	8.36	54.20	7.73
F	64.06	12.50	61.24	12.86	66.50	7.56	62.52	13.46
F-	53.06	7.55	53.82	5.12	50.75	9.54	54.32	8.37
M	54.69	10.77	49.76	8.39	44.62	6.55	49.44	11.45
FM	54.56	6.76	51.24	9.73	51.75	9.04	52.00	8.83
FC	45.19	7.84	45.18	7.07	53.38	9.21	44.40	7.03**
CF	37.75	7.67	44.00	7.95*	42.00	8.36	40.68	7.49
Fch	41.12	9.67	46.18	9.75	41.12	8.87	46.12	5.83
A	50.50	7.82	54.65	9.83	53.00	10.99	50.80	9.71
H	53.50	9.18	50.12	8.82	46.75	7.41	54.24	9.97
P	43.81	7.88	44.29	6.76	42.25	11.08	40.80	8.43
O	45.88	9.34	43.29	12.33	45.25	6.91	47.96	13.06

*Significant at the .05 level of confidence.

**Significant at the .01 level of confidence.

TABLE 3. -- Significant differences between T scores on SORT variables of NROTC aptitude evaluation sub-groups for success and non-success in year-group 1961-1962*

SORT	Regular Success (n = 20)		VERSUS	Regular Non-Success (n = 10)		Contract Success (n = 22)		VERSUS	Contract Non-Success (n = 32)	
Variables	Mean	S.D.		Mean	S.D.	Mean	S.D.		Mean	S.D.
W	48.00	10.91		44.40	11.09	48.41	9.82		47.12	9.91
D	49.45	8.03		55.20	8.50	48.59	6.84		50.72	9.03
Dd	56.10	12.12		52.60	11.11	57.91	10.32		54.59	9.87
S	56.05	7.92		54.50	7.09	57.77	7.35		53.97	7.19
F	59.00	15.58		56.30	13.43	59.86	12.32		58.16	11.15
F-	53.60	8.14		53.40	10.37	51.91	6.82		53.06	7.47
M	51.25	8.01		55.30	14.96	49.00	5.52		53.22	10.77
FM	50.05	8.96		49.40	9.82	49.41	8.37		52.19	8.25
FC	44.30	6.09		45.80	6.40	48.50	8.71		44.72	7.12
CF	42.85	7.93		43.10	9.12	44.23	7.53		42.16	8.88
Fch	50.00	7.00		47.00	6.32	49.64	10.09		48.69	9.53
A	48.95	9.34		47.30	5.98	51.95	7.51		49.31	9.77
H	51.65	9.45		51.80	10.94	48.09	7.86		51.72	8.10
P	44.15	10.13		39.70	10.75	46.05	9.62		44.72	7.76
O	44.00	16.63		45.40	9.72	40.41	9.36		43.16	11.13

*No statistically significant differences.

TABLE 4. -- Significant differences between mean T scores on SORT variables of NROTC aptitude evaluation sub-groups for Regular and Contract students in year-group 1961-1962*

SORT	Regular Success (n = 20)		VERSUS	Contract Success (n = 22)		Regular Non-Success (n = 10)		VERSUS	Contract Non-Success (n = 32)	
Variables	Mean	S.D.		Mean	S.D.	Mean	S.D.		Mean	S.D.
W	48.00	10.91		48.41	9.82	44.40	11.09		47.12	9.91
D	49.45	8.03		48.59	6.84	55.20	8.50		50.72	9.03
Dd	56.10	12.12		57.91	10.32	52.60	11.11		54.59	9.87
S	56.05	7.92		57.77	7.35	54.50	7.09		53.97	7.19
F	59.00	15.58		59.86	12.32	56.30	13.43		58.16	11.15
F-	53.60	8.14		51.91	6.82	53.40	10.37		53.06	7.47
M	51.25	8.01		49.00	5.52	55.30	14.96		53.22	10.77
FM	50.05	8.96		49.41	8.37	49.40	9.82		52.19	8.25
FC	44.30	6.09		48.50	8.71	45.80	6.40		44.72	7.12
CF	42.85	7.93		44.23	7.53	43.10	9.12		42.16	8.88
Fch	50.00	7.00		49.64	10.09	47.00	6.32		48.69	9.53
A	48.95	9.34		51.95	7.51	47.30	5.98		49.31	9.77
H	51.65	9.45		48.09	7.86	51.80	10.94		51.72	8.10
P	44.15	10.13		46.05	9.62	39.70	10.75		44.72	7.76
O	44.00	16.63		40.41	9.36	45.40	9.72		43.16	11.13

*No statistically significant differences.

TABLE 5. -- Significant differences between mean T scores on SORT variables of Regular NROTC aptitude evaluation sub-groups for the year-groups 1960-1961 and 1961-1962

SORT	Regular Success 1960-1961 (n = 16)		VERSUS	Regular Success 1961-1962 (n = 20)		Regular Non-success 1960-1961 (n = 8)		VERSUS	Regular Non-Success 1961-1962 (n = 10)	
Variables	Mean	S.D.		Mean	S.D.	Mean	S.D.		Mean	S.D.
W	44.12	9.93		48.00	10.91	40.75	9.54		44.40	11.09
D	50.81	7.83		49.45	8.03	53.00	6.41		55.20	8.50
Dd	58.12	9.72		56.10	12.12	60.12	8.51		52.60	11.11*
S	56.75	5.44		56.05	7.92	54.00	8.36		54.50	7.09
F	64.06	12.50		59.00	15.58	66.50	7.56		56.30	13.43*
F-	53.06	7.55		53.60	8.14	50.75	9.54		53.40	10.37
M	54.69	10.77		51.25	8.01	44.62	6.55		55.30	14.96
FM	54.56	6.76		50.05	8.96	51.75	9.04		49.40	9.82
FC	45.19	7.84		44.30	6.09	53.38	9.21		45.80	6.40*
CF	37.75	7.67		42.85	7.93	42.00	8.36		43.10	9.12
Fch	41.12	9.67		50.00	7.00**	41.12	8.87		47.00	6.32*
A	50.56	7.82		48.95	9.34	53.00	10.99		47.30	5.98
H	53.50	9.18		51.65	9.45	46.75	7.41		51.80	10.94
P	43.81	7.88		44.15	10.13	42.25	11.08		39.70	10.75
O	45.88	9.34		44.00	16.63	45.25	6.91		45.40	9.72

*Significant at the .05 level of confidence.

**Significant at the .01 level of confidence.

TABLE 6. -- Significant differences between mean T scores on SORT variables of Contract NROTC aptitude evaluation sub-groups for the year-groups 1960-1961 and 1961-1962*

SORT	Contract Success 1960-1961 (n = 17)		VERSUS Contract Success 1961-1962 (n = 22)		Contract Non-Success 1960-1961 (n = 25)		Contract Non-Success 1961-1962 (n = 32)	
Variables	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
W	46.76	8.86	48.41	9.82	45.80	9.85	47.12	9.91
D	50.94	6.75	48.59	6.84	49.92	6.61	50.72	9.03
Dd	54.94	9.89	57.91	10.32	59.24	12.18	54.59	9.87
S	55.59	6.20	57.77	7.35	54.20	7.73	53.97	7.19
F	61.24	12.86	59.86	12.32	62.52	13.46	58.16	11.15
F-	53.82	5.12	51.91	6.82	54.32	8.37	53.06	7.47
M	49.76	8.39	49.00	5.52	49.44	11.45	53.22	10.77
FM	51.24	9.73	49.41	8.37	52.00	8.83	52.19	8.25
FC	45.18	7.07	48.50	8.71	44.40	7.03	44.72	7.12
CF	44.00	7.95	44.23	7.53	40.68	7.49	42.16	8.88
Fch	46.18	9.75	49.64	10.09	46.12	5.83	48.69	9.53
A	54.65	9.83	51.95	7.51	50.80	9.71	49.31	9.77
H	50.12	8.82	48.09	7.86	54.24	9.97	51.72	8.10
P	44.29	6.76	46.05	9.62	40.80	8.43	44.72	7.86
O	43.29	12.33	40.41	9.36	47.96	13.06	43.16	11.13

*No statistically significant differences.

Because a small number of significant differences were found among the large number of calculations, it appeared that these significant tests obtained could have been the result of chance. In order to determine if these were chance occurrences Wilkinson's tables of probability of obtaining significant statistics by chance were used. It was determined that in each set of fifteen tests of significance, the results obtained in this study could very readily be accounted for by chance, except for the four significant differences between the Regular-Non-success sub-groups of 1960-1961 and 1961-1962. The SORT differentiated between these two sub-groups to a degree that would happen in about one-half of one per cent of similar cases by chance.[1]

In the first phase of the statistical analysis the midshipmen were divided into eight sub-groups based on membership in one of two year-groups, classification as a Regular or a Contract student, and NROTC aptitude evaluation in the top or bottom one-half of their class. Mean T scores for each of the fifteen scored variables of the SORT were determined for each sub-group. The differences between mean T scores for each variable were tested for statistical significance in twelve different combinations of sub-groups. There were no statistically significant differences beyond those attributable to chance due to the multiplicity of statistical

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[1] Bryan Wilkinson, "A Statistical Consideration in Psychological Research," Psychological Bulletin, XXXXVIII (1951), pp. 156-158.

tests conducted between sub-groups of successful and non-successful students, as well as between Regular and Contract students. However, students in the Regular-Non-success sub-group of 1960-1961 achieved statistically different mean T scores on four of the fifteen SORT variables, from Regular-Non-success sub-groups students of 1961-1962.

In the second phase of statistical analysis, the eight sub-groups constituted for phase one were maintained. Individual scores on any SORT variable that were more than one standard deviation (ten points) above the T score mean of 50 were defined as the high group and those that fell below the T score mean of 50 were defined as the low group. The percentage of high extreme scores and low extreme scores were determined for each of the fifteen SORT variables in each of the eight sub-groups.

Tables 7 and 8 indicate the percentages of NROTC students achieving high extreme and low extreme scores on each SORT variable, by sub-groups. The significance of the differences between percentages of sub-groups achieving high extreme scores and low extreme scores were tested in the twelve sub-group combinations (see pages 31 and 32 for listing) with the "z" test.[1] No differences were found to be significant at the 0.05 or 0.01 level of confidence.

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[1]Merle W. Tate, Statistics in Education (New York: Macmillan Company, 1955), pp. 437-439.

TABLE 7. -- Percentages of NROTC students in aptitude evaluation sub-groups of year-group 1960-1961 achieving SORT variable scores more than one standard deviation above and below the mean T score

SORT Variables	Regular Success (n = 16)		Regular Non-success (n = 8)		Contract Success (n = 17)		Contract Non-success (n = 25)	
	High %	Low %	High %	Low %	High %	Low %	High %	Low %
W	12.50	31.25	-0-	50.00	11.76	17.64	8.00	36.00
D	12.50	12.50	12.50	-0-	5.88	-0-	8.00	4.00
Dd	43.75	-0-	50.00	-0-	29.40	-0-	48.00	4.00
S	12.50	-0-	12.50	-0-	11.76	-0-	20.00	-0-
F	62.50	-0-	62.50	-0-	58.80	-0-	52.00	4.00
F-	12.50	-0-	12.50	12.50	11.76	-0-	16.00	4.00
M	31.25	6.25	-0-	12.50	11.76	-0-	16.00	16.00
FM	12.50	-0-	12.50	12.50	23.52	11.76	-0-	8.00
FC	-0-	25.00	25.00	-0-	-0-	23.52	4.00	28.00
CF	-0-	56.25	-0-	37.50	-0-	29.40	-0-	36.00
Fch	-0-	37.50	-0-	37.50	5.88	23.52	-0-	8.00
A	18.75	6.25	25.00	12.50	35.28	5.88	20.00	12.00
H	12.50	-0-	12.50	-0-	11.76	5.88	12.00	4.00
P	-0-	31.25	12.50	50.00	-0-	29.40	-0-	44.00
0	6.25	25.00	-0-	25.00	5.88	52.92	20.00	28.00

TABLE 8. -- Percentages of NROTC students in aptitude evaluation sub-groups of year-group 1961-1962 achieving SORT variable scores more than one standard deviation above and below the mean T score

SORT Variables	Regular Success (n = 20)		Regular Non-success (n = 10)		Contract Success (n = 22)		Contract Non-success (n = 32)	
	High %	Low %	High %	Low %	High %	Low %	High %	Low %
W	15.00	20.00	-0-	30.00	9.01	13.64	9.38	25.00
D	15.00	5.00	30.00	-0-	-0-	9.01	18.75	9.38
Dd	30.00	10.00	30.00	10.00	36.36	9.01	21.88	3.12
S	30.00	-0-	20.00	-0-	22.72	-0-	15.62	3.12
F	55.00	15.00	40.00	-0-	59.08	4.54	53.12	6.25
F-	20.00	10.00	20.00	-0-	9.01	-0-	9.38	-0-
M	20.00	-0-	40.00	20.00	-0-	-0-	15.62	9.38
FM	5.00	15.00	-0-	20.00	9.01	13.64	12.50	9.38
FC	-0-	20.00	-0-	10.00	9.01	9.01	3.12	25.00
CF	-0-	30.00	-0-	30.00	-0-	22.72	-0-	37.50
Fch	5.00	-0-	10.00	10.00	13.64	18.18	9.38	12.50
A	10.00	20.00	-0-	-0-	13.64	4.54	12.50	12.50
H	10.00	5.00	20.00	10.00	4.54	4.54	12.50	3.12
P	5.00	30.00	10.00	30.00	9.01	22.72	3.12	21.88
O	20.00	45.00	10.00	40.00	4.54	63.63	9.38	31.25

A third phase of statistical analysis was undertaken for the purpose of determining whether or not the SORT differentiated between extremes of success and non-success, regardless of the individual midshipman's status as a Regular or a Contract student.

For the year-group 1960-1961, the total of 66 SORT answer sheets were arranged in the order in which students of this year-group had been ranked on the NROTC aptitude evaluation. The highest ranking 26 per cent (n = 17) of the SORT answer sheets and the lowest ranking 26 per cent (n = 17) were separated from the year-group. These two sub-groups were designated as Most Successful, 1960-1961, and Least Successful, 1960-1961. The same procedure was carried out with the total of 84 SORT answer sheets for the year-group 1961-1962, where the sub-groups Most Successful and Least Successful each numbered 22.

Within each of these four sub-groups, mean T scores for each of the fifteen scored SORT variables were determined and standard deviations calculated. The statistical significance of the differences between mean T scores for the combinations of the sub-groups shown below were determined by use of the "t" test;[1]

Most Successful versus Least Successful, 1960-1961

Most Successful versus Least Successful, 1961-1962

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[1] Guilford, p. 228.

Most Successful, 1960-1961, versus Most Successful, 1961-1962

Least Successful, 1960-1961, versus Least Successful 1961-1962

Table 9 shows that the mean T score for SORT variable P was significantly higher ($P < 0.05$) for the Most Successful sub-group of 1960-1961 than for the Least Successful sub-group for that same year. In the same set of statistical tests of significance the mean T score for the variable O was significantly higher ($P < 0.05$) for the Least Successful sub-group of 1960-1961 than for the Most Successful sub-group of that same year. Table 9 also shows that the mean T score for SORT variable M was significantly higher ($P < 0.05$) for the Least Successful sub-group of 1961-1962 than for the Most Successful sub-group of 1961-1962. These statistically significant differences can be accounted for as chance occurrences according to Wilkinson's tables.[1] However, Table 10 shows that there were five statistically significant differences ($P < 0.05$) between the Least Successful sub-groups of 1960-1961 and the Least Successful sub-groups of 1961-1962. Mean T scores for SORT variables Dd, F, and O were significantly higher for the Least Successful sub-group of 1960-1961, while mean T scores of SORT variables M and P were significantly higher for the Least Successful sub-group of 1961-1962. There were six

[1]Wilkinson, Psychological Bulletin.

chances in 10,000 that five differences would be significant by chance in a set of fifteen tests of significance.

Summary

First semester aptitude evaluation ranks were obtained for two year-groups of fourth-class midshipmen. The first year-group, 1960-1961, was administered the SORT near the end of the school year. The second year-group, 1961-1962, was administered the SORT near the beginning of the following school year.

Students within each year-group were divided into Regular and Contract sub-groups. Then, using aptitude evaluation rank to determine if each man was in the top one-half or the bottom one-half of his year-group, the Regular and Contract sub-groups were divided into Regular-Success, Regular-Non-success, Contract-Success, and Contract-Non-success sub-groups. There were, thus, four sub-groups within each of the two year-groups.

Mean T scores and standard deviations of the T scores on each SORT variable for each sub-group were determined. The statistical significance of the differences between mean T scores for each of the scored SORT variables was tested with the "t" test in twelve combinations of sub-groups.

Within each of the sub-groups, scores more than one standard deviation above the mean T score were counted and the percentage of these extreme scores was calculated for each variable in each sub-group. The significance of the

TABLE 9. -- Significant differences between mean T scores on SORT variables of Most and Least Successful NROTC aptitude evaluation sub-groups representing the highest and lowest 26 per cent of year-groups 1960-1961 and 1961-1962

SORT	Most Successful 1960-1961 (n = 17)		VERSUS	Least Successful 1960-1961 (n = 17)		Most Successful 1961-1962 (n = 22)		VERSUS	Least Successful 1961-1962 (n = 22)	
Variables	Mean	S.D.		Mean	S.D.	Mean	S.D.		Mean	S.D.
W	46.76	9.70		42.06	11.70	50.14	11.25		46.23	8.02
D	50.47	8.54		50.76	7.94	47.41	8.36		51.45	8.09
Dd	55.70	8.78		62.29	9.70	56.64	11.16		54.91	9.83
S	54.65	6.16		54.94	9.16	57.18	6.33		55.86	5.17
F	61.18	10.86		67.53	11.27	57.45	15.71		57.55	11.69
F-	52.70	4.69		53.94	10.01	51.41	7.58		52.95	8.30
M	52.29	11.00		46.59	11.62	49.72	6.56		55.95	11.20*
FM	54.88	6.56		49.59	9.89	52.41	7.27		49.77	8.63
FC	45.59	6.86		43.82	6.32	46.77	8.05		44.41	6.11
CF	39.06	9.06		43.06	7.87	44.41	8.23		42.64	9.52
Fch	45.35	7.81		43.76	6.86	50.59	8.95		48.50	8.35
A	53.35	9.85		49.00	10.49	51.73	9.07		48.45	10.87
H	50.70	8.06		52.47	9.85	49.86	8.01		52.41	9.18
P	45.41	7.21		39.24	8.37*	45.64	9.82		44.91	6.64
O	42.41	9.11		52.06	10.95*	40.23	13.81		43.50	8.51

*Significant at the .05 level of confidence.

TABLE 10. -- Significant differences between mean T scores on SORT variables of NROTC aptitude evaluation sub-groups representing the highest and lowest 26 per cent of year-groups 1960-1961 and 1961-1962

SORT	Most Successful 1960-1961 (n = 17)		VERSUS	Most Successful 1961-1962 (n = 22)		Least Successful 1960-1961 (n = 17)		VERSUS	Least Successful 1961-1962 (n = 22)	
Variables	Mean	S.D.		Mean	S.D.	Mean	S.D.		Mean	S.D.
W	46.76	9.70		50.14	11.25	42.06	11.70		46.23	8.02
D	50.47	8.54		47.41	8.36	50.76	7.94		51.45	8.09
Dd	55.70	8.78		56.64	11.16	62.29	9.70		54.91	9.83*
S	54.65	6.16		57.18	6.33	54.94	9.16		55.86	5.17
F	61.18	10.86		57.45	15.71	67.53	11.27		57.55	11.69*
F-	52.70	4.69		51.41	7.58	53.94	10.01		52.95	8.30
M	52.29	11.00		49.72	6.56	46.59	11.62		55.95	11.20*
FM	54.88	6.56		52.41	7.27	49.59	9.80		49.77	8.63
FC	45.59	6.86		46.77	8.05	43.82	6.32		44.41	6.11
CF	39.06	9.06		44.41	8.23	43.06	7.87		42.64	9.52
Fch	45.35	7,81		50.59	8.95	43.76	6.86		48.50	8.35
A	53.35	9.85		51.73	9.07	49.00	10.49		48.45	10.87
H	50.70	8.06		49.86	8.01	52.47	9.85		52.41	9.18
P	45.41	7.21		45.64	9.82	39.24	8.37		44.91	6.64*
O	42.41	9.11		40.23	13.81	52.06	10.95		43.50	8.51*

*Significant at the .05 level of confidence.

difference of the percentages of these high extreme scores occurring in the various sub-groups was tested with the "z" test for the same twelve combinations used in phase one processing. The same procedure was carried out for those scores more than one standard deviation below the mean T score.

Regular and Contract midshipmen were combined within year-groups by aptitude evaluation ranking. The 26 per cent of the entire year group achieving the highest aptitude rank, and the 26 per cent achieving the lowest aptitude rank were separated from the others and designated the Most Successful and Least Successful sub-groups for each year-group. The mean T scores of the SORT variables for these sub-groups were determined and the statistical significance of the differences between these sub-groups was tested with the "t" test.

In total, there were 40 combinations of different aptitude evaluation sub-groups of T scores for the fifteen SORT variables. In each of these combinations the statistical significance of differences for T scores of the opposed sub-groups for each SORT variable was tested. The operation of the SORT was 95 per cent (38 of 40 cases) consistent in failing to differentiate between aptitude evaluation sub-groups. In the remaining five per cent of combinations (two of 40) the test differentiated between Regular-Non-success sub-groups and Least Successful sub-groups of the two year-group samples. No combinations of sub-groups produced statistically significant

differences at the 0.05 or 0.01 level of significance, beyond those attributable to chance, between successful and non-successful sub-groups or between Regular and Contract sub-groups. Generally, the degree of variability between year-groups of students was minor as indicated by differences between two sets of tests. There was no indication of obvious change in personality and temperament of NROTC students from one year to the next.

CHAPTER IV

QUALITATIVE EXAMINATION OF SORT RESULTS

The research design for this study suggested qualitative, as well as quantitative, examination of the SORT results achieved by first year midshipmen at the University of Oklahoma. The purpose of the qualitative examination was to determine if there were patterns of response that differentiated between successful and non-successful, or Regular and Contract NROTC midshipmen. The results of the qualitative examination were to be reported in terms of characteristic personality and temperament patterns of midshipmen, as exhibited through the SORT.

To execute this portion of the research design, SORT results were separated into eight sub-groups based on membership in one of two NROTC year-groups, classification as a Regular or a Contract student, and whether the individual ranked in the top or bottom one-half of his year-group on NROTC aptitude evaluation. These sub-groups were designated in the same manner as in the quantitative examination:

Regular-Success, 1960-1961

Regular-Non-success, 1960-1961

Contract-Success, 1960-1961

Contract-Non-success, 1960-1961

Regular-Success, 1961-1962

Regular-Non-success, 1961-1962

Contract-Success, 1961-1962

Contract-Non-success, 1961-1962

Test results for all 150 midshipmen (66 in year-group 1960-1961 and 84 in year-group 1961-1962) were prepared for examination by performing two operations on the data. First, the T scores on the fifteen scored variables of the SORT were interpreted in terms of the 25 attribute ratings and five efficiency reducing critical scores prescribed by Stone on his Worksheet (see Appendix D). The ratings comprise a five-step continuum of Low, Below Average, Average, Above Average, and High. The attributes are divided into four areas designated Mental Functioning, Interests, Responsiveness, and Temperament. The area of Mental Functioning includes the attributes: Theoretical, Practical, Pedantic, Induction, Deduction, Rigidity, Structuring, and Concentration. Mental Functioning also includes the five efficiency reducing critical scores for Low Generalization, Perfectionism, Poor Control, High Anxiety, and Compulsivity. The Interest area includes Range and Human Relationships. The Responsiveness area includes Popular and Original responsiveness to the SORT. The area designated Temperament refers to Persistence, Aggressiveness, Social Responsibility, Cooperation, Tact, Confidence, Consistency.

of Behavior, Anxiety, Moodiness, Activity Potential, Impulsiveness, Flexibility, and Conformity.

Second, the SORT interpretive ratings were transferred from the SORT Worksheets to a profile form devised by the investigator (see Figures 1 and 2 for examples of the profile form). It was found that the profiles enabled the examiner to compare the similarity of test results between individuals more rapidly and accurately than was possible through comparison of ratings on the SORT Worksheets.

Examination of Profiles

Initially the individual profiles in each sub-group were compared, one with another, by inspection, to determine if there were obvious similarities between the profiles in a given sub-group. In this initial examination none of the sub-groups displayed any marked tendency for its profiles to be similar.

Then, within each sub-group, individual midshipmen's SORT profiles were compared with a characteristic profile for that sub-group. The eight characteristic profiles of sub-groups were estimated from frequency tabulations of the occurrence of each of the five ratings for each SORT attribute (see Appendix C for frequency tabulations). Similarity of the individual profile to the sub-group characteristic profile was judged on two criteria: (a) if the shape of the individual profile was nearly the same as the sub-group characteristic profile, even though higher or lower through-

out, the individual profile was judged as similar; or (b) if approximately three-quarters of the individual ratings were close to the characteristic ratings and the over-all impression was one of "likeness" when the two profiles were held together against a good light, the individual profile was judged as similar. None of the sub-groups produced a simple majority of profiles that were judged similar to the sub-group characteristic profiles.

The eight characteristic sub-group profiles were compared on the basis of the two criteria above and were judged to be similar. Success and Non-success sub-groups could not be differentiated on the basis of characteristic sub-group profiles, nor could Regular and Contract sub-groups be differentiated.

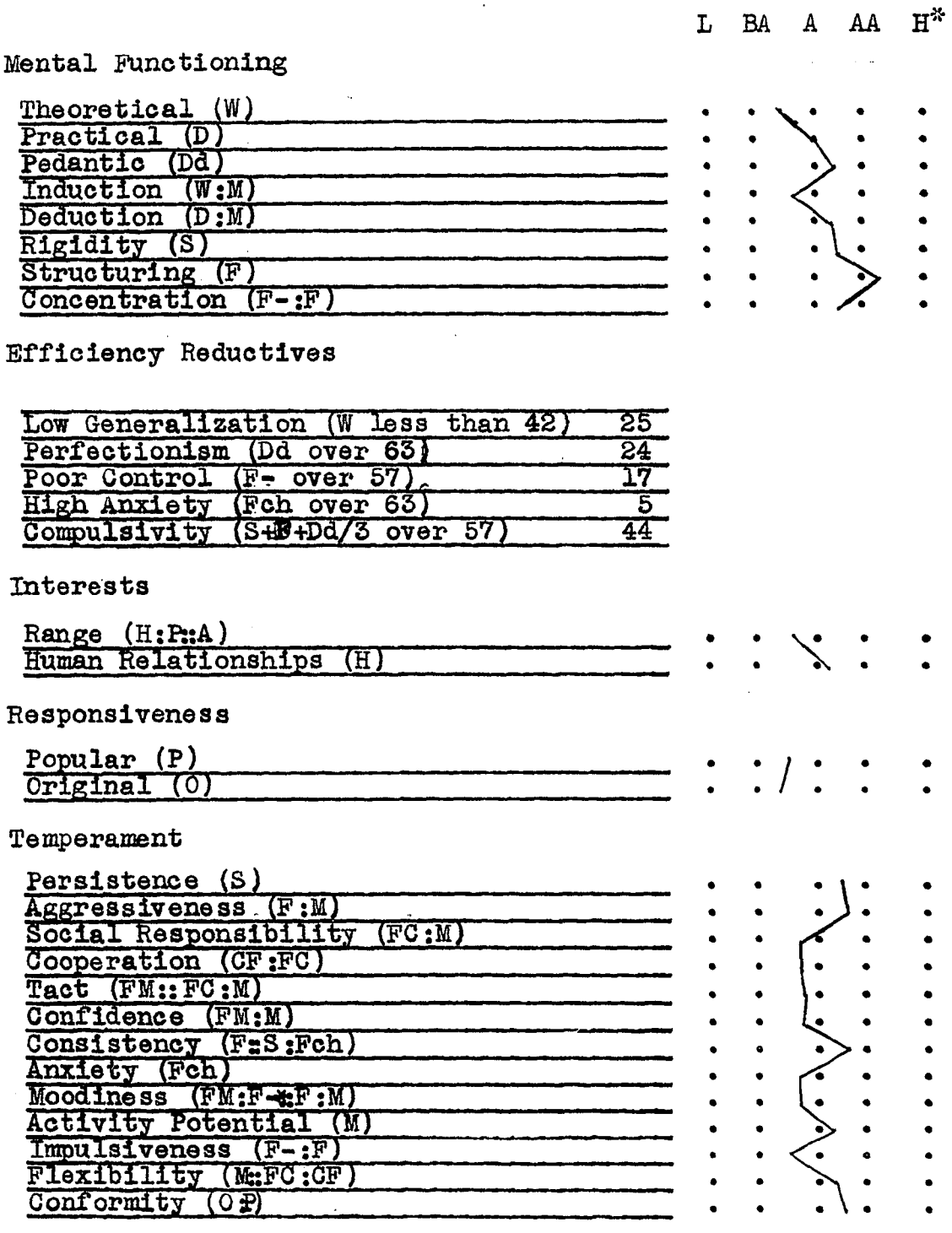
In order to provide larger groups of equal size, all of the profiles for both year-groups were combined and then divided into two groups, each of 75 profiles, on the basis of ranking in the top or bottom one-half of their year-group on NROTC aptitude evaluation. Characteristic profiles of the Successful group and the Non-successful group were constructed as before (see Appendix C for frequency tabulation). Figures 1 and 2 are the results of this operation, and it is apparent that the profile configurations are quite similar. The temperament attribute Conformity is the only attribute for which the profile lines have opposite slopes, with Successful students tending to be rated above average in Conformity and Non-successful students tending to be rated below average. This

means that Successful students tend to be more conforming than the Non-successful students. The proportions of students achieving critical scores in the Efficiency Reductives were reasonably similar for the two groups.

For the final phase of the qualitative examination, profiles of all midshipmen were combined. All of the 150 individual profiles were numbered in the top and bottom margins. The profile headings which indicated the success of non-success of the student, his year-group, and his status as Regular or Contract were cut off the profiles. The profiles were put in random order by use of a table of random numbers. The two characteristic profiles of Successful and Non-Successful midshipmen were transferred to a single sheet of paper, on which they formed a very nearly single profile. Individual profiles were compared with this combined characteristic profile and separated into three groups: individual profiles similar to the combined group characteristic profile, individual profiles dissimilar to the combined group characteristic profile, and individual profiles that could not be determined as either similar or dissimilar to the combined group characteristic profile. Each group was rechecked against the combined group characteristic profile to insure against inconsistent judgement, and the two groups of similar and dissimilar profiles were studied further.

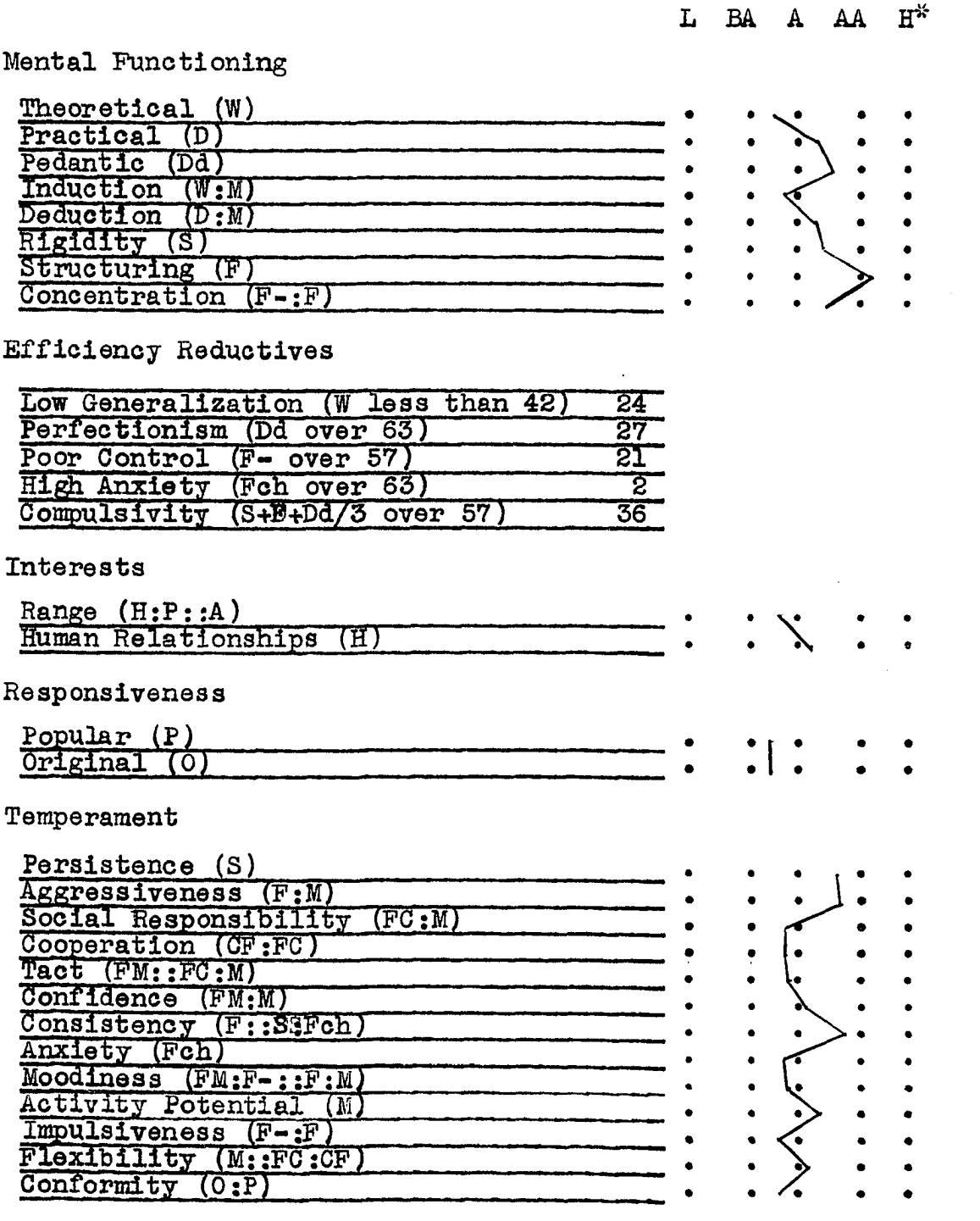
There were 44 profiles judged to be similar; of these, when the profile headings were rematched with the profiles

FIGURE 1. -- Characteristic SORT profile of 75 successful NROTC students



*L is Low, BA is Below Average, A is Average, AA is Above Average, H is High.

FIGURE 2. -- Characteristic SORT profile of 75 Non-successful NROTC students



*L is Low, BA is Below Average, A is Average, AA is Above Average, H is High.

thirteen were from the Regular-Success sub-group, three were from the Regular-Non-success sub-group, twelve were from the Contract-Success sub-group, and sixteen were from the Contract-Non-success sub-group. These proportions were nearly the proportions in which the sub-groups existed in the total sample population.

There were 51 profiles judged to be dissimilar: of these, twelve were from the Regular-Success sub-group, seven were from the Regular-Non-success sub-group, thirteen were from the Contract-Success sub-group, and nineteen were from the Contract-Non-success sub-group. These proportions were almost exactly the proportions in which the sub-groups existed in the total sample population. Neither similarity nor dissimilarity of individual profiles to the characteristic profile of the total sample differentiated any sub-groups from the others.

Individual profiles of the similar and dissimilar groups were studied intensively in an attempt to find some indication of even a partial profile pattern that differentiated successful from non-successful students. It was noted that in the dissimilar group of profiles five of the Non-successful students exhibited the efficiency reductive of Low Generalization, but only one of the Successful students exhibited this reductive. Also, five of the Successful students exhibited the efficiency reductive of High Anxiety, with only one of the Non-successful students exhibiting this reductive.

Based on these observations and the earlier findings that Successful students tended to be more conforming than Non-successful students, it seemed reasonable to conclude that a combination of relatively low Generalization, low Anxiety, and low Conformity might separate Non-successful students from others. All 150 profiles were screened for this combination of attributes. Of the 150 individual profiles, eighteen were determined to have been rated Below Average, or lower, on the attributes Theoretical Mental Functioning (ability to generalize), Anxiety, and Conformity. Of these eighteen individual profiles, ten were profiles of Successful students and eight were profiles of Non-successful students. No other indicative combinations were noted.

The qualitative examination of SORT attribute ratings corroborated and expanded the findings of the quantitative analysis of NROTC student T scores on the scored variables of the SORT. Despite interpretation from fifteen scored variables into 25 attribute and efficiency reductive ratings, the minor differences between sub-groups shown by the quantitative analysis were faithfully reproduced by the qualitative examination, as careful comparison of Figures 1 and 2 showed. But, in addition, the qualitative examination portrayed the relative strength of each attribute in the total personality and temperament pattern of each midshipman. The qualitative examination did not differentiate between Successful and Non-successful, or Regular and Contract midshipmen, however, it

did produce a description of a typical midshipman that was not produced by the quantitative analysis of T scores.

Discussion

For the final phase of the qualitative examination it was determined to portray a typical midshipman at the University of Oklahoma as he exhibited himself through the SORT. This student might be Successful or Non-successful, Regular or Contract, but characteristically he would display the following tendencies according to Stone's interpretations of the SORT attributes:[1]

The NROTC midshipman has a tendency to think on the basis of what he feels is practical and concrete, rather than thinking in broad, general, or theoretical terms. His preference is to think from very fine, sometimes trivial, details. The typical midshipman is more inclined to apply generalizations to a set of data in order to analyze relationships, than he is to infer from elements and synthesize generalizations. He is probably somewhat dogmatic, but he is definitely mentally alert, aware of and conforming to the demands of his environment, and reality.

The midshipman has a range of interests about the same as others who have taken the SORT, but tends to be more interested in human relationships. He is not empathetic, nor is he

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[1] Stone, pp. 14-16.

an individualist. He has a tendency to be dogged and definitely aggressive in aspiring toward goals by means of well-accepted and morally developed procedures. He is willing to work for his ambitions.

The midshipman has average willingness to accept his obligation to society, to cooperate, and to feel self-confident. He controls his impulses and biases as much as most people and is inclined to exhibit stable characteristic behavior patterns. The midshipman is not inclined to be insecure or uneasy, he is less likely to be moody or impulsive than the average person. He is definitely inclined to a high energy endowment which he can concentrate on a selected course of action, but has enough adaptability to handle life's situations with slightly more maturity than the average of people who have taken the SORT.

The successful midshipman has a, "... tendency to accept and be guided by the socially accepted codes, customs, and mores."[1] The Non-successful midshipman has somewhat less of the conforming tendency.

Comparing the interpretation of the personality and temperament of the composite midshipman as given above, with the qualities considered important in evaluating aptitude in the NROTC program as described in the aptitude evaluation form

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[1] Ibid., p. 16.

for NROTC students in Appendix D, it appeared that the SORT profile described a student who met the personality requirements of the Naval Service.

Summary

All of the SORT results were interpreted into Stone's 25 attributes and five efficiency reducing factors. The interpreted ratings were profiled for each midshipman. Characteristic profiles of the eight sub-groups used previously were constructed and found to differ only slightly. Characteristic profiles were constructed for all Successful midshipmen and all Non-successful midshipmen; they differed only in that the attribute Conformity was somewhat higher for the Successful students than for the Non-successful students. All profiles were combined to construct a characteristic profile for the total sample. Each profile was compared with this total group characteristic profile and those individual profiles markedly similar or dissimilar were segregated. Both ths similar and dissimilar groups of profiles exhibited proportions of sub-groups Regular-Success, Regular-Non-success, Contract-Success, and Contract-Non-success that were very near the proportions of these sub-groups in the total sample.

In addition to a general tendency in the total sample for Successful students to be more conforming than Non-successful students, tendencies were noted in the Non-success sub-groups of dissimilar profiles toward a combination of low Generalization and low Anxiety. There were eighteen profiles exhibiting

this pattern in the entire group of 150 profiles; ten were found to be Successful students and eight to be Non-successful.

From the characteristic profile of midshipmen, as exhibited through the SORT, a portrayal of the typical midshipman was drawn. Qualities exhibited through the SORT for midshipmen were found to be those which the Navy rated highly on the NROTC aptitude evaluation form.

This qualitative examination produced no measure with which it was possible to differentiate between Successful and Non-successful, or Regular and Contract, first year NROTC midshipmen at the University of Oklahoma.

CHAPTER V

SUMMARY AND CONCLUSIONS

Two problems were posed for solution in this study. The principal problem was to differentiate, early in the NROTC program at the University of Oklahoma, between Successful and Non-successful midshipmen students. The secondary problem was to determine whether or not there appeared to be any differentiation between fully subsidized (Regular) and partially subsidized (Contract) midshipmen students at the University of Oklahoma on the basis of temperament and personality.

Four null hypotheses were drawn from the primary and secondary problems:

1) Performance on the SORT does not significantly differentiate between successful and non-successful first year Regular midshipmen at the University of Oklahoma.
2) Performance on the SORT does not significantly differentiate between successful and non-successful first year Contract midshipmen at the University of Oklahoma.

3) Performance on the SORT does not significantly differentiate between successful Regular and Contract first year midshipmen at the University of Oklahoma.

4) Performance on the SORT does not significantly differentiate between non-successful Regular and Contract first year midshipmen at the University of Oklahoma.

The criterion of success and non-success selected was ranking in the top or bottom one-half of the midshipman class, in terms of the NROTC aptitude evaluation process.

The instrument selected was Joics B. Stone's Structured-Objective Rorschach Test (SORT). The SORT was given to a sample consisting of two year-groups of fourth class (first year) midshipmen. Year-group 1960-1961 consisted of 24 Regular midshipmen and 42 Contract midshipmen. Year-group 1961-1962 consisted of 30 Regular midshipmen and 54 Contract midshipmen.

Quantitative examination of SORT score data for this study was performed in three phases. In phase one the significance of the differences between T scores for each of the fifteen scored variables of the SORT were tested with the "t" test for twelve combinations of eight sub-groups of midshipmen. These combinations were:

Regular-Success, 1960-1961, versus Regular-Non-success, 1960-1961

Contract-Success, 1960-1961, versus Contract-Non-success, 1960-1961

Regular-Success, 1960-1961, versus Contract-Success, 1960-1961

Regular-Non-success, 1960-1961, versus Contract-Non-success, 1960-1961

Regular-Success, 1961-1962, versus Regular-Non-success, 1961-1962

Contract-Success, 1961-1962, versus Contract-Non-success, 1961-1962

Regular-Success, 1961-1962, versus Contract-Success, 1961-1962

Regular-Non-success, 1961-1962, versus Contract-Non-success, 1961-1962

Regular-Success, 1960-1961, versus Regular-Success, 1961-1962

Contract-Success, 1960-1961, versus Contract-Success, 1961-1962

Regular-Non-success, 1960-1961, versus Regular-Non-success, 1961-1962

Contract-Non-success, 1960-1961, versus Contract-Non-success, 1961-1962

Phase one produced twelve sets of fifteen tests of the statistical significance of difference between T score means. There were no significant differences between Success and Non-success sub-groups, or between Regular and Contract sub-

groups, beyond those attributable to chance. One set of "t" tests indicated that there was a statistically significant difference between the Regular-Non-success sub-groups of the two year-groups in the performance of midshipmen on the SORT.

In phase two of the quantitative analysis, the significance of the difference between percentages of midshipmen in the sub-groups of phase one achieving scores more than one standard deviation above or below the T score mean of 50 was tested with the "z" test. No statistically significant differences were found in the 24 sets of fifteen "z" tests.

Phase three of the quantitative examination of the SORT data was undertaken to further test the findings of the first two phases. For phase three, the distinction between Regular and Contract status was removed and the SORT answer sheets for each year-group were ranked in accordance with midshipman aptitude evaluation results. The top 26 per cent and the bottom 26 per cent of the midshipmen for each year-group were segregated. The differences between the mean T scores of these four sub-groups were tested for statistical significance with the "t" test, as in phase one. There were no differences that could not be reasonably attributed to chance, except the Least-Success sub-groups of the two year-groups were significantly different.

There were a total of 40 sets of statistical tests of significance calculated for the quantitative examination. Of these, 95 per cent were consistent in not differentiating between sub-groups, and no set differentiated between Success and Non-success sub-groups, or Regular and Contract sub-groups. It was considered that the two sets of tests which differentiated between Non-success sub-groups of the two year-groups did not indicate a general change in the personality and temperament of midshipmen from one year to the next. Results of the quantitative examination of data indicated acceptance of the four null hypotheses.

A qualitative examination of the SORT data was undertaken. The qualitative examination consisted of interpreting each midshipman's fifteen variable scores into 25 attribute ratings and five efficiency reducing characteristics, devising a profile form with which to display the data, and analyzing the profiles.

Individual profiles were segregated into the eight sub-groups utilized in phase one of the quantitative examination. Profiles within sub-groups were compared and a single profile, characteristic of the sub-group was constructed for each sub-group. Characteristic profiles for the sub-groups were similar to each other.

Individual profiles were combined without regard to Regular or Contract status, or year-group. They were divided into a group of 75 midshipmen who were successful in terms of

being in the top one-half of the aptitude evaluation ranks of their year-group, and a group of 75 who were non-successful in terms of being evaluated in the bottom one-half of their year-group. Characteristic profiles were compiled for each of the two groups formed in this manner, and they were found to be similar except that successful students were inclined to be more conforming than non-successful students.

A combined characteristic profile for all midshipmen involved in this study was constructed. All 150 of the individual profiles were compared with this combined profile for similarity. There were 44 profiles that were similar to the characteristic profile and 51 profiles that were definitely dissimilar. Representation of Regular-Success, Regular-Non-success, Contract-Success, and Contract-Non-success in both the similar and dissimilar groups were found to be very near the ratio of these sub-groups in the total sample population. In addition to a general tendency in the total sample for successful students to be more conforming than non-successful students, it was noted that the dissimilar non-successful profiles exhibited tendencies toward a configuration of low Generalization and low Anxiety. To determine if Below Average, or lower, ratings in the attributes of Generalization (Theoretical Mental Functioning), Anxiety, and Conformity would differentiate non-successful students from others, all 150 profiles were screened for this configuration. There were eighteen cases screened out; eight were non-successful, ten

were successful. Results of the qualitative examination of data corroborated the findings of the quantitative analysis.

It was concluded that one could not differentiate, early in the NROTC program at the University of Oklahoma, between successful and non-successful midshipmen; or between Regular and Contract midshipmen, on the basis of temperament and personality as measured by the Structured-Objective Rorschach Test, against the criterion of rank in NROTC aptitude evaluation.

Recommendations for Further Study

In this study the SORT was used in a situation where only one measure of personality and temperament existed and was officially recognized. No attempt was made to impose modifications or unusual controls over the processes of NROTC aptitude evaluation as prescribed by the Navy. NROTC aptitude evaluation is subjective and therefore probably responsive to a variety of uncontrolled influences. Failure of the SORT to differentiate between Successful and Non-successful, or Regular and Contract first year midshipmen students as they were ranked on aptitude evaluation at the University of Oklahoma did not show that the SORT would not differentiate between midshipmen on some basis. Further study could be undertaken in generalizing the conclusion of this study by replication in a representative set of NROTC units. Or, perhaps more profitably, further study could be undertaken to evaluate the NROTC aptitude evaluation system.

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APPENDIX A

T scores on SORT variables for sixteen Regular-Success sub-group 1960-1961 midshipmen in order of their decreasing rank on NROTC aptitude evaluation

Subject's Rank	SORT Variables							
	W	D	Dd	S	F	F-	M	FM
1	42	63	40	55	62	50	65	57
2	30	61	65	65	80	50	30	55
3	63	38	52	45	47	52	75	65
4	46	46	65	55	65	45	58	57
5	40	51	65	60	72	57	50	45
6	31	60	65	57	70	55	47	55
7	50	46	57	50	45	57	50	57
8	55	43	55	55	47	60	65	40
9	61	36	57	50	62	42	62	60
10	46	48	65	60	67	60	45	50
11	48	51	52	57	42	47	65	55
12	50	51	50	57	80	40	58	60
13	38	45	80	55	57	70	47	45
14	31	58	67	67	72	62	50	60
15	33	56	50	60	80	52	50	50
16	42	60	45	60	77	50	58	62
Sum	706	813	930	908	1025	849	875	873
Mean	44.12	50.81	58.12	56.75	64.06	53.06	54.69	54.56
S.D.	9.93	7.83	9.72	5.44	12.50	7.55	10.77	6.76

T scores on SORT variables for sixteen Regular-Success sub-group 1960-1961 midshipmen in order of their decreasing rank on NROTC aptitude evaluation (Continued)

Subject's Rank	SORT Variables						
	FC	CF	Fch	A	H	P	O
1	47	35	35	50	60	43	43
2	45	50	35	42	41	32	60
3	35	40	42	55	75	50	37
4	45	32	50	38	50	31	45
5	38	30	52	42	47	38	45
6	40	32	50	50	56	42	50
7	60	52	40	61	40	45	45
8	42	32	55	42	65	58	37
9	47	32	45	63	56	55	37
10	45	30	50	51	52	46	40
11	60	40	50	45	56	53	40
12	32	40	45	50	52	48	37
13	45	50	35	47	47	38	60
14	37	45	27	67	43	36	70
15	55	32	25	51	56	43	45
16	50	32	22	55	60	43	43
Sum	723	604	658	809	856	701	734
Mean	45.19	37.75	41.12	50.56	53.50	43.81	45.88
S.D.	7.84	7.67	9.67	7.82	9.18	7.88	9,34

T scores on SORT variables for eight Regular-Non-success sub-group 1960-1961 midshipmen in order of their decreasing rank on NROTC aptitude evaluation

Subject's Rank	SORT Variable							
	W	D	Dd	S	F	F-	M	FM
1	48	48	57	50	65	40	50	57
2	48	55	45	55	60	55	50	40
3	52	41	65	47	60	55	45	60
4	35	58	60	50	57	52	48	55
5	50	50	50	55	65	32	50	62
6	38	51	67	50	70	52	42	35
7	25	61	70	75	80	55	30	55
8	30	60	67	50	75	65	42	50
Sum	326	424	481	432	532	406	357	414
Mean	40.75	53.00	60.12	54.00	66.50	50.75	44.62	51.75
S.D.	9.54	6.41	8.51	8.36	7.56	9.54	6.55	9.04

T scores on SORT variables for eight Regular-Non-success sub-group 1960-1961 midshipmen in order of their decreasing rank on NROTC aptitude evaluation (Continued)

Subject's Rank	SORT Variables						
	FC	CF	Fch	A	H	P	O
1	50	35	52	63	55	53	40
2	60	40	45	47	62	63	37
3	62	35	37	70	41	32	50
4	65	52	30	55	41	41	37
5	60	52	40	53	45	52	43
6	50	40	55	30	45	31	45
7	40	30	40	55	45	28	55
8	40	52	30	51	40	38	55
Sum	427	336	329	424	374	338	362
Mean	53.38	42.00	41.12	53.00	46.75	42.25	45.25
S.D.	9.21	8.36	8.87	10.99	7.41	11.08	6.91

T scores on SORT variables for seventeen Contract-Success sub-group 1960-1961 midshipmen in order of their decreasing rank on NROTC aptitude evaluation

Subject's Rank	SORT Variables							
	W	D	Dd	S	F	F-	M	FM
1	52	50	50	42	45	60	62	60
2	42	48	67	50	77	50	45	62
3	48	55	45	60	62	50	58	50
4	45	60	42	55	65	52	45	50
5	33	65	52	55	62	62	40	50
6	50	45	60	65	65	52	42	55
7	61	43	45	50	47	42	50	65
8	55	45	52	55	42	55	58	57
9	65	40	50	50	40	52	70	65
10	31	58	67	60	75	57	45	45
11	46	51	55	57	62	47	55	37
12	45	48	65	67	57	57	55	45
13	35	55	67	60	80	62	47	40
14	52	51	45	55	50	57	42	40
15	45	41	75	60	80	55	42	35
16	50	55	42	47	57	55	50	50
17	40	56	55	57	75	50	40	65
Sum	795	866	934	945	1041	915	846	871
Mean	46.76	50.94	54.94	55.59	61.24	53.82	49.76	51.24
S.D.	8.86	6.75	9.89	6.20	12.86	5.12	8.39	9.73

T scores on SORT variables for seventeen Contract-Success sub-group 1960-1961 midshipmen in order of their decreasing rank on NROTC aptitude evaluation (Continued)

Subject's Rank	SORT Variables						
	FC	CF	Fch	A	H	P	O
1	42	45	42	65	47	52	37
2	42	55	25	71	58	41	65
3	37	50	50	55	55	52	37
4	50	35	50	45	62	45	43
5	50	32	50	47	32	45	25
6	50	30	55	67	43	45	40
7	60	52	45	63	52	52	35
8	37	35	65	51	60	38	60
9	55	40	37	61	65	56	30
10	32	52	45	55	56	32	60
11	50	50	50	42	58	38	45
12	42	40	52	36	45	42	37
13	42	45	30	51	45	35	60
14	50	50	60	47	43	50	35
15	45	35	47	50	41	41	60
16	47	50	45	53	50	51	30
17	37	52	37	70	40	38	37
Sum	768	748	785	929	852	753	736
Mean	45.18	44.00	46.18	54.65	50.12	44.29	43.29
S.D.	7.07	7.95	9.75	9.83	8.82	6.76	12.33

T scores on SORT variables for 25 Contract-Non-success subgroup 1960-1961 midshipmen in order of their decreasing rank on NROTC aptitude evaluation

Subject's Rank	SORT Variables							
	W	D	Dd	S	F	F-	M	FM
1	45	41	75	50	65	67	55	55
2	52	50	50	60	57	65	40	60
3	58	48	42	47	35	57	60	60
4	45	48	60	57	80	47	40	60
5	30	51	80	47	80	60	30	40
6	52	53	42	57	42	50	60	55
7	38	51	67	57	55	55	45	47
8	46	50	57	57	62	50	60	60
9	38	51	67	60	55	45	58	60
10	46	61	37	45	52	45	62	57
11	46	50	57	67	80	47	40	60
12	52	53	42	47	42	57	58	45
13	65	40	45	50	45	60	55	50
14	63	45	40	60	60	37	65	70
15	48	41	67	62	75	52	35	40
16	58	33	70	40	52	55	77	37
17	33	55	70	67	80	57	35	32
18	38	60	52	50	57	62	50	45
19	48	45	65	65	75	47	50	57
20	27	63	65	57	50	76	47	55
21	31	55	72	57	80	42	50	55
22	38	50	72	45	80	55	30	55
23	42	53	57	42	65	55	42	45
24	46	48	60	47	62	55	50	55
25	35	53	70	62	77	60	42	45
Sum	1120	1248	1481	1355	1563	1358	1236	1300
Mean	45.80	49.92	59.24	54.20	62.52	54.32	49.44	52.00
S.D.	9.85	6.61	12.18	7.73	13.46	8.37	11.45	8.83

T scores on SORT variables for 25 Contract-Non-success subgroup 1960-1961 midshipmen in order of their decreasing rank on NROTC aptitude evaluation
(Continued)

Subject's Rank	SORT Variables						
	FC	CF	Fch	A	H	P	O
1	35	30	45	60	56	25	70
2	55	35	40	45	40	41	40
3	55	40	50	60	65	46	37
4	50	30	40	67	50	36	55
5	37	35	55	50	32	32	55
6	50	45	52	45	58	53	20
7	45	45	52	38	60	41	35
8	37	32	50	50	58	51	40
9	45	50	47	51	55	45	37
10	62	32	45	57	60	55	37
11	37	40	42	61	40	32	43
12	47	45	56	42	65	45	43
13	42	45	57	45	58	45	45
14	47	27	45	61	55	46	35
15	47	45	47	45	60	35	43
16	32	52	45	35	80	46	50
17	47	45	47	42	41	36	62
18	50	32	47	45	60	45	62
19	37	50	40	55	56	45	50
20	35	50	42	30	56	32	70
21	42	45	35	45	52	30	60
22	45	45	35	61	45	36	50
23	42	50	52	53	40	32	60
24	47	40	42	67	58	58	30
25	42	32	45	60	56	32	70
Sum	1110	1017	1153	1270	1356	1020	1199
Mean	44.40	40.68	46.12	50.80	54.24	40.80	47.96
S.D.	7.03	7.49	5.83	9.71	9.97	8.43	13.06

T scores on SORT variables for 20 Regular-Success sub-group 1961-1962 midshipmen in order of their decreasing rank on NROTC aptitude evaluation

Subject's Rank	SORT Variables							
	W	D	Dd	S	F	F-	M	FM
1	55	50	45	57	47	52	55	50
2	61	45	42	45	37	52	65	55
3	50	60	35	50	40	57	55	57
4	36	56	60	65	72	47	42	40
5	65	31	60	57	50	55	65	57
6	46	53	52	55	70	57	45	60
7	30	56	72	65	65	57	47	50
8	40	43	80	65	75	62	45	57
9	55	45	55	55	62	52	47	37
10	50	43	65	62	70	37	47	62
11	67	41	52	45	23	67	55	45
12	35	61	55	55	75	52	50	50
13	25	61	70	70	80	57	58	32
14	42	45	72	55	80	55	42	45
15	52	46	55	60	57	57	47	57
16	42	50	65	47	65	65	42	35
17	55	41	60	42	60	62	42	40
18	56	46	50	67	65	42	62	60
19	46	61	37	57	37	60	47	55
20	52	55	40	47	50	47	65	57
Sum	960	989	1122	1121	1180	1072	1023	1001
Mean	48.00	49.45	56.10	56.05	59.00	53.60	51.25	50.05
S.D.	10.91	8.03	12.12	7.92	15.58	8.14	8.01	8.96

T scores on SORT variables for 20 Regular-Success sub-group 1961-1962 midshipmen in order of their decreasing rank on NROTC aptitude evaluation
(Continued)

Subject's Rank	SORT Variables						
	FC	CF	Fch	A	H	P	O
1	50	45	55	47	55	53	30
2	45	50	55	51	77	50	37
3	47	45	55	60	52	46	43
4	45	45	52	36	40	50	43
5	47	32	45	45	58	61	25
6	47	35	55	63	47	43	43
7	37	52	47	36	50	32	70
8	37	32	40	40	52	26	80
9	50	50	50	57	52	48	30
10	40	52	47	65	47	51	25
11	37	55	70	45	50	41	40
12	40	30	50	60	50	36	30
13	40	40	40	38	66	31	80
14	50	32	40	50	55	31	55
15	40	50	47	51	45	43	40
16	45	32	57	35	28	28	65
17	55	45	45	50	45	48	37
18	32	40	50	60	52	56	30
19	55	50	55	40	52	58	40
20	47	45	45	50	60	51	37
Sum	886	857	1000	979	1033	883	880
Mean	44.30	42.85	50.00	48.95	51.65	44.15	44.00
S.D.	6.09	7.93	7.00	9.34	9.45	10.13	16.63

T scores on SORT variables for ten Regular-Non-success sub-group 1961-1962 midshipmen in order of their decreasing rank on NROTC aptitude evaluation

Subject's Rank	SORT Variables							
	W	D	Dd	S	F	F-	M	FM
1	52	50	50	50	55	50	55	57
2	55	50	45	42	40	40	72	60
3	55	50	45	47	42	62	62	60
4	48	45	65	55	75	47	42	40
5	20	72	70	67	80	55	35	50
6	31	58	67	62	62	60	27	55
7	52	53	42	59	45	42	72	60
8	45	65	35	55	67	45	70	40
9	50	46	57	60	52	57	60	37
10	36	63	50	57	45	76	58	35
Sum	444	552	526	545	563	534	553	494
Mean	44.40	55.20	52.60	54.50	56.30	53.40	55.30	49.40
S.D.	11.09	8.50	11.11	7.09	13.43	10.37	14.96	9.82

T scores on SORT variables for ten Regular-Non-success sub-group 1961-1962 midshipmen in order of their decreasing rank on NROTC aptitude evaluation (Continued)

Subject's Rank	SORT Variables						
	FC	CF	Fch	A	H	P	O
1	47	40	50	55	50	41	43
2	45	52	52	45	65	66	35
3	55	27	45	57	55	40	37
4	55	45	45	47	45	41	65
5	32	45	45	47	37	32	55
6	42	35	62	45	40	31	50
7	42	55	45	42	72	52	37
8	45	40	42	40	58	53	37
9	50	57	37	40	56	50	40
10	45	35	47	55	40	32	55
Sum	458	431	470	473	518	397	454
Mean	45.80	43.10	47.00	47.30	51.80	39.70	45.40
S.D.	6.40	9.12	6.32	5.98	10.94	10.75	9.72

T scores on SORT variables for 22 Contract-Success sub-group 1961-1962 midshipmen in order of their decreasing rank on NROTC aptitude evaluation

Subject's Rank	SORT Variables							
	W	D	Dd	S	F	F-	M	FM
1	58	40	57	47	52	50	45	50
2	46	56	45	57	45	60	45	57
3	58	51	37	57	42	45	42	55
4	45	45	70	57	80	47	47	50
5	55	43	57	60	62	40	50	62
6	50	43	65	60	65	45	47	50
7	58	38	60	62	70	60	45	37
8	71	33	50	55	30	55	50	55
9	42	50	65	57	60	50	60	55
10	30	60	67	70	72	52	45	62
11	42	50	65	40	65	60	58	37
12	63	35	57	62	40	45	60	55
13	38	53	65	55	67	55	47	45
14	42	51	60	60	77	50	42	45
15	50	45	60	57	62	45	47	60
16	50	46	57	60	70	47	50	40
17	31	46	80	55	70	67	50	45
18	40	56	55	75	62	50	45	57
19	52	56	35	45	57	57	45	30
20	40	50	67	55	60	62	55	50
21	52	50	50	60	62	55	45	45
22	52	50	50	65	47	45	58	45
Sum	1065	1047	1274	1271	1317	1142	1078	1087
Mean	48.41	48.59	57.91	57.77	59.86	51.91	49.00	49.41
S.D.	9.82	6.84	10.32	7.35	12.32	6.82	5.52	8.37

T scores on SORT variables for 22 Contract-Success sub-group 1961-1962 midshipmen in order of their decreasing rank on NROTC aptitude evaluation
(Continued)

Subject's Rank	SORT Variables						
	FC	CF	Fch	A	H	P	O
1	40	57	60	51	40	48	37
2	62	35	50	50	41	45	43
3	60	50	67	42	43	60	35
4	40	40	47	67	45	28	50
5	62	45	37	55	47	45	37
6	50	55	42	53	58	55	35
7	40	45	50	42	45	46	30
8	60	50	62	57	52	61	25
9	50	32	45	53	55	48	37
10	45	45	32	63	41	31	60
11	42	52	37	57	55	38	40
12	40	50	70	42	60	50	37
13	35	35	60	51	55	45	62
14	47	35	47	51	47	41	30
15	45	50	47	36	55	38	50
16	45	45	50	57	65	43	55
17	37	45	35	63	30	30	45
18	50	40	47	53	47	55	35
19	55	50	55	45	45	63	37
20	42	45	40	57	40	43	37
21	60	27	55	53	45	42	35
22	60	45	57	45	47	58	37
Sum	1067	973	1092	1143	1058	1013	889
Mean	48.50	44.23	49.64	51.95	48.09	46.05	40.41
S.D.	8.71	7.53	10.09	7.51	7.86	9.62	9.36

T scores on SORT variables for 32 Contract Non-success sub-group 1961-1962 midshipmen in order of their decreasing rank on NROTC aptitude evaluation

Subject's Rank	SORT Variables							
	W	D	Dd	S	F	F-	M	FM
1	61	50	35	55	50	55	35	57
2	31	65	55	57	67	60	58	50
3	33	61	57	60	60	78	27	55
4	42	55	55	62	67	50	58	62
5	58	41	55	47	45	50	47	65
6	56	43	52	50	45	55	42	55
7	40	55	55	60	65	52	55	57
8	36	68	40	40	67	42	65	47
9	46	38	80	60	72	57	58	55
10	33	68	45	35	60	60	58	40
11	55	46	52	50	62	45	58	40
12	60	46	42	57	57	47	58	65
13	67	36	50	45	37	52	55	62
14	56	46	50	42	50	50	58	37
15	50	51	50	57	50	52	55	50
16	30	70	50	50	62	62	58	50
17	45	51	57	50	55	52	65	50
18	35	56	65	62	77	40	58	60
19	48	38	75	65	67	60	47	37
20	60	40	55	50	35	60	47	60
21	42	53	57	57	67	52	45	50
22	45	48	65	47	62	45	47	50
23	35	53	70	50	72	52	50	30
24	50	51	50	55	40	65	27	55
25	48	45	65	57	62	47	70	57
26	45	48	65	55	70	52	42	45
27	52	48	52	65	72	42	55	55
28	67	40	40	60	45	55	55	57
29	38	65	42	50	40	50	77	50
30	52	48	52	55	62	57	58	55
31	46	50	57	62	57	55	65	57
32	46	50	57	60	62	47	50	55
Sum	1508	1623	1747	1727	1861	1698	1703	1670
Mean	47.12	50,72	54.59	53.97	58.16	53.06	53.22	52.19
S.D.	9.91	9.03	9.87	7.19	11.15	7.47	10.77	8.25

T scores on SORT variables for 32 Contract Non-success sub-group 1961-1962 midshipmen in order of their decreasing rank on NROTC aptitude evaluation (Continued)

Subject's Rank	SORT Variables						
	FC	CF	Fch	A	H	P	O
1	62	32	60	51	43	52	20
2	45	35	32	40	56	35	60
3	37	32	52	53	30	31	62
4	42	30	42	53	62	50	65
5	37	55	57	60	56	58	40
6	42	45	67	50	55	45	37
7	37	50	40	42	55	46	37
8	50	35	42	51	58	50	50
9	35	40	37	42	56	31	50
10	45	50	40	51	47	31	40
11	47	45	52	42	56	52	30
12	55	52	32	55	47	61	37
13	47	52	52	61	52	45	45
14	55	45	57	38	55	43	20
15	50	45	52	45	47	58	30
16	42	52	30	40	52	38	55
17	40	35	52	50	58	43	45
18	37	35	45	51	56	41	43
19	47	30	52	40	47	41	62
20	60	50	50	71	41	48	43
21	40	50	50	70	45	35	45
22	50	52	47	45	41	43	40
23	42	50	52	38	52	40	43
24	42	50	71	57	45	33	45
25	35	35	47	32	65	48	55
26	42	50	47	70	41	42	50
27	37	27	62	51	58	45	35
28	50	30	57	55	52	52	25
29	47	50	45	40	66	46	37
30	55	25	42	45	41	50	40
31	37	45	40	36	65	48	50
32	42	40	55	53	55	50	45
Sum	1431	1349	1558	1578	1655	1431	1381
Mean	44.72	42.16	48.69	49.31	51.72	44.72	43.16
S.D.	7.12	8.88	9.53	9.77	8.10	7.76	11.13

APPENDIX B

T scores on SORT variables of midshipmen in the most successful 26 per cent of year-group 1960-1961 in order of decreasing rank on NROTC aptitude evaluation
(n = 17)

Subject's Rank	SORT Variables							
	W	D	Dd	S	F	F-	M	FM
1	42	63	40	55	62	50	65	57
2	30	61	65	65	80	50	30	55
3	63	38	52	45	47	52	75	65
4	52	50	50	42	45	60	62	60
5	46	46	65	55	65	45	58	57
6	42	48	67	50	77	50	45	62
7	48	55	45	60	62	50	58	50
8	40	51	65	60	72	57	50	45
9	45	60	42	55	65	52	45	50
10	33	65	52	55	62	62	40	50
11	31	60	65	57	70	55	47	55
12	50	46	57	50	45	57	50	57
13	55	43	55	55	47	60	65	40
14	61	36	57	50	62	42	62	60
15	50	45	60	65	65	52	42	55
16	46	48	65	60	67	60	45	50
17	61	43	45	50	47	42	50	65
Sum	795	858	947	929	1040	896	889	933
Mean	46.76	50.47	55.70	54.65	61.18	52.70	52.29	54.88
S.D.	9.70	8.54	8.78	6.16	10.86	4.69	11.00	6.56

T scores on SORT variables of midshipmen in the most successful 26 per cent of year-group 1960-1961 in order of decreasing rank on NROTC aptitude evaluation
(n = 17)
(Continued)

Subject's Rank	SORT Variables						
	FC	CF	Fch	A	H	P	O
1	47	35	35	50	50	43	43
2	45	50	35	42	42	32	60
3	35	40	42	55	55	50	37
4	42	45	42	65	47	52	37
5	45	32	50	38	50	31	45
6	42	55	25	71	58	41	65
7	37	50	50	55	55	52	37
8	38	30	52	42	47	38	45
9	50	35	50	45	62	45	43
10	50	32	50	47	32	45	25
11	40	32	50	50	56	42	50
12	60	52	40	61	40	45	45
13	42	32	55	42	65	58	37
14	47	32	45	63	56	55	37
15	50	30	55	67	43	45	40
16	45	30	50	51	52	46	40
17	60	52	45	63	52	52	35
Sum	775	664	771	907	862	772	721
Mean	45.59	39.06	45.35	53.35	50.70	45.41	42.41
S.D.	6.86	9.06	7.81	9.85	8.06	7.21	9.11

T scores on SORT variables of midshipmen in the least successful 26 per cent of year-group 1960-1961 in order of decreasing rank on NROTC aptitude evaluation
(n = 17)

Subject's Rank	SORT Variables							
	W	D	Dd	S	F	F-	M	FM
1	65	40	45	50	45	60	55	50
2	50	50	50	55	65	32	50	62
3	63	45	40	60	60	37	65	70
4	48	41	67	62	75	52	35	40
5	58	33	70	40	52	55	77	37
6	33	55	70	67	80	57	35	32
7	38	51	67	50	70	52	42	35
8	38	60	52	50	57	62	50	45
9	48	45	65	65	75	47	50	57
10	27	63	65	57	50	76	47	55
11	31	55	72	57	80	42	50	55
12	25	61	70	75	80	55	30	55
13	38	50	72	45	80	55	30	55
14	42	53	57	42	65	55	42	45
15	46	48	60	47	62	55	50	55
16	35	53	70	62	77	60	42	45
17	30	60	67	50	75	65	42	50
Sum	715	863	1059	934	1148	917	792	843
Mean	42.06	50.76	62.29	54.94	67.53	53.94	46.59	49.59
S.D.	11.70	7.94	9.70	9.16	11.27	10.01	11.62	9.80

T scores on SORT variables of midshipmen in the least successful 26 per cent of year-group 1960-1961 in order of decreasing rank on NROTC aptitude evaluation
(n = 17)
(Continued)

Subject's Rank	SORT Variables						
	FC	CF	Fch	A	H	P	O
1	42	45	57	45	58	45	45
2	60	52	40	53	45	52	43
3	47	27	45	61	55	46	35
4	47	45	47	45	60	35	43
5	32	52	45	35	80	46	50
6	47	45	47	42	41	36	62
7	50	40	55	30	45	31	45
8	50	32	47	45	60	45	62
9	37	50	40	55	56	45	50
10	35	50	42	30	56	32	70
11	42	45	35	45	52	30	60
12	40	30	40	55	45	28	55
13	45	45	35	61	45	36	50
14	42	50	52	53	40	32	60
15	47	40	42	67	58	58	30
16	42	32	45	60	56	32	70
17	40	52	30	51	40	38	55
Sum	745	732	744	833	892	667	885
Mean	43.82	43.06	43.76	49.00	52.47	39.24	52.06
S.D.	6.32	7.87	6.86	10.49	9.85	8.37	10.95

T scores on SORT variables of midshipmen in the most successful 26 per cent of year-group 1961-1962 in order of decreasing rank on NROTC aptitude evaluation
(n = 22)

Subject's Rank	SORT Variables							
	W	D	Dd	S	F	F-	M	FM
1	55	50	45	57	47	52	55	50
2	61	45	42	45	37	52	65	55
3	50	60	35	50	40	57	55	57
4	36	56	60	65	72	47	42	40
5	58	40	57	47	52	50	45	50
6	65	31	60	57	50	55	65	57
7	46	56	45	57	45	60	45	57
8	58	51	37	57	42	45	42	55
9	46	53	52	55	70	37	45	60
10	30	56	72	65	65	57	47	50
11	45	45	70	57	80	47	47	50
12	40	43	80	65	75	62	45	57
13	55	45	55	55	62	52	47	37
14	55	43	57	60	62	40	50	62
15	50	43	65	60	65	45	47	50
16	50	43	65	62	70	37	47	62
17	67	41	52	45	23	67	55	45
18	58	38	60	62	70	60	45	37
19	71	33	50	55	30	55	50	55
20	35	61	55	55	75	52	50	50
21	42	50	65	57	60	50	60	55
22	30	60	67	70	72	52	45	62
Sum	1103	1043	1246	1258	1264	1131	1094	1153
Mean	50.14	47.41	56.64	57.18	57.45	51.41	49.72	52.41
S.D.	11.25	8.36	11.16	6.33	15.71	7.58	6.56	7.27

T scores on SORT variables of midshipmen in the most successful 26 per cent of year-group 1961-1962 in order of decreasing rank on NROTC aptitude evaluation
(n = 22)
(Continued)

Subject's Rank	SORT Variables						
	FC	CF	Fch	A	H	P	O
1	50	45	55	47	55	53	30
2	45	50	55	51	77	50	37
3	47	45	55	60	52	46	43
4	45	45	52	36	40	50	43
5	40	57	60	51	40	48	37
6	47	32	45	45	58	61	25
7	62	35	50	50	41	45	43
8	60	50	67	42	43	60	35
9	47	35	55	63	47	43	43
10	35	52	47	36	50	32	70
11	40	40	47	67	45	28	50
12	37	32	40	40	52	26	80
13	50	50	50	57	52	48	30
14	62	45	37	55	47	45	37
15	50	55	42	53	58	55	35
16	40	52	47	65	47	51	25
17	37	55	70	45	50	41	40
18	40	45	50	42	45	46	30
19	60	50	62	57	52	61	25
20	40	30	50	60	50	36	30
21	50	32	45	53	55	48	37
22	45	45	32	63	41	31	60
Sum	1029	977	1113	1138	1097	1004	885
Mean	46.77	44.41	50.59	51.73	49.86	45.64	40.23
S.D.	8.05	8.23	8.95	9.07	8.01	9.82	13.81

T scores on SORT variables of midshipmen in the least successful 26 per cent of year-group 1961-1962 in order of decreasing rank on NROTC aptitude evaluation (n = 22)

Subject's Rank	SORT Variables							
	W	D	Dd	S	F	F-	M	FM
1	30	70	50	50	62	62	58	50
2	45	51	57	50	55	52	65	50
3	35	56	65	62	77	40	58	60
4	48	38	75	65	67	60	47	37
5	60	40	55	50	35	60	47	60
6	42	53	57	57	67	52	45	50
7	45	48	65	47	62	45	47	50
8	35	53	70	50	72	52	50	30
9	50	51	50	55	40	65	27	55
10	48	45	65	57	62	47	70	57
11	45	65	35	55	67	45	70	40
12	45	48	65	55	70	52	42	45
13	52	48	52	65	72	42	55	55
14	67	40	40	60	45	55	55	57
15	38	65	42	50	40	50	77	50
16	52	48	52	55	62	57	58	55
17	50	46	57	60	52	57	60	37
18	36	63	50	57	45	76	58	35
19	46	50	57	62	57	55	65	57
20	46	50	57	60	62	47	50	55
21	50	51	50	57	50	52	55	50
22	52	53	42	50	45	42	72	60
Sum	1017	1132	1208	1229	1266	1165	1231	1095
Mean	46.23	51.45	54.91	55.86	57.55	52.95	55.95	49.77
S.D.	8.02	8.09	9.83	5.17	11.69	8.30	11.20	8.63

T scores on SORT variables of midshipmen in the least successful 26 per cent of year-group 1961-1962 in order of decreasing rank on NROTC aptitude evaluation
(n = 22)
(Continued)

Subject's Rank	SORT Variables						
	FC	CF	Fch	A	H	P	O
1	42	52	30	40	52	38	55
2	40	35	52	50	58	43	45
3	37	35	45	51	56	41	43
4	47	30	52	40	47	41	62
5	60	50	50	71	41	48	43
6	40	50	50	70	45	35	45
7	50	52	47	45	41	43	40
8	42	50	52	38	52	40	43
9	42	50	71	57	45	33	45
10	35	35	47	32	65	48	55
11	45	40	42	40	58	53	37
12	42	50	47	70	41	42	50
13	37	27	62	51	58	45	35
14	50	30	57	55	52	52	25
15	47	50	45	40	66	46	37
16	55	25	42	45	41	50	40
17	50	57	37	40	56	50	40
18	45	35	47	55	40	32	55
19	37	45	40	36	65	48	50
20	42	40	55	53	55	50	45
21	50	45	52	45	47	58	30
22	42	55	45	42	72	52	37
Sum	977	938	1067	1066	1153	988	957
Mean	44.41	42.64	48.50	48.45	52.41	44.91	43.50
S.D.	6.11	9.52	8.35	10.87	9.18	6.64	8.51

APPENDIX C

Rating frequencies for Regular-Success 1960-1961 sub-group of sixteen NROTC midshipmen on the SORT attributes and efficiency reductives

	L	BA	A	AA	H*
Mental Functioning					
Theoretical (W)	4	4	6	2	0
Practical (D)	0	3	7	5	1
Pedantic (Dd)	0	1	7	6	2
Induction (W:M)	1	5	6	3	1
Deduction (D:M)	0	0	11	4	1
Rigidity (S)	0	0	7	8	1
Structuring (F)	0	1	4	3	8
Concentration (F-:F)	0	0	8	6	2

Efficiency Reductives	
Low Generalization (W less than 42)	6
Perfectionism (Dd over 63)	6
Poor Control (F- over 57)	4
High Anxiety (Fch over 63)	0
Compulsivity (S+F+Dd/3 over 57)	10

Interests					
Range (H:P::A)	0	2	12	2	0
Human Relationships (H)	0	3	5	7	1
Responsiveness					
Popular (P)	2	7	6	1	0
Original (O)	0	9	4	2	1

*L is Low, BA is Below Average, A is Average, AA is Above Average, H is High.

Rating frequencies for Regular-Success 1960-1961 sub-group of sixteen NROTC midshipmen on the SORT attributes and efficiency reductives
(Continued)

	L	BA	A	AA	H*
Temperament					
Persistence (S)	0	0	7	8	1
Aggressiveness (F:M)	0	0	3	9	4
Social Responsibility (FC:M)	1	5	5	4	1
Cooperation (CF:FC)	0	7	7	1	1
Tact (FM::FC:M)	0	5	10	1	0
Confidence (FM:M)	1	1	11	2	1
Consistency (F::S:Fch)	0	0	3	9	4
Anxiety (Fch)	3	5	8	0	0
Moodiness (FM:F-::F:M)	1	6	9	0	0
Activity Potential (M)	2	0	7	6	1
Impulsiveness (F-:F)	2	6	8	0	0
Flexibility (M::FC:CF)	1	1	6	8	0
Conformity (O:P)	1	3	7	5	0

*L is Low, BA is Below Average, A is Average, AA is Above Average, H is High.

Rating frequencies for Regular-Non-success 1960-1961 sub-group of eight NROTC midshipmen on the SORT attributes and efficiency reductives

	L	BA	A	AA	H*
Mental Functioning					
Theoretical (W)	2	2	4	0	0
Practical (D)	0	1	4	3	0
Pedantic (Dd)	0	0	2	3	3
Induction (W:M)	2	2	4	0	0
Deduction (D:M)	0	1	7	0	0
Rigidity (S)	0	0	7	0	1
Structuring (F)	0	0	0	5	3
Concentration (F-:F)	0	0	4	3	1

Efficiency Reductives	
Low Generalization (W less than 42)	4
Perfectionism (Dd over 63)	4
Poor Control (F- over 57)	1
High Anxiety (Fch over 63)	0
Compulsivity (S+F+Dd/3 over 57)	5

Interests					
Range (H:P::A)	1	3	3	1	0
Human Relationships (H)	0	3	4	1	0
Responsiveness					
Popular (P)	3	2	2	1	0
Original (O)	0	4	4	0	0
Temperament					
Persistence (S)	0	0	7	0	1
Aggressiveness (F:M)	0	0	2	6	0
Social Responsibility (FC:M)	1	1	3	3	0
Cooperation (CF:FC)	1	0	5	2	0
Tact (FM::FC:M)	0	1	5	2	0
Confidence (FM:M)	1	2	4	1	0
Consistency (F::S:Fch)	0	0	0	6	2
Anxiety (Fch)	2	3	3	0	0
Moodiness (FM:F-::F:M)	0	2	6	0	0
Activity Potential (M)	1	1	6	0	0
Impulsiveness (F-:F)	1	3	4	0	0
Flexibility (M::FC:CF)	0	3	5	0	0
Conformity (O:P)	0	5	2	1	0

*L is Low, BA is Below Average, A is Average, AA is Above Average, H is High.

Rating frequencies for Contract-Success 1960-1961 sub-group of seventeen NROTC midshipmen on the SORT attributes and efficiency reductives

	L	BA	A	AA	H*
Mental Functioning					
Theoretical (W)	2	3	10	2	0
Practical (D)	0	3	10	4	0
Pedantic (Dd)	0	2	9	2	4
Induction (W:M)	1	6	6	3	1
Deduction (D:M)	0	2	12	3	0
Rigidity (S)	1	1	8	7	0
Structuring (F)	0	2	3	7	5
Concentration (F-:F)	0	1	10	6	0
Efficiency Reductives					
Low Generalization (W less than 42)	4				
Perfectionism (Dd over 63)	5				
Poor Control (F- over 57)	3				
High Anxiety (Fch over 63)	2				
Compulsivity (S+F+Dd/3 over 57	8				
Interests					
Range (H:P::A)	1	6	10	0	0
Human Relationships (H)	1	4	6	6	0
Responsiveness					
Popular (P)	2	7	7	1	0
Original (O)	4	7	2	4	0
Temperament					
Persistence (S)	1	1	8	7	0
Aggressiveness (F:M)	0	0	8	8	1
Social Responsibility (FC:M)	0	5	10	1	1
Cooperation (CF:FC)	0	3	13	1	0
Tact (FM::FC:M)	0	3	12	2	0
Confidence (FM:M)	1	4	10	2	0
Consistency (F::S:Fch)	0	0	4	8	5
Anxiety (Fch)	2	3	10	2	0
Moodiness (FM:F-::F:M)	0	4	13	0	0
Activity Potential (M)	0	4	7	4	2
Impulsiveness (F-:F)	0	6	10	1	0
Flexibility (M::FC:CF)	0	3	12	2	0
Conformity (O:P)	0	5	5	7	0

*L is Low, BA is Below Average, A is Average, AA is Above Average, H is High.

Rating frequencies for Contract-Non-success 1960-1961 sub-group of 25 NROTC midshipmen on the SORT attributes and efficiency reductives

	L	BA	A	AA	H*
Mental Functioning					
Theoretical (W)	4	7	11	3	0
Practical (D)	0	4	18	3	0
Pedantic (Dd)	0	4	4	8	9
Induction (W:M)	4	7	8	4	2
Deduction (D:M)	0	7	10	8	0
Rigidity (S)	3	3	8	10	1
Structuring (F)	0	3	7	6	9
Concentration (F-:F)	0	3	12	7	3

Efficiency Reductives	
Low Generalization (W less than 42)	9
Perfectionism (Dd over 63)	12
Poor Control (F- over 57)	9
High Anxiety (Fch over 63)	0
Compulsivity (S+F+Dd/3 over 57	14

Interests					
Range (H:P::A)	0	8	12	5	0
Human Relationships (H)	1	4	5	14	1
Responsiveness					
Popular (P)	7	6	11	1	0
Original (O)	2	10	7	3	3
Temperament					
Persistence (S)	3	3	8	10	1
Aggressiveness (F:M)	0	0	9	12	4
Social Responsibility (FC:M)	2	9	10	4	0
Cooperation (CF:FC)	2	5	18	0	0
Tact (FM::FC:M)	0	8	15	2	0
Confidence (FM:M)	4	1	17	2	1
Consistency (F::S:Fch)	0	0	8	11	6
Anxiety (Fch)	0	9	15	1	0
Moodiness (FM:F-::F:M)	0	5	17	3	0
Activity Potential (M)	1	5	6	11	2
Impulsiveness (F-:F)	3	7	11	4	0
Flexibility (M::FC:CF)	0	7	12	6	0
Conformity (O:P)	4	7	9	4	1

*L is Low, BA is Below Average, A is Average, AA is Above Average, H is High.

Rating frequencies for Regular-Success 1961-1962 sub-group of 20 NROTC midshipmen on the SORT attributes and efficiency reductives

	L	BA	A	AA	H*
Mental Functioning					
Theoretical (W)	2	5	9	3	1
Practical (D)	1	4	9	6	0
Pedantic (Dd)	0	4	7	5	4
Induction (W:M)	0	7	7	4	2
Deduction (D:M)	0	4	11	5	0
Rigidity (S)	0	1	9	8	2
Structuring (F)	1	3	3	6	7
Concentration (F-:F)	1	2	10	5	2
Efficiency Reductives					
Low Generalization (W less than 42)	4				
Perfectionism (Dd over 63)	5				
Poor Control (F- over 63)	5				
High Anxiety (Fch over 63)	1				
Compulsivity (S+F+Dd/3 over 57)	12				
Interests					
Range (H:P::A)	0	5	11	4	0
Human Relationships (H)	1	1	14	2	2
Responsiveness					
Popular (P)	5	4	8	3	0
Original (O)	6	9	1	1	3
Temperament					
Persistence (S)	0	1	9	8	2
Aggressiveness (F:M)	0	2	7	7	4
Social Responsibility (FC:M)	0	7	10	3	0
Cooperation (CF:FC)	2	4	13	1	0
Tact (FM::FC:M)	0	5	13	2	0
Confidence (FM:M)	0	4	12	3	1
Consistency (F::S:Fch)	1	1	4	12	2
Anxiety (Fch)	0	3	15	1	1
Moodiness (FM:F-::F:M)	1	4	11	4	0
Activity Potential (M)	0	4	11	5	0
Impulsiveness (F-:F)	2	5	9	3	1
Flexibility (M::FC:CF)	0	1	16	3	0
Conformity (O:P)	4	1	6	8	1

*L is Low, BA is Below Average, A is Average, AA is Above Average, H is High.

Rating frequencies for Regular-Non-success 1961-1962 sub-group of ten NROTC midshipmen on the SORT attributes and efficiency reductives

	L	BA	A	AA	H*
Mental Functioning					
Theoretical (W)	2	1	7	0	0
Practical (D)	0	0	6	3	1
Pedantic (Dd)	0	2	4	2	2
Induction (W:M)	2	1	2	4	1
Deduction (D:M)	0	2	3	4	1
Rigidity (S)	0	1	5	3	1
Structuring (F)	0	2	4	1	3
Concentration (F-:F)	1	1	5	3	0
Efficiency Reductives					
Low Generalization (W less than 42)	3				
Perfectionism (Dd over 63)	3				
Poor Control (F- over 57)	3				
High Anxiety (Fch over 63)	0				
Compulsivity (S+F+Dd/3 over 57)	3				
Interests					
Range (H:P::A)	0	3	3	4	0
Human Relationships (H)	0	3	3	3	1
Responsiveness					
Popular (P)	3	3	3	0	1
Original (O)	0	6	3	1	0
Temperament					
Persistence (S)	0	1	5	3	1
Aggressiveness (F:M)	0	1	2	6	1
Social Responsibility (FC:M)	2	0	3	5	0
Cooperation (CF:FC)	0	3	6	1	0
Tact (FM::FC:M)	0	2	5	3	0
Confidence (FM:M)	1	1	3	2	3
Consistency (F::S:Fch)	0	0	4	5	1
Anxiety (Fch)	0	2	7	1	0
Moodiness (FM:F-::F:M)	1	1	7	1	0
Activity Potential (M)	1	1	2	3	3
Impulsiveness (F-:F)	0	3	5	1	1
Flexibility (M::FC:CF)	0	2	3	5	0
Conformity (O:P)	0	4	2	3	1

*L is Low, BA is Below Average, A is Average, AA is Above Average, H is High.

Rating frequencies for Contract-Success 1961-1962 sub-group of 22 NROTC midshipmen on the SORT attributes and efficiency reductives

	L	BA	A	AA	H*
Mental Functioning					
Theoretical (W)	2	6	9	4	1
Practical (D)	1	5	12	4	0
Pedantic (Dd)	0	2	5	11	4
Induction (W:M)	1	4	14	3	0
Deduction (D:M)	0	4	17	1	0
Rigidity (S)	0	1	6	13	2
Structuring (F)	1	2	3	9	7
Concentration (F-:F)	0	2	13	6	1

Efficiency Reductives	
Low Generalization (W less than 42)	5
Perfectionism (Dd over 63)	8
Poor Control (F- over 57)	5
High Anxiety (Fch over 63)	2
Compulsivity (S+F+Dd/3 over 57)	14

Interests					
Range (H:P::A)	2	3	14	3	0
Human Relationships (H)	1	5	13	3	0
Responsiveness					
Popular (P)	3	6	9	4	0
Original (O)	3	13	4	2	0
Temperament					
Persistence (S)	0	1	6	13	2
Aggressiveness (F:M)	0	3	7	11	1
Social Responsibility (FC:M)	0	6	12	4	0
Cooperation (CF:FC)	1	1	14	6	0
Tact (FM::FC:M)	0	2	16	4	0
Confidence (FM:M)	0	6	12	3	1
Consistency (F::S:Fch)	0	4	3	12	3
Anxiety (Fch)	1	4	11	4	2
Moodiness (FM:F-::F:M)	0	5	15	2	0
Activity Potential (M)	0	2	17	3	0
Impulsiveness (F-:F)	1	6	13	2	0
Flexibility (M::FC:CF)	0	1	18	3	0
Conformity (O:P)	0	6	5	10	1

*L is Low, BA is Below Average, A is Average, AA is Above Average, H is High.

Rating frequencies for Contract-Non-success 1961-1962 sub-group of 32 NROTC midshipmen on the SORT attributes and efficiency reductives

	L	BA	A	AA	H*
Mental Functioning					
Theoretical (W)	4	7	13	6	2
Practical (D)	0	6	19	4	3
Pedantic (Dd)	0	5	15	9	3
Induction (W:M)	1	6	15	10	0
Deduction (D:M)	0	7	13	9	3
Rigidity (S)	0	3	14	15	0
Structuring (F)	0	4	7	11	10
Concentration (F-:F)	0	3	16	11	2

Efficiency Reductives	
Low Generalization (W less than 42)	8
Perfectionism (Dd over 63)	6
Poor Control (F- over 57)	8
High Anxiety (Fch over 63)	2
Compulsivity (S+F+Dd/3 over 57)	14

Interests					
Range (H:P::A)	1	5	22	4	0
Human Relationships (H)	1	5	14	11	1
Responsiveness					
Popular (P)	4	10	15	3	0
Original (O)	5	12	11	4	0
Temperament					
Persistence (S)	0	3	14	15	0
Aggressiveness (F:M)	1	4	6	13	8
Social Responsibility (FC:M)	2	4	21	5	0
Cooperation (CF:FC)	3	8	19	2	0
Tact (FM::FC:M)	0	8	17	7	0
Confidence (FM:M)	3	3	17	5	4
Consistency (F::S:Fch)	0	0	10	17	5
Anxiety (Fch)	3	7	14	6	2
Moodiness (FM:F-::F:M)	2	5	18	5	2
Activity Potential (M)	2	3	12	13	2
Impulsiveness (F-:F)	2	10	16	4	0
Flexibility (M::FC:CF)	0	5	15	12	0
Conformity (O:P)	1	7	15	8	1

*L is Low, BA is Below Average, A is Average, AA is Above Average, H is High.

Rating frequencies for 75 successful NROTC midshipmen on the SORT attributes and efficiency reductives

	L	BA	A	AA	H*
Mental Functioning					
Theoretical (W)	10	18	34	11	2
Practical (D)	2	15	38	19	1
Pedantic (Dd)	0	9	28	24	14
Induction (W:M)	3	22	33	13	4
Deduction (D:M)	0	10	51	13	1
Rigidity (S)	1	3	30	36	5
Structuring (F)	2	8	13	25	27
Concentration (F-:F)	1	5	41	23	5
Efficiency Reductives					
Low Generalization (W less than 42)	25				
Perfectionism (Dd over 63)	24				
Poor Control (F- over 57)	17				
High Anxiety (Fch over 63)	5				
Compulsivity (S+F+Dd/3 over 57)	44				
Interests					
Range (I) (H:P::A)	3	16	47	9	0
Human Relationships (H)	3	13	38	18	3
Responsiveness					
Popular (P)	12	24	30	9	0
Original (O)	13	38	11	9	4
Temperament					
Persistence (S)	1	3	30	36	5
Aggressiveness (F:M)	0	5	25	35	10
Social Responsibility (FC:M)	1	23	37	12	2
Cooperation (CF:FC)	3	15	47	9	1
Tact (FM+FM::FC:M)	0	15	51	9	0
Confidence (FM:M)	2	15	45	10	3
Consistency (F::S:Fch)	1	5	14	41	14
Anxiety (Fch)	6	15	44	7	3
Moodiness (FM:F-::F:M)	2	19	48	6	0
Activity (M)	2	10	42	18	3
Impulsiveness (F-:F)	5	23	40	6	1
Flexibility (M::FC:CF)	1	6	52	16	0
Conformity (O:P)	5	15	23	30	2

*L is Low, BA is Below Average, A is Average, AA is Above Average, H is High.

Rating frequencies for 75 non-successful NROTC midshipmen on the SORT attributes and efficiency reductives

	L	BA	A	AA	H*
Mental Functioning					
Theoretical (W)	12	17	35	9	2
Practical (D)	0	11	47	13	4
Pedantic (Dd)	0	11	25	22	17
Induction (W:M)	9	16	29	18	3
Deduction (D:M)	0	17	33	21	4
Rigidity (S)	3	7	34	28	3
Structuring (F)	0	9	18	23	25
Concentration (F-:F)	0	7	33	26	9
Efficiency Reductives					
Low Generalization (W less than 42)	24				
Perfectionism (Dd over 63)	27				
Poor Control (F- over 57)	21				
High Anxiety (Fch over 63)	2				
Compulsivity (S+F+Dd/3 over 57)	36				
Interests					
Range (H:P::A)	2	19	40	14	0
Human Relationships (H)	2	15	26	29	3
Responsiveness					
Popular (P)	17	21	31	6	0
Original (O)	7	32	25	8	3
Temperament					
Persistence (S)	3	7	34	28	3
Aggressiveness (F:M)	1	5	19	37	13
Social Responsibility (FC:M)	7	14	37	17	0
Cooperation (CF:FC)	6	16	48	5	0
Tact (FM::FC:M)	0	19	42	14	0
Confidence (FM:M)	9	7	41	10	8
Consistency (F::S:Fch)	0	0	22	39	14
Anxiety (Fch)	5	21	39	8	2
Moodiness (FM:F-::F:M)	3	13	48	9	2
Activity Potential (M)	5	10	26	27	7
Impulsiveness (F-:F)	6	23	36	9	1
Flexibility (M::FC:CF)	0	17	35	23	0
Conformity (O:P)	5	23	28	16	3

*L is Low, BA is Below Average, A is Average, AA is Above Average, H is High.

APPENDIX D

Miscellaneous Papers

APTITUDE EVALUATION - NROTC
NAVPERS 3072 (5-52)

NAME	CLASS	PERIOD FROM	PERIOD TO

INSTRUCTIONS

TO OBTAIN RAW SCORE: 1. Circle appropriate numeral for each quality. 2. Calculate totals for each column. Add column totals to obtain BASIC SCORE. (If any factors are marked "Not Observed", determine the average for those factors observed, and multiply this average by 10 to obtain the BASIC SCORE).

TO OBTAIN TERM APTITUDE MARK: 1. Evaluate other applicable factors as debits or credits and apply net reults to BASIC SCORE to get ADJUSTED SCORE. 2. Enter Class Standing, Number in Class, and Term Aptitude Mark from Aptitude Mark Table.

	REFER TO NAVPERS 91820 FOR MORE COMPLETE DESCRIPTIONS OF VARIOUS LEVELS	UN-SAT.	QUESTIONABLE	BELOW AVERAGE	AVERAGE	ABOVE AVERAGE	OUTSTANDING	NOT OBS.
MILITARY CHARACTERISTICS	**APPEARANCE AND BEARING** *Proper uniform; posture; grooming; appropriateness of civilian dress.*		1 | 2 *Untidy; poor carriage; lacks coordination*	3 | 4 *Unimpressive; lacks snap in dress and bearing*	5 | 6 *Dresses correctly; reasonably well poised*	7 | 8 *Well groomed; confident and dignified*	9 | 10 *Meticulous; very impressive in appearance; alert*	
	ATTITUDE *A positive state of mind toward the Naval Service manifested by interest and pride in the service.*		1 | 2 *Not interested in naval matters*	3 | 4 *Indifferent*	5 | 6 *Interested in naval matters*	7 | 8 *Enthusiastic; alert to gain knowledge*	9 | 10 *Shows intense interest in the service*	
	COURTESY *Officer-like and gentlemanly refinement of manners and adequacy of conduct both in and out of uniform.*		1 | 2 *Self-centered; curt and domineering*	3 | 4 *Inconsiderate; indiscreet*	5 | 6 *Pleasant; considerate of others*	7 | 8 *Noticeably good manners*	9 | 10 *Very well-bred; refined manners*	
PERSONAL PERFORMANCE CHARACTERISTICS	**INTELLIGENCE** *The degree of mental acuteness exhibited in daily activities.*		1 | 2 *Lacks common sense*	3 | 4 *Slow to grasp simple situations*	5 | 6 *Analyzes problems and makes good plans*	7 | 8 *Quick-witted; thinks logically*	9 | 10 *Grasps complex situation quickly*	
	DEPENDABILITY *Perseverance and endurance shown in completing assigned and/or assumed tasks.*		1 | 2 *Does sloppy work; irresponsible*	3 | 4 *Has to be checked Is absent-minded*	5 | 6 *Completes assignments promptly*	7 | 8 *Conscientious; always punctual*	9 | 10 *Very reliable; needs no supervision*	
	INITIATIVE *Constructiveness and resourcefulness shown when confronted by a problem; ability to act on his own responsibility.*		1 | 2 *Timid - "Passes the Buck"*	3 | 4 *Needs considerable prodding*	5 | 6 *Usually acts of own accord*	7 | 8 *Resourceful; creative*	9 | 10 *Extremely resourceful; forehanded*	
GROUP ADAPTABILITY CHARACTERISTICS	**COOPERATION** *Ability to accommodate personal needs or goals to those of others in a harmonious manner as shown in daily activities.*		1 | 2 *Solo-performer; obstinate; complainer*	3 | 4 *Cooperates unwillingly; works alone*	5 | 6 *Works reasonably well with others*	7 | 8 *Considerate; harmonious attitude*	9 | 10 *Public spirited; superior team worker*	
	JUDGEMENT *Ability to discriminate the important elements and values of a situation and then make sound decisions.*		1 | 2 *Impractical; unable to make decisions*	3 | 4 *Too assuming; makes poor decisions*	5 | 6 *Usually decides things correctly*	7 | 8 *Discriminating; makes practical decisions*	9 | 10 *Makes correct decisions quickly*	
	LEADERSHIP *Ability to influence and control others to accomplish a common goal.*		1 | 2 *A nonentity; antagonizes others*	3 | 4 *Lets others take lead*	5 | 6 *Uses influence to lead others*	7 | 8 *Stimulates others to great efforts*	9 | 10 *Outstanding command presence*	
	MORAL COURAGE *Ability to stand on cultural value standards or principles in ambiguous or conflicting situations.*		1 | 2 *Weak; "apple-polisher"*	3 | 4 *Plays "favorites"; lacks determination*	5 | 6 *Objective; determined*	7 | 8 *Is a positive moral influence; objective*	9 | 10 *Inspiring; willing to stand alone on moral issues*	
	COLUMN TOTALS							

Factors affecting BASIC SCORE (if applicable) --	DEBITS (-)	CREDITS (+)
Merits	---------	
Demerits		---------
Special Aptitude Reports		
Mid'n Fitness Reports		
Any Others		
TOTALS		

BASIC SCORE _____

NET DEBITS OR CREDITS _____

ADJUSTED SCORE _____

CLASS STANDING	NUMBER IN CLASS	TERM APTITUDE MARK

REMARKS AND SUGGESTIONS FOR IMPROVEMENT: (Do not leave blank-use other side if necessary)

Signature _____ *Status Relative to Midshipman Reported on* _____

Name _____ Date _____ Age _____ Sex _____

MENTAL FUNCTIONING

ATTRIBUTE	FACTOR	READ	RATING
1. Theoretical	W	Direct	
2. Practical	D	Direct	
3. Pedantic	Dd	Direct	
4. Induction	W : M	Abac 1	
5. Deduction	D : M	Abac 1	
6. Rigidity	S	Direct	
7. Structuring	F	Direct	
8. Concentration	F- : F	Abac 2	
9. Check reduction in efficiency due to:			
a. Low Generalization (W less than 42)			
b. Perfectionism (Dd over 63)			
c. Poor Control (F- over 57)			
d. High Anxiety (Fch over 63)			
e. Compulsivity $\left(\frac{S+F+Dd}{3} \text{ over } 57\right)$			

INTERESTS

ATTRIBUTE	FACTOR	READ	RATING
10. Range	H:P::A	Abac 3	
11. Human Relationships	H	Direct	

RESPONSIVENESS

ATTRIBUTE	FACTOR	READ	RATING
12. Popular	P	Direct	
13. Original	O	Direct	

IBM FORM I.T.S. 1100 B 5624-2

TABLE FOR CONVERTING T-SCORES TO RATINGS (Direct)

66-80 High (H)
56-65 Above Average (AA)
45-55 Average (A)
35-44 Below Average (BA)
20-34 Low (L)

TEMPERAMENT

ATTRIBUTE	FACTOR	READ	RATING
14. Persistence	S	Direct	
15. Aggressiveness	F : M	Abac 1	
16. Social Responsibility	FC : M	Abac 1	
17. Cooperation	CF : FC	Abac 4	
18. Tact	FM :: FC : M	Abac 5	
19. Confidence	FM : M	Abac 6	
20. Consistency of Behavior	F :: S : Fch	Abac 7	
21. Anxiety	Fch	Direct	
22. Moodiness	FM : F- :: F : M	Abac 8	
23. Activity Potential	M	Direct	
24. Impulsiveness	F- : F	Abac 9	
25. Flexibility	M :: FC : CF	Abac 10	
26. Conformity	O : P	Abac 11	

S-O Rorschach Worksheet

Fold worksheet over at dotted line. Use standard (T) scores from folded portion of answer sheet and *abacs* in Part 4 of Manual to determine appropriate ratings. See Part 2 of Manual for interpretation of attributes.

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