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Billy B. Vivers

Kansas State College of Pittsburg

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A STUDY OF THE RELATIONSHIP BETWEEN APPLICANTS' SCORES ON THE
THURSTONE TEST OF MENTAL ALERTNESS AND THE ALLPORT-
VERNON-LINDZEY STUDY OF VALUES AND SUBSEQUENT
SUCCESS AS PSYCHIATRIC AIDES

A Thesis Submitted to the Graduate Division in Partial
Fulfillment of the Requirements for the
Degree of Master of Science

By
Billy B. Vivers

KANSAS STATE COLLEGE OF PITTSBURG

Pittsburg, Kansas

November, 1964

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Abstract

This is a study of the relationship between scores made by applicants on the Thurstone Test of Mental Alertness and the Allport-Vernon-Lindzey Study of Values and subsequent job success as Psychiatric Aides in the Parsons State Hospital and Training Center. During the period covered by the study, there was a total of 93 applicants tested. Of that number, 16 were hired as Psychiatric Aide Trainees. One of the Trainees failed to complete the 14 week training program. Of the 15 trainees who were promoted to the Aide position, one entered the armed forces.

When the TMA and the Study of Values were introduced into the selection program, there were no norms specifically applicable for the selection of Psychiatric Aides on either of the tests. In order to make immediate use of the test results, cutting scores were developed by the Psychology Department on the basis of educated guesses.

In assessing the predictive validity of these cutting scores, two criteria of job success were used. Both criteria were derived from ratings made by Nursing Supervisors. Rank order correlations were computed between test scores and one criterion. An expectancy table developed using the predictive ratings of a Psychologist and the overall ratings of the Nursing Supervisors. Product Moment correlations were computed between the Psychologist's ratings and the two criteria of job success. The general conclusions from these procedures were that the test scores, as they are being used, are not valid predictors of job success. Information obtained from the study also presented some doubt as to the reliability of the rating system being used by the Nurses.

Certain recommendations are made for revisions in the use of the test scores and the rating scale in an effort to improve the predictive validity of the tests and the reliability of ratings given by Nurses.

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CHAPTER I

INTRODUCTION

Selection of Personnel

The introduction of mass production techniques into the industrial picture of the early 1900's had some unfavorable effects on employer-employee relations. The close personal relationship which often existed in the small shop, for the most part, faded away. The worker all too often became thought of as a mere cog in the machinery of production. Management exercised complete control over the hiring and firing of the employee. The process of hiring was based largely on trial and error methods. If the employee was not successful on the job, he was fired without compunction. This manner of handling the hiring and firing decision has gradually been changed during the past twenty or thirty years.

A number of factors has made it imperative that management change its attitude and approach to the employment problem. Labor has organized into unions to protect its rights, management has become aware of its social obligations to the worker and to the community, and management has also become aware of the added cost of high rate of turnover. Further, legislation, such as the National Labor Relations Act of 1935, dealing with labor management problems, has been enacted.

The net result of these changes is that management is no longer able or willing to hire and fire in an indiscriminate manner. It must utilize every available tool in its effort to make the proper selection and placement decision. With increasing frequency, industry has turned to the field of psychology for answers to

its employment problems. One of psychology's tools which has been utilized by those who must do the hiring is the psychological test.

Historically, the use of testing for the purpose of selecting employees also dates back to the early 1900's. The tests that were first used for this purpose were mainly of two varieties. They were either tests which were developed on the basis of educated guesses as to what good selection tests should do, or they were tests which had been developed for other purposes and were adapted for use in selection of personnel.¹ As a selection tool, the psychological test did not create much interest in the business world during those early years. Pressures resulting from the factors discussed above had evidently not reached sufficient strength to create a need for such devices. However, personnel testing was rather widely and successfully used by the armed forces during the First World War and this fact fostered a great deal of interest in the procedure. Unfortunately, problems created by a lack of trained personnel in the field of testing and the advent of the depression in the thirties curtailed much of the enthusiasm for personnel testing.

Testing as a selection device received further impetus from its wide usage during the Second World War. There were approximately fourteen million men inducted into the armed forces during that war. Almost all of the men were processed with some type of selection or classification test. The results of this mass personnel testing program were quite favorable. The implications for industry

¹Gellerman, S. W., "A Hard Look at Testing," Personnel, May-June, 1951, p. 10.

were apparent and many firms began to establish testing programs. In 1959, one survey indicated that there were more than ten thousand firms utilizing testing in screening job applicants.²

Psychological tests used by industry in the selection process may be catalogued into four basic groups: proficiency tests, aptitude tests, interests tests, and personality tests. The particular test or test battery that is selected by an organization will depend upon such factors as: the job that is being considered, the importance that the organization places on the need for reducing turnover, and the availability of a test which is relevant to the situation.

Once the test has been selected, it usually must be validated against some criterion of job success to determine the ability of the test to discriminate between those who will succeed on the job and those who will not. It is only on rare occasions that a test will be found which has been validated to any large degree for the specific job.³

There are two basic methods by which the predictive validity of the test may be ascertained. One method involves the administration of the test to a selected group of workers performing the job in question. These employees are rated as to their efficiency on the job. The relationship between test scores and job proficiency is then determined and cutting scores are established. This procedure has the advantage of providing results which can be used in a relatively short period of time. One of the major disadvantages of this method arises from

²Jucius, M. J., Personnel Management, Richard D. Irwin, Inc.: Homewood, Illinois, 1959, p. 225.

³Ghiselli, E. E., and Brown, C. W., Personnel and Industrial Psychology, McGraw-Hill Book Company: New York, 1948, p. 189.

the fact that test scores might be affected by job experience. If this method is used, correlations should be determined between experience on the job and test scores. If test scores are found to be related to experience, the effect of this experience must be eliminated if the scores are to be used with applicants who have had no experience on the job in question. If the test is used with applicants who are experienced in the work, then a significant correlation between job experience and test scores would be desirable.

The second method of validating the test is to test applicants after they have been hired but before they have been notified of their selection. The test scores should then be put aside and should not be used in any decision affecting the employee. When the tested group has worked long enough to have established a record of their job success, correlations are computed between the job success achieved and test scores. On the basis of these correlations, cutting scores or desirable profiles can be established. The major disadvantage of this method is that a relatively long period of time is required before the validity of the test can be determined.⁴

The interest of this paper in the psychological test as a selection tool centers around the use of such an instrument in hiring Psychiatric Aides.

The Psychiatric Aide Position

The Psychiatric Aide position constitutes the largest single job classification in the mental institution.⁵ The title of Psychiatric Aide is not universal

⁴Stone, H. C., and Kendal, W. E., Effective Personnel Selection Procedures, Prentice-Hall, Inc.: Englewood Cliffs, New Jersey, 1956, pp. 287-288.

⁵Yerbury, E. C., Holzberg, J. D., and Alessi, S. L., "Psychological Tests in the Selection and Placement of Psychiatric Aides," Amer. J. Psychiat., 180, 1951, p. 91.

throughout the field; however, the ward position, no matter what title it carries, has a common function and that is the day to day care of the patient. The prevalent feeling today seems to be that the manner in which the daily care is performed has a great deal to do with the success or failure of the treatment of the patient.

Tarjan, Shotwell, and Dingman have stated:

Successful treatment of patients in psychiatric hospitals depends to a large extent upon the administrations' ability to provide a psychologically healthy environment. Psychiatric technicians--the employees who are in closest contact with the patients--play a most important role in this prospect. (p. 388)⁶

Dr. Karl Menninger,⁷ in speaking of the importance of the Psychiatric Aide, stated: "It is not only by his number but by virtue of the role he plays in the patient's recovery or otherwise, that the psychiatric aide is the essence of the large mental hospital." This attitude, however, has not always prevailed throughout the field. Patient care by ward personnel during much of the history of the mental institution has, at its best, been of a custodial nature. Dr.

Menninger, in discussing this matter of patient care, stated:

Of the many prejudices obstructing the development of psychiatry, few have done more to deprive sick people of the benefits of intensive treatment than have those which surround the role of the psychiatric aide - or 'attendant.' (p. vii)⁸

It is true that there were some who understood the need for better patient care. As early as 1879 an attendant training program was inaugurated at the

⁶Tarjan, G., Shotwell, Anna M., and Dingman, H. R., "Screening Test for Psychiatric Technicians: A Preliminary Report on Five Years Experience with the Work Assignment Aid," Amer. J. ment. Defic., 59, 1955, p. 388.

⁷Menninger, K., "Foreword," in Hall, B. H., Gamemi, M., Noriss, V. L., Vail, V. H., and Sawatsky, G., Psychiatric Aide Education, Grune and Stratton: New York, 1952, p. vii.

⁸Ibid.

McLean Hospital in Massachusetts.⁹ However, that program and the programs which followed were not too successful. The conditions surrounding the job of the Psychiatric Aide were so unsatisfactory that it was impossible for most institutions to build any sizable group of trained care personnel. The pay was inadequate, the working conditions were often unsatisfactory, and the prestige of the position was extremely low, even among the personnel of the institution. The public attitude toward mental illness was such that a social stigma was often attached to those who worked in the mental institution. These factors combined to make it extremely difficult for the mental hospital to attract and retain satisfactory employees.

Frequently, petty criminals, alcoholics, neurotics, and shiftless individuals went to work in mental hospitals because no place else would have them; the hospital hired them because they needed help so desperately that anyone who could walk and talk was better than nothing . . . The doctors and the nurses (if there were nurses) ignored the deplorable situation because they felt helpless to combat the insurmountable problems. (p. 16)¹⁰

After World War II, changes began to take place in the field of psychiatry which were instrumental in alleviating many of the unsatisfactory conditions surrounding the Aide position. New treatment methods were developed which demanded that the Psychiatric Aide be capable of performing as an important member of the treatment team. Salaries were increased, the prestige of the work

⁹Hall, B. H., Gamemi, M., Noriss, V. L., Vail, V. H., and Sawatsky, G., Psychiatric Aide Education, Grune and Stratton: New York, 1952, p. v.

¹⁰Robinson, A. L., The Psychiatric Aide, J. B. Lippincott Co.: Philadelphia, 1954, p. 16.

was upgraded, the work became more interesting and offered a challenge to those who were interested in something more than performing daily custodial functions.¹¹

As these changes were inaugurated, it became apparent that there were not enough Aides available who were capable of performing these new functions. As there was no source from which to draw trained ward personnel, it became necessary for the institutions to develop their own people. Among the leaders in this effort were three mental institutions in the Province of Saskatchewan, Canada. Training programs for Aides had been utilized in these institutions for a number of years prior to the general recognition of the need for a new kind of Aide. Early Saskatchewan training programs had been oriented towards the nursing care of the patient. A new program was inaugurated in 1947 in these institutions which emphasized the psychological aspects of caring for the mental patient.¹²

In the United States, the state of New Jersey was one of the early leaders in the development of training programs which were oriented toward the psychological aspects of patient care. Other states were not long in following the examples set by the leaders on Aide education.¹³

For the most part the training programs that were developed were devised for the specific needs of the individual institution. There was one notable

¹¹Greenblatt, M., York, R. H., and Brown, Esther L., From Custodial to Therapeutic Patient Care in Mental Hospitals, Russel Sage Foundation: New York, 1955, pp. 14-15.

¹²McKerracher, D. G., "A New Program in the Training and Employment of Ward Personnel," Amer. J. Psychiat., 106, 1949, pp. 259-263.

¹³Baer, W. H., "The Training of Attendants, Psychiatric Aides, and Psychiatric Technicians," Amer. J. Psychiat., 109, 1952, p. 293.

exception to the pattern. A program, which was carried out at the Topeka State Hospital in Topeka, Kansas, was inaugurated in 1949 with the hope of devising a standardized curriculum for Aide education. This goal was not obtained by this particular study. It was concluded from the findings that there were too many variations in the job specifications of the Psychiatric Aide position to make it possible to devise a standardized curriculum.¹⁴

Bensberg and Barnett¹⁵ contend that the development of adequate evaluation techniques are essential to the development of a successful training program. They are now in the process of developing what they call the "Simulated Critical Incident Approach." This technique involves the identification of a number of key situations which the Aide must handle as part of his duties. These situations are to be presented to the Aides by actors or on film and the responses made by the Aides are to be scored. Knowing that a test situation cannot completely duplicate the situations as they actually occur on the ward, the authors plan to develop a ward observation technique as a supplemental tool. With these techniques, the authors hope to be able to make a more critical evaluation of the effects of the training program.

The efforts to develop better and more highly skilled Aides have been described here to emphasize the increased value that has been placed on the role that the Aide plays in the care and treatment of the patient. This new recognition of the value of the Aide as an employee introduces the problem of insuring that

¹⁴Hall, et al., op. cit., p. 115.

¹⁵Barnett, C. P., and Bensberg, Jr., G., "Evaluation: A Basic Tool in Training of Attendant Personnel," Ment. Retard., 2, 1964, pp. 224-230.

the best applicants are hired for the position. If an individual is poorly suited for the position he is not likely to derive much value from the training program. Proper selection, then, becomes an important aspect of providing the institution with a group of satisfactory Aides, and this is the problem with which this study is concerned.

Statement of the Specific Problem

The specific problem to be dealt with in this study concerns the relationship between scores made by applicants on the Thurstone Test of Mental Alertness¹⁶ and the Allport-Vernon-Lindzey Study of Values¹⁷ (Appendix B) and their subsequent success as Psychiatric Aides at the Parsons State Hospital and Training Center of Parsons, Kansas. This is a study of the predictive ability of the two tests which are used conjunctively at the Parsons Hospital to select applicants who will succeed as Psychiatric Aides. Throughout the rest of this study the above tests will be listed as the TMA and the Study of Values, respectively.

Need for the Study

The Psychiatric Aide represents a rather substantial investment of time and money to the mental institution. The disruptions and inefficiencies to hospital routine and to patient care created by an unsatisfactory Aide is quite costly. Considerable expense is also incurred in the process of hiring and training the Psychiatric Aide. In a study conducted at V. A. hospitals, Kline¹⁸ found that

¹⁶Thurstone, L. L., and Thurstone, G. T., Thurstone Test of Mental Alertness, Third Ed., Science Research Association: Chicago, Illinois, 1952.

¹⁷Allport, G. W., Vernon, P. E., and Lindzey, G., Study of Values, Third Ed., Houghton-Mifflin Co.: Boston, 1960.

¹⁸Kline, N. S., "Characteristics and Screening of Unsatisfactory Psychiatric Attendants and Attendant Applicants," Amer. J. Psychiat., 106, 1950, p. 573.

it cost the federal government approximately three hundred dollars to hire and fire an unsatisfactory Aide.

In the Parsons Institution it is estimated that it costs twelve hundred dollars to hire and train a Psychiatric Aide.¹⁹ The applicant is hired as a Psychiatric Aide Trainee and must have successfully completed a fourteen week training program before he can be hired as a Psychiatric Aide. During the training period the Trainee is not expected to perform regular ward duty. Four hours of his eight hour shift are spent in formal classroom instruction. The other four hours are spent in gaining clinical experience.²⁰ If the Trainee does not successfully complete the program of instruction, he cannot be hired as an Aide and the time and money spent on him are a complete loss.

If the psychological tests used in screening the applicants for the Aide position in the Parsons Hospital are to be used with any confidence, there must be more knowledge obtained of the predictive ability of these tests.

Criterion of a "Good" Aide

The development of a standardized criterion of job success for the Psychiatric Aide position is another problem which has not yet been resolved. There seems to be considerable disagreement as to what constitutes a "good" Aide. One study found that Nursing Supervisors in one institution visualized the "good" Aide as a shy and withdrawn individual who was passive and rather

¹⁹This estimation of cost of hiring and training a Psychiatric Aide was made in a personal communication with the present Personnel Officer, Mr. Leon Woolery, Parsons State Hospital and Training Center.

²⁰Division of Institutional Management, State Department of Social Welfare, Curriculum for Basic Aide Training Program, Topeka, Kansas, 1960, p. 6.

conservative in his views. At the same time, the other professionals on the staff of the Institution indicated that they felt the better Aide was rather overt in his actions and was not apt to submit too readily to the authority of the supervisors.²¹

Although this is an important problem, it does not affect the design of this study in that there is an established criterion of job success for the Aide in the Parsons Institution. This criterion is job ratings given by Nursing Supervisors. The rating scale that is used is provided by the Kansas State Civil Service Department.

Labor Supply in the Parsons Area

In order to help clarify the significance of this study, it is necessary to have some understanding of the labor supply available to the Parsons Institution. Such factors as age, educational background, and work skills of the available labor supply, as well as the general economic conditions of the area in which the Institution is located, will affect not only the type of applicant that is available, but, also, the number who are available.

The labor supply in the Parsons area is somewhat atypical of that which is found in the other urban areas of Kansas. For example, the population of Parsons is relatively old in comparison to that of urban Kansas as a whole. Parsons has roughly 6.2 per cent more persons over the age of sixty-five than does typical urban Kansas. It also has 6.2 per cent less individuals in the twenty to thirty-four age bracket. Of all families in Parsons, 29.5 per cent earn less than three thousand dollars and only 31 per cent earn more than six thousand dollars per year. Only 41 per cent of the male population of Parsons has a high school education as compared to 50.6 per cent of the male population in the typical urban setting of

²¹Tarjan, et al., op. cit., pp. 392-393.

Kansas.²²

Another factor which undoubtedly has some affect on the type and number of individuals applying for jobs as Psychiatric Aides in the Parsons Institution is the relative importance of the Institution as an employer in Parsons. The Parsons Hospital is the largest single employer in the area, and, therefore, is a major source of employment for job seekers in the area.

These factors should be kept in mind in evaluating the possible use of the results of this study for other institutions.

²²Spradlin, J. E., Personal communication to Parsons Chamber of Commerce, 1962.

CHAPTER II

RELATED RESEARCH

Use of Psychological Tests in Selecting Psychiatric Aides

The manner in which psychological tests have been used in selecting care personnel for the mental institution has not reached a point of standardization. A review of the literature indicates that there have been several approaches utilized by persons investigating this problem. One approach has involved the adaptation of existing tests for the purpose of Aide selection. A second approach has involved studying the personal and educational facets of the applicant as compared to the employed Aide in an attempt to find those factors which would differentiate the successful Aide from the unsatisfactory Aide. The third major approach has involved developing tests for the specific purpose of selecting care personnel.

Barron and Donohue²³ conducted a study on the value of psychological tests in selecting Psychiatric Aides at the Arkansas State Hospital in 1949. They selected fifty male and fifty female Psychiatric Aides working in the hospital. Each of the Aides was given the Otis Quick Scoring Intelligence Test (Beta Form), and the Minnesota Multiphasic Personality Inventory. A rating scale was developed to determine the degree of job success of those being tested. The Aides were rated as "Above Average," "Average," or "Below Average" in efficiency. The factors which differentiated between the three levels of Aides were found to be: intelligence, age, and

²³Barron, E. M., and Donohue, H. H., "Psychiatric Aide Selection Through Psychological Examination," Amer. J. Psychiat., 107, 1955, pp. 859-865.

education. It was determined that for the Arkansas setting the individual who scored in the dull normal range on the Otis made the most efficient Aide. It was noted, however, that the role of the Aide was being reexamined and that a training program was being offered which would help the more intelligent Aide advance. The authors felt that as the training program progressed the desirable intelligence level for the Aide would increase. Those Aides in the 45-49 age bracket constituted the largest percentage of "Above Average" Aides. One factor which might account for this was the relatively longer period of employment which the Aides in the 45-49 bracket had experienced. The optimum level of education was the tenth grade. The authors felt that the desirable level of education would also increase as the Aide position was upgraded. The Minnesota Multiphasic Personality Inventory did not prove to be effective in predicting the efficiency of the Psychiatric Aide, but it did prove to be helpful in eliminating psychopaths who applied for the Aide position. The general conclusion of the study was that the testing would bring about an improvement in the selection of the Aide at a nominal cost.

Yerbury, Holzberg, and Alessi²⁴ conducted a study on the use of psychological testing in selecting Psychiatric Aides at the Connecticut State Hospital. In their investigation they utilized the Revised Beta Examination²⁵ and the Multiple Choice Rorschach.²⁶ The subjects were the first 113 Psychiatric Aides hired after the study was inaugurated. These Aides were tested immediately after they were employed. At the end of their first six months of employment, each was

²⁴Yerbury, et al., op. cit., pp. 91-97.

²⁵Buros, O. K., The Third Mental Measurement Yearbook, Gryphon Press: Highland Park, New Jersey, 1949, p. 259.

²⁶Idem. p. 82.

rated by their supervisor as either a "good" or a "poor" Aide. The rating scale used was specifically devised for the study. The investigators found that the tests failed to discriminate between these two broad classifications. These ratings were redefined into "definitely good" and "definitely poor." This helped to eliminate some marginal employees who were otherwise forced into the "good" or "poor" categories. With this finer discrimination between the top and bottom groups, the authors found that it would have been possible to have eliminated 32 per cent of those who became poor employees at a cost of only 5 per cent of those who became good employees. The head of the nursing department also used the test results in placing the Aides on the various wards. It was her judgment that the tests were an invaluable help.

Kline²⁷ has also studied this problem of Aide selection. In an investigation conducted at the V. A. Hospital in Lyons, New Jersey, he obtained biosocial histories and scores on the Personal Inventory Test of 108 male applicants. The information obtained was not used in the selection or placement of the applicants. At the end of two years, the work records of these men were reviewed. They were classified into three groups: unsatisfactory, satisfactory, and miscellaneous and unknown. Those Aides who had been fired for incompetency or who had quit because of dissatisfaction with the work were classified as "unsatisfactory." The individuals who were still on the job or who had quit to take better jobs were classified as "satisfactory." The miscellaneous group was made up of students who worked only long enough to gain finances to continue their education or individuals who quit for reasons not definitely determined. It was found that

²⁷Kline, op. cit., pp. 573-582.

had the results of the testing and history been used in the selection it would have been possible to have eliminated 83 per cent of the unsatisfactory personnel at a cost of 23 per cent of the satisfactory personnel.

Several factors which seemed to discriminate the satisfactory group from the unsatisfactory group were noted by Kline. As a group, the satisfactory Aides tended to be single, under thirty, and from a small town. The home life of this group tended to be relatively stable and happy. On the other hand, the group of unsatisfactory Aides tended to be married and to have marital problems. The childhood of those in this group, on the whole, was not as stable and as happy as that of the satisfactory Aides. The general conclusion of the author was that the test and the history would have been a useful supplement to the regular selection tools had they been used.

Kline's conclusion that the satisfactory Aide, as an individual, was better adjusted than those who did not become satisfactory Aides is, perhaps, a valid one. However, it is possible that the personality factors which characterize the satisfactory group made them better adjusted for work in the institution but do not necessarily imply a better adjustment, per se.

Those individuals who became satisfactory Aides were typically single and had memories of a happy childhood. However, the mean age of this group was almost 30, long past the usual age for marriage in our culture. These findings thus might also be indicative of a dependency on the maternal authoritative figure which would imply a need for a secure, protective type of work situation such as is often provided in institutional settings. This could be a major factor in the job success of the satisfactory group rather than the factor of "better" adjustment.

The studies cited above were all similar in that psychological tests which had not been developed specifically for Aide selection were used. Other writers, however, have felt that better selection results could be obtained through the development and utilization of a test designed specifically for screening applicants for the Psychiatric Aide position.

Tarjan, Shotwell, and Dingman²⁸ favored this view. A test labeled "Work Assignment Aid" was developed and validated by the authors in an attempt to establish a specific test for selecting Aides. This was a paper and pencil test which consisted of 158 items. It was administered to 638 Psychiatric Technicians as a part of the employee orientation program at the Pacific State Hospital in Pomona, California. The results of the testing were not used in the hiring of any of the personnel.

Estimates of future job success of these employees were secured from the line supervisors and the nursing education director. The raters usually had about one month to observe the Technicians before they were asked to make an estimation of the Aide's ability to succeed on the job. When job ratings had been secured on 250 Technicians, prognostic ratings derived from the test results were compared with the estimates of job success made by the supervisors and nursing director. It was found that the results of the testing were more accurate than the estimates of job success. However, the authors noted that some subjectivity was involved in rating the scores of the test. In an attempt to eliminate the subjectivity an item analysis was carried out. The test was validated against a double criterion of

²⁸Tarjan, et al., op. cit., pp. 388-394.

supervisor job ratings and personnel records. There were thirty-four items found to be useful in discriminating between the successful and the unsuccessful Technicians. The authors noted that had these items been used in the screening process it would have been possible to reduce turnover by 5 per cent.

In a continuation study a revised "Work Assignment Aid" test was developed and validated by Tarjan, Shotwell, and Dingman.²⁹ The new test was composed of the thirty-four items from the original test which were found useful in differentiating between the satisfactory and unsatisfactory Technicians; 130 items developed by Guilford,³⁰ a number of items secured from questionnaires submitted to staff members of the Pacific State Hospital, ten items of intelligence from the original test, and ten items designed to test honesty. When the test was completed, it consisted of 270 items which required either a true or false answer. This test was administered to 855 Psychiatric Technicians or persons in similar positions in seven institutions. The prognostic value of the test was found to be negligible.

The authors noted that there was a great deal of inconsistency in the ratings made by the supervisors. They indicated that until a more reliable and valid criterion of job success was established it would be difficult to develop a specific test for Aide selection. To establish the desired criterion, a more thorough understanding of the job was needed. They suggested that a study of the incidents of satisfactory and unsatisfactory performance by ward personnel might yield the desired knowledge.

²⁹Tarjan, G., Shotwell, A. M., and Dingman, H. F., "A Screening Test for Psychiatric Technicians: Continuation Report on the Work Assignment Aid, Validation Studies at Various Hospitals," Amer. J. ment. Defic., 60, 1956, pp. 458-462.

³⁰Guilford, J. P., Christensen, P. R., Bond, M. A., and Sutton, Marcella A., "A Factor Analysis Study of Human Interests," San Antonio, Texas: Human Resources Research Center, Lackland Air Force Base, May, 1953.

Schmidt and Cohen³¹ also felt that a better understanding of the Aide position was the first step in the development of a test for selecting Aide personnel. They inaugurated a study in 1955 utilizing the "critical incident technique" developed by Flanagan.³² This method involves the collection of incidents of job success and failure from various personnel. In their study, Schmidt and Cohen collected a total of 1,123 incidents from 320 respondents. The incidents were grouped into seven major areas and twenty-one subareas of job requirements. The classification system enabled the investigators to evaluate the relative importance placed on the various activities performed by the Psychiatric Aide. The authors explain that although the degree of importance placed on the various activities of the Aide undoubtedly varies from institution to institution, the findings of the study could be used in different institutions by weighing the factors according to their relative importance.

Although the studies reviewed above have approached the problem of testing for selection of the Psychiatric Aide from various angles, they all acknowledge that testing is a valuable tool. The particular test or test battery that is most appropriate for this use, however, has not as yet been established.

³¹Schmidt, D. P., and Cohen, D., "The Selection of Psychiatric Aides: I. Critical Requirements of the Job," Amer. J. Psychiat., 112, 1955, pp. 451-456.

³²Flanagan, J. C., (Ed.), Army Air Forces Aviation Psychology Research Report No. 1., U. S. Government Printing Office: Washington, 1947.

Tests Used in the Study

Testing of applicants for the Psychiatric Aide position at the Parsons State Hospital and Training Center had been utilized a number of years before the TMA and the Study of Values were introduced. This testing was based on the premises that; (1) individuals of certain intellectual levels seem to be more satisfactory Aides than do others, and (2) individuals with certain personality characteristics seem to be more satisfactory Aides than do others.

To assess the level of intelligence of the applicant, the TMA was selected by the Personnel Officer after consulting with the Psychology Department, primarily because it is relatively brief, easy to administer and score, and provides three scores which are felt to have potential value in discriminating between desirable and undesirable applicants.

According to its authors, the TMA was designed to measure "an individual's capacity for acquiring new knowledge and skills." They contend that persons scoring high on this test are quick to learn, flexible, and able to handle complex and varied situations. The individuals scoring in the average range are usually more concrete and inflexible in meeting varied situations and do not learn as readily as those in the high range. The individuals who score in the low range are usually more fitted for jobs which require highly repetitive and routine duties.³³

The manual of the test provides validity studies which indicate that the test has some predictive value in selecting personnel for such occupations as sales supervisors, clerical workers, and managers of small retail stores.

³³Thurstone and Thurstone, op. cit.

In commenting on the TMA, Fishman³⁴ has pointed out that the test has some weaknesses. Its greatest shortcoming, he feels, lies in the fact that much of the normative data and validity data are not adequate. He states that in some instances the population used in validity studies consisted of as few as seventeen subjects. Also, the normative data for the new form was developed on the old form of the test. The authors of the test have acknowledged this fact and have explained that these are only estimates. They state that the new norms will be established in due time. The problem of using these norms, as Fishman sees it, lies in the fact that the authors of the TMA report a correlation of only .68 between the two forms. The authors do not report any reliability studies for the new form.

The greatest advantage of the TMA seems to be its brevity, ease of administration, and ease of scoring.

The Study of Values was chosen in the same manner for use in the selection process because it provides a relatively easy method of obtaining information about the personality of the applicant without requiring extensive use of a psychodiagnostician. The test, according to its authors, was developed for the purpose of measuring the prominence of six basic interests or motives of personality. The six classifications used were derived from the works of Edward Spranger. At the present, its authors feel that the test is of more value for research and classroom demonstration. However, they indicated that members of certain occupational groups display distinctive profiles on the test. This would suggest that the test could be of some value in selection. On the other hand, the test was designed for

³⁴Fishman, J., "Review of Thurstone Test of Mental Alertness," in Buros, O. K. (Ed.), The Fifth Mental Measurement Yearbook, Gryphon Press: Highland Park, New Jersey, 1957, pp. 391-392.

use with individuals interested in securing a better understanding of themselves. As its authors see it, the test should not be used with individuals who are not motivated to obtain an honest picture of their interests.

Split-half reliabilities ranging from .73 to .90 are reported in the manual for the various scales. Repeat reliabilities of .84 to .90 after an interval of two months are also indicated in the manual. As an indication of the validity of the test, the authors point out that profiles of various groups fall into patterns that would have been predicted on the basis of the known characteristics of the groups.³⁵

In a review of the Study of Values, Adams and Brown³⁶ suggested that it is possible for an individual to have an interest in a particular subject without having a liking for it. The interest could conceivably arise from a strong dislike for the subject. A profile of this individual's interests as expressed by scores on the Study of Values could be misleading as to his real interests and motives.

Gough,³⁷ in reviewing the Study of Values, expressed the opinion that the language of the test was too academic for use with the general population. He also pointed out that the test is too easily faked and has no built-in system for detecting faking.

Gilbert³⁸ feels that the Study of Values has a definite use in helping an individual make a vocational choice. He proposes that the test be used in combi-

³⁵ Allport, et al., op. cit.

³⁶ Adams, J., and Brown, D. R., "Values, Word Frequencies, and Perception," Psychol. Re., Jan., 1953, pp. 50-54.

³⁷ Gough, H., "Review of Allport-Vernon-Lindzey Study of Values," in Buros, O. K., (Ed.), The Fourth Mental Measurement Yearbook, Gryphon Press: Highland Park, New Jersey, 1953, pp. 92-93.

³⁸ Gilbert, J., "Vocational Archetypes: A Proposal for Clinical Integration of Interests and Values in Vocational Counseling and Selection," Psychol. Re., Oct., 1963, pp. 351-356.

nation with a vocational interest test such as the Kuder Preference Record. He suggested that while the values measured by the Study of Values are more basic and general than the interests measured by the Kuder they are, nevertheless, comparable. For example, the Scientific scale on the Kuder and the Theoretical scale on the Study of Values both give an index of the extent of an individual's interest in the scientific field. If an individual scores high on the Theoretical scale and high on the Scientific scale, it can be assumed with some degree of certainty that this represents a true picture of his interests. On the other hand, if an individual scores high on the Scientific scale of the Kuder but low on the Theoretical scale of the Study of Values, his true interest in the field of science is questionable.

Gilbert feels that one of the advantages of the Study of Values lies in the fact that the objectives of the test are not as obvious as those of the Kuder. In his thinking, the Study of Values provides a validity check on the scores of the Kuder. It also provides an indication of the degree of interest that an individual has for a specific area.

According to Gilbert, the fact that both tests can be self-administered and self-scored provides another area of information concerning the individual. He feels that the manner in which the individual takes and scores the tests is indicative of the way he will perform the duties of a job.

If Gilbert's opinions are correct, it would seem that the Study of Values could be used for employee selection as well as for vocational selection. However, his thoughts concerning the subtlety of the objectives of the test are somewhat contradictory to those expressed by Gough, and even by the authors of the

test. The extent to which the scores can be faked by the applicant is an important factor to be considered in judging the worth of a test for employee selection.

CHAPTER III

RESEARCH DESIGN

Setting for the Study

Parsons State Hospital and Training Center, Parsons, Kansas, was established in 1903 and was utilized as a hospital for epileptics for the first 50 years of its existence. The medical advances made during these 50 years made it unnecessary to continue the operation of the hospital as a treatment center for epileptics. Therefore, in 1953 it was changed to a hospital charged with the examination, care, treatment, and rehabilitation of mentally retarded, and/or emotionally disturbed children and adolescents. The children cared for in this institution range in age from 6 to 21.³⁹ The hospital has a patient capacity of 675 with a present patient population of 657. The patients are placed on the various cottages on the grounds according to age, sex, Adaptive Behavior, and, in some cases, according to special treatment needs. Each cottage is under the constant supervision of one or more Psychiatric Aides.

A great deal of importance is placed on the proper utilization of the Psychiatric Aide in the Parsons institution. The Aide is considered to be an important member of the treatment team and is encouraged to fulfil this role. This attitude can be seen in the manner in which the Aide is trained, in the way in which he is utilized in the treatment of the patient, and in the effort that is made to select the applicant who will be most likely to succeed on the job.

³⁹Bair, H. V., "What It is, What It does," (Parsons State Hospital and Training Center, 1957), Mimeographed.

Testing of Applicants

As a supplement to the standard selection tools of the application blank and the interview, two psychological tests are being used by the Personnel Officer of the Parsons Hospital. These are the TMA and the Study of Values.

The Personnel Officer tests new applicants for the Psychiatric Aide position once a week in the Administration Building of the hospital. The testing is conducted in a clean, well-lighted room adjacent to the office of the Personnel Officer. The testing usually requires an hour to an hour and a half to complete. The TMA is administered first. This is a timed test with a limit of twenty minutes. The Study of Values is not a timed test and the amount of time that an individual takes to complete it varies. However, the average applicant takes about thirty minutes to finish. The applicant is instructed to leave the room when he is done. Upon leaving the testing room, the applicant is informed that he may call in a week if he desires to know how the test results might affect his chance of employment. He is told that if the test results are not favorable he may take the tests again in thirty days. When the last applicant has left, the test results are collected and sent to the Psychology Department of the hospital for scoring and evaluation.

Evaluation of the Test Scores

When the TMA and the Study of Values were introduced into the selection process at the hospital, there were no norms available which were specifically applicable for selecting Psychiatric Aides. As there was not sufficient time to conduct a validity study, it became necessary to establish cut-off scores on the

basis of educated guesses. Satisfactory or desirable profile patterns of the various scores were established on this basis. For the purpose of this study these hypotheses were formulated into a set of written principles.

The TMA provides three scores which, according to its authors, indicate the ability of an individual to acquire new knowledge and skills. The three scores are designated as the L score, the Q score, and the T score. The L score is a measure of the ability of an individual to comprehend language. It indicates his ability to understand and to handle verbal communications. The Q score is a measure of an individual's ability to deal with quantitative problems. The T score is a composite of the L and Q scores and is indicative of the general intelligence of the individual.⁴⁰

The T score is the first factor considered in assessing the applicant's test profile. Due to the fact that an applicant must have completed high school or have passed an equivalency test, the twelfth grade norms established on this test are used. Cutting scores are established at the 25th percentile at the lower level and at the 75th percentile at the upper level. It is felt that those scoring lower than the 25th percentile do not have the ability to successfully complete the training nor to satisfactorily carry out the duties of the Psychiatric Aide. Those who score above the 75th percentile are felt to possess abilities which would not adequately be challenged by the job, and, therefore, they probably would not be happy with the work. This is the general principle applied to the use of the scores on the TMA. However, there are some exceptions to this principle. For instance,

⁴⁰ Thurstone and Thurstone, op. cit.

in the case of a younger applicant who is a student or who is working to gain finances to continue his education, a higher T score is acceptable. Another exception is made in the case of an individual whose T score is in the acceptable range but who has an extremely low L score. In this instance the applicant is not considered to be acceptable. The L score is given more weight because it seems to measure those abilities which appear to be needed to adequately perform the duties and responsibilities of the Aide. While the Aide is seldom called upon to deal with involved figures and mathematical concepts, he is constantly receiving and giving written and oral communications. Upon this basis the applicant who scores above the 50th percentile on the Q scale while scoring below the 25th percentile on the L scale is not considered to be satisfactory.

After the scores on the TMA have been considered, the profile on the Study of Values is determined and evaluated. As was indicated earlier, this test attempts to measure the relative strength of six basic interests in personality. The scores on this test have been converted to percentiles for the purpose of establishing the applicant's profile.

According to its authors, a high score on the Theoretical scale indicates a desire for knowledge. It is indicative of an individual who is critical and rational. A high Economic score indicates an individual who is interested in the more material aspects of life. This is the "practical man." A high Aesthetic score is indicative of an individual who is interested in the artistic aspects of life. This individual is not as interested in the materialistic, or commercial aspects of life. The person who scores high on the Social scale is interested in people. This individual has a liking for people and likes to work in contact with other individuals.

A high Political score indicates one who is interested in power and leadership. The individual who scores high on the Religious scale is not as easily conceptualized. The authors of the test see this individual as one who is seeking the unity of life. In this particular setting, it is felt that the applicant who scores high on the Religious scale fits the pattern of what is known locally as the "church going" individual. In general, he is similar to the social man in his desire to help his fellowman; however, this desire to help others may arise from his religious convictions rather than from any real liking for others.

There are several general principles which have been devised as guide lines in evaluating the profile on each applicant. The first of these deals with the requirement that no one or two interests may dominate the profile. It is felt that the personality of such an individual would be too narrow and constricted. The duties and responsibilities of the Aide are sufficiently varied to require an individual with a relatively balanced personality.

The second principle is based on the requirement of a high Social scale. This scale should be at least at the 50th percentile. An individual who is working with people, particularly the type of patient that the Psychiatric Aide must work with, should have a genuine liking for people.

The third principle combines elements of the first and second principle. In association with the high Social scale there must be two other high interests. At least one of these must be either Political, Theoretical, or Religious. The interests measured by these three scales are felt to be satisfactory concomitants of the personality which the applicant must have to become a successful Aide. These three interests provide the social interest with an avenue of expression.

They mediate the social interest in that they provide an intellectual basis for expressing the social interest.

The fourth principle deals with the acceptability of a high score on the Economic scale. A high score on this scale is acceptable only if it is associated with one of the three scales considered in the third step; Political, Theoretical, or Religious. The score on the Economic scale must not be so high that it dominates the profile. An individual who is too high on the Economic scale is apt to place too much value on monetary gain to be satisfied with the salary of the Psychiatric Aide. Also, this type of individual might have a difficult time finding any real practical value in giving the patient anything but custodial care.

The fifth principle indicates that a high Aesthetic scale is acceptable only if it is associated with a high Theoretical scale. The aesthetic person is likely to be overly concerned with the personal appearance of others. He possibly would not be happy working with many of the children in an institution such as the Parsons Hospital. The one exception to this rule is made because it is felt that the person who is high on the Theoretical scale will have the intellectual ability to put his aesthetic interest into a perspective that would not interfere with his work as an Aide.

These are the general guide lines on which the Psychologist bases his evaluation of the applicant's scores. On these bases he rates the applicant as being either Excellent, Satisfactory, Poor, or Unsatisfactory. This rating, along with a brief description of the strength and weaknesses of the applicant's profile, are sent back to the Personnel Officer.

Population

The population of this study consisted of ninety-three applicants seeking work as Psychiatric Aides in the Parsons State Hospital and Training Center. This group of individuals constituted the total number of applicants tested with the TMA and the Study of Values during the period of July, 1960, to October, 1961. The date of July, 1960, was chosen because it was at this time that both tests were first used conjunctively. October, 1961, was the date that this study was inaugurated.

The sample of this study consisted of sixteen of the ninety-three applicants who were hired as Psychiatric Aide Trainees. Of this sixteen, fifteen successfully completed the training program and one did not. The fifteen were promoted to the Psychiatric Aide position; however, one decided to complete his military obligations before accepting a position with the hospital.

Method

The six scores of the Study of Values and the three scores of the TMA of all ninety-three applicants were obtained from the files of the Personnel Department. The mean scores of these nine separate scores were computed for the seventy-seven applicants who were not hired. The same procedure was followed with the scores of the sixteen applicants who were hired as Psychiatric Aide Trainees. T-tests of significance were computed to determine the degree of relationship between the scores of the two groups.

Two criteria of job success were used in assessing the relationship between test scores and job success. These criteria were derived from Nurses' ratings. Rank order correlations between the test scores of the fourteen applicants who were

promoted to the Psychiatric Aide position and one criterion of job success were computed. An expectancy table was developed using the Psychologist's ratings and Nurses' final ratings. Common values were established for the Psychologist's ratings, Rank Order ratings, and Nurses' ratings. Product moment correlations were then computed between these three ratings.

Limitations

The small N of the sample group and the short span of time covered by the study are two limitations.

The fact that the test scores were used in the hiring process presents a possible limitation. To obtain an accurate estimate of the predictive value of these tests in selecting Psychiatric Aides, the tests should be validated on a representative group of applicants. This limitation was mitigated somewhat by the fact that the Personnel Officer did not adhere too closely to the recommendation of the Psychologist. Of the hired group, six were rated as being Excellent candidates, seven were rated as being Satisfactory candidates, and three were rated as being Poor candidates.

The applicability of the findings of this study to institutions outside of the state of Kansas is limited by the many variables that operate in the selection and utilization of ward personnel. For instance, many states lack a standardized job description for this position. This makes it difficult to establish a standard concept as to what constitutes a satisfactory Aide. The variations in pay and prestige may affect not only the type of individual who is considered to be a satisfactory Aide, but, may also affect the type and number of applicants available

for the position. These and other factors entering into the selection of Psychiatric Aides make it difficult to establish a standard set of cutting scores applicable to all institutions.

In Kansas, the position of the Psychiatric Aide is regulated by the State Civil Service Commission; therefore, the position has a standard job description. In most instances, the findings of this study could be used only as a guide and any use of these tests in a new setting would probably require a new validity study.

CHAPTER IV

ANALYSIS OF DATA

This was a study to determine the relationship between the scores made by applicants on the TMA and the Study of Values and their subsequent success as Psychiatric Aides in the Parsons State Hospital and Training Center. There was a total of ninety-three applicants who were tested during the period covered by the study. Of this number, sixteen were hired as Psychiatric Aide Trainees. Fifteen of the hired applicants successfully completed the training program and one did not. In addition, one of the fifteen chose to enter the armed forces so that he might complete his military obligations before assuming a position with the institution.

The one individual who did not complete the training program was allowed to terminate his employment voluntarily. This individual, however, was not considered to be satisfactory. His first assignment was on a cottage for girls. According to his Supervisor, his conduct with the patients was not acceptable. He was moved to a cottage for boys but the Aides with whom he worked reported to the Supervisor that they did not feel that he was conducting himself as an Aide should. This unacceptable behavior was discussed with him. Soon after, he terminated his employment on the basis of being unable to work nights. The significance of this individual's failure to adjust to work in the institutional setting is that no indication of his problem was observed in his test profiles.

The first step in the analysis of the data was the compilation of the test scores made by all ninety-three applicants. This information was obtained from the files of the Personnel Department. The scores of the hired group were separated from the scores of the nonhired group. The scores of both groups were totaled and the arithmetic means were computed. The t-test⁴¹ was applied to the means to determine if there were any significant differences between the two groups in terms of test scores. The underlying assumptions of the t-test were acknowledged and satisfied. The results (Table I) indicated that there were no significant differences at the .05 level of confidence between the scores of the two groups of applicants.

The next step in the analysis of the data was the correlation of the test scores of the hired group and their subsequent ratings as Psychiatric Aides. In the Parsons institution the criterion of job success is determined by job ratings made by Nursing Supervisors. The rating scale that is used is provided by the Personnel Division of the Department of Administration of the State of Kansas (Appendix A). This rating sheet has seventeen factors on which each employee may be rated. Each of the factors is divided into four or five descriptive degrees denoting various levels of success or acceptability.

The rater is instructed to rate each employee on eight to ten of the factors which apply to the position. He is also instructed to mark the four or five factors which he feels are most important. After he has done this he is instructed to give the employee a general, overall rating of either Excellent, Very Good, Satisfactory, Fair, or Unsatisfactory.

⁴¹ Edwards, A., Statistical Methods for the Behavioral Sciences, Rinehart & Company, Inc.: New York, 1954, pp. 247-277.

TABLE I

T-TEST FOR DIFFERENCES BETWEEN SCORES OF THE
HIRED AND NONHIRED APPLICANTS

Scores of the hired applicants (N = 16)									
	L	Q	T	Theoreti- cal	Eco- nomic	Aesthet- ic	Social	Politi- cal	Reli- gious
ΣX	591	434	1025	601	657	536	706	598	728
\bar{X}	36.9	27	64	37.6	41	33.6	45.1	37.4	45.5
SD	7.786	8.728	14.87	5.488	4.342	7.823	4.94	4.008	6.490
Scores of the nonhired applicants (N = 77)									
ΣX	2572	1966	4538	3079	3004	2724	3297	2914	3505
\bar{X}	33.4	25.53	58.92	39.98	39.01	35.38	42.82	37.84	45.52
SD	11.534	9.127	19.11	6.137	8.521	11.131	5.772	6.492	7.351
t^*	.649	.296	.4892	.908	.317	.323	.057	.233	.0231

*Significant at the .05 level of confidence, none of the t values were significant.

The Psychiatric Aide in this setting is initially rated between the third and the sixth month after employment. After this, ratings are made at least once each year on the anniversary month of employment. The group being studied was first rated at the end of their third month on the job; they were rated again at the end of their sixth month on the job so that they might be considered for a pay increase. The ratings used in the study were the second ratings received. The writer felt that

the longer period of time provided the Supervisors with a more accurate estimate of the abilities and job performances of the Aides being rated.

Two criteria were used in assessing the predictive validity of the ratings. Both criteria were derived from the ratings made by Nursing Supervisors. The first criterion used was based on the factors which Nursing Supervisors felt were most important to the job success of the Aide. These were determined by making a frequency count of the factors marked most important by Nurses on the rating sheet (Table II). From this information the four factors most frequently chosen were derived. The descriptive degrees of each of these factors were given numerical values of one to five. A score of one was considered to have the highest value and to be indicative of the highest degree of job success. A score of five was indicative of the bottom category. The numerical values that each Aide received on these four factors were tabulated and totaled (Table III). Using the mid-point ranking method,⁴² each subject was ranked according to his total points. The underlying assumptions for this statistical test were acknowledged and satisfied. The rank which was computed denoted the degree of success that each had obtained in relation to the others in the group (Table IV).

The Aides were also ranked on the basis of the scores that each had made on the nine separate scores of the two tests. The rank correlation technique⁴³ was then applied to determine the relationship between the scores and job success. The underlying assumptions for this statistical tool were acknowledged and

⁴²Diamond, Solomon, Information and Error, Basic Books, Inc.: New York, 1959, p. 241.

⁴³Edwards, op. cit., p. 195.

TABLE II

FACTORS CHOSEN BY NURSING SUPERVISORS AS BEING
MOST IMPORTANT FOR THE JOB SUCCESS
OF THE PSYCHIATRIC AIDE

Factors Selected as Most Important	Raters									Total
	A	B	C	D	E	F	G	H	I	
Quality of Work	4	2	1	1	1	1	1	2	1	14
Quantity of Work	4		1			1		1	1	8
Cooperativeness	2			1	1	1			1	6
Attendance		1					1			2
Dependability	1	2	1	1	1			1	1	8
Initiative	1	1								2
Appearance									1	1
Care of Equipment								1		1
Organization of Work		1								1
Judgment	1			1	1					3
Relationship to Patients, etc.	4	2	1	1	1	1	1	2		12
Number of Aides rated	4	2	1	1	1	1	1	2	1	14

TABLE III

NUMERICAL VALUES OF RATINGS RECEIVED BY SAMPLE GROUP
ON THE FOUR FACTORS CONSIDERED BY NURSING
SUPERVISORS TO BE MOST IMPORTANT

Subjects	I	II	III	IV	Total*
A	3	3	4	3	13
B	3	3	3	3	12
C	2	3	4	3	12
D	3	3	4	3	13
E	3	3	3	3	12
F	3	2	4	3	12
G	2	3	3	3	11
H	3	2	3	3	11
I	2	3	3	3	11
J	3	3	3	3	12
K	3	3	3	3	12
L	3	3	3	3	12
M	2	3	2	3	10
N	2	3	3	3	11

I - Quality of work, II - Quantity of work, III - Dependability, IV - Relationship to patients.

*Aides rated on five point scale: 1 = Excellent, 2 = Very Good, 3 = Satisfactory, 4 = Fair, 5 = Unsatisfactory.

TABLE IV
DEGREE OF JOB SUCCESS OF EACH SUBJECT
USING MID-POINT RANKING METHOD

Subjects	No.	Score	Rank
M	1	10	1
G, H, I, N	4	11	3.5
C, E, K, B	7	12	9
F, J, L, A, D	2	13	13.5

satisfied. Only two scales (Table V) had correlations large enough to be considered important. These were the Religious and the Aesthetic scales on the Study of Values. This, in itself, was not too unexpected; however, the fact that the correlation on the Aesthetic scale was positive and the correlation on the Religious scale was negative was not expected. On the basis of the rules laid down for

TABLE V
RANK ORDER CORRELATIONS BETWEEN NINE FACTOR SCORES ON
THE TMA AND THE STUDY OF VALUES AND SUCCESS
AS PSYCHIATRIC AIDES (N = 14)

TMA					
	L	Q		T	
	.107	.189		-.204	
Study of Values					
Theoretical	Economical	Aesthetic	Political	Religious	Social
.257	-.172	.619	-.346	-.491	-.112

evaluating the scores, the Religious scale had been conceived as a positive feature of the test's profile, and the Aesthetic scale had been considered a negative factor. The correlations on the TMA did not follow the expected pattern either. The correlations on the Q scale and the L scale were both positive; however, the correlation on the Q scale was the largest. This was not expected because the Q scale had not been accorded as much weight in the evaluation of the scores as had the L scale. In fact, a Q score that was much higher than an L score on a profile was considered a negative factor even when the T score was in the desirable range.

The other criterion of job success used in the study was overall ratings made by Nursing Supervisors. An expectancy table (Table VI) was constructed using the ratings made by the Psychologist and the overall ratings given by Nurses. From this table it was learned that 90 per cent of those who were

TABLE VI
COMPARISON OF FINAL RATINGS MADE OF THE SUBJECTS
BY PSYCHOLOGIST AND NURSES (N = 16)

Ratings by Psychologist				Ratings by Nurses	Ratings by Psychologist Percentages			
Excel.	Sat.	Poor	Unsatis.		Excel.	Satis.	Poor	Unsatis.
0	0	0	0	Excellent				
0	4	1	0	Very Good		80		33.33
5	1	1	0	Satisfactory	83	20		33.33
1	0	0	0	Marginally Satis.	17			
0	0	1	0	Fair				33.33
0	0	0	0	Unsatisfactory				
0	(2)	0	0	Not Rated				
6	5(7)	3	0		100	100		100

rated by the Psychologist as being either Excellent or Satisfactory were subsequently rated by the Nurses as being either Very Good or Satisfactory. On this basis it would seem that the Psychologist had done a creditable job of predicting job success using the test scores. However, of the six applicants who were rated as Excellent, none received a rating higher than Satisfactory from the Nurses. On the other hand, five of the eight applicants who had received ratings of Satisfactory or Poor from the Psychologist were rated as Very Good by the Nurses.

One factor which might have had some effect on the degree of relationship between the Psychologist's ratings and the Nurses' ratings is that the Psychologist did not use the same descriptive ratings used by the Nurses. The Psychologist did not use a descriptive rating of Very Good between the Excellent and Satisfactory categories. Had this rating been used, it is possible that some of the applicants who were rated as Excellent and Satisfactory would have been placed in the Very Good category. This, in turn, might have increased the amount of agreement between the ratings of the Psychologist and the Nurses.

The final step in the analysis of the data involved the computation of product moment correlations⁴⁴ between the ratings of the Psychologist, the Rank Order ratings, and the Nurses' overall ratings. The basic assumptions of this statistical test were acknowledged and satisfied. To make it possible to compute correlations between these ratings, common values for the ratings were established. Ratings of one to four were substituted for the various numerical and descriptive ratings that each of the fourteen Aides had received (Table VII). A rating of one was considered to be the best or the highest and a rating of four was considered to be the worst or lowest. Correlations were computed between the Psychologist's ratings and the Rank Order ratings, between the Psychologist's ratings and the Nurses' ratings and between

⁴⁴Idem., p. 147.

TABLE VII
CONVERSION OF RATINGS TO COMMON VALUES

Subjects	Ratings by Psychologist	Converted Ratings	Rank Order Ratings	Converted Ratings	Ratings by Nurses	Converted Ratings
A	Satis.	2	13.5	4	Very good	1
B	Excel.	1	9	3	Satisfactory	2
C	Poor	3	9	3	Satisfactory	2
D	Excel.	1	13.5	4	Satisfactory	2
E	Excel.	1	9	3	Satisfactory	2
F	Satis.	2	9	3	Satisfactory	2
G	Satis.	2	3.5	2	Very good	1
H	Excel.	1	3.5	2	Satisfactory	2
I	Excel.	1	3.5	2	Satisfactory	2
J	Poor	3	9	3	Fair	4
K	Satis.	2	9	3	Satisfactory	2
L	Excel.	1	9	3	Marginally satisfactory	3
M	Satis.	2	1	1	Very good	1
N	Poor	3	3.5	2	Very good	1

the Rank Order ratings, and the Nurses' ratings. The results indicated no significant relationship between any of the ratings (Table VIII).

TABLE VIII
PRODUCT MOMENT CORRELATIONS BETWEEN THE RATINGS

r between Psychologist's ratings and Rank order ratings	-.317
r between Psychologist's ratings and Nurses' ratings	-.007
r between Rank order ratings and Nurses' ratings	.104

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

During the past few years there has been a growing recognition of the importance of the Psychiatric Aide in the successful care and treatment of the mentally ill and retarded. As the aide position was delegated greater responsibilities, there was a corresponding increase in the need for qualified individuals to carry out these new roles. Qualified individuals were not readily available so it became necessary for institutions to hire and train the kind of personnel needed. This required the establishment of new training programs to provide the Aide with the knowledge needed to perform the duties of the job. It also required new methods of selection so that the applicant with the greatest potential of success could be found. This study has been concerned with the selection aspect of this problem of providing the institution with the best possible force of Psychiatric Aides.

During much of the history of mental institutions, the pay, prestige, and working conditions of the Aide position has been so poor that the hiring decision was generally based on availability. As the position increased in importance the factors of pay, prestige, and working conditions also improved making it possible for institutions to secure a greater number of applicants. The increased supply of applicants created a need for more precise tools of selection in order to discriminate between the applicants. To meet this need, many institutions inaugurated testing programs. There are a number of studies in the literature dealing with the use of psychological tests in selecting employees for the Psychiatric Aide position. The

general conclusions of these studies are that psychological tests provide a useful tool for discriminating between the satisfactory and the unsatisfactory applicant. However, these studies do not provide any general conclusions as to the best test or test battery for selecting the Aide.

The Personnel Department of the Parsons State Hospital and Training Center has been using psychological tests as part of its selection program for a number of years. Currently, the TMA and the Study of Values are being used. Although the two tests have been used in the Parsons institution since 1960, they have not been validated for the purpose of selecting Psychiatric Aides. The cutting scores which have been used were established on the basis of educated guesses. This study has been an investigation of the validity of the cutting scores as predictors of job success by the applicants hired as Psychiatric Aides during the period of July, 1960, to October, 1961.

All applicants who were evaluated with the tests during the period of 1960 to 1961 are included in the study. A total of ninety-three applicants were tested. Sixteen of these applicants were hired as Psychiatric Aide Trainees. Fourteen of the sixteen were subsequently hired as Psychiatric Aides.

In assessing the predictive ability of the two tests, rank order correlations were computed between the nine scores from the tests and a criterion based on ratings made by Nursing Supervisors. Only two scales correlated with the criterion sufficiently to be considered important. These were the Religious and the Aesthetic scales on the Study of Values. The unusual feature of the correlations was that the correlation on the Religious scale was negative and the correlation on the Aesthetic scale was positive. On the basis of the procedures used to evaluate the test scores,

these results were not expected. Although the other correlations on the Study of Values were not large enough to be considered important, they also presented several reversals from what had been expected.

The correlations on the L and Q scales of the TMA were positive with the Q scale having the highest correlation. This again was a reversal from the expected results because the Q scale had not been given as much weight as the L scale; in fact, in some instances the Q scale was considered a negative factor.

A further study of the predictive power of the test scores was made by comparing the ratings made by the Psychologist and the overall ratings of job performance given by Nursing Supervisors. The results seem to indicate that the tests had been relatively useful as predictors of job success. Only two of the fourteen Aides failed to receive at least a Satisfactory rating from the Nurses. However, the results of the comparisons also indicate that none of those who had been rated as Excellent by the Psychologist received ratings of Excellent or Very Good from their Supervisors. Of those who received the highest ratings of job success, the largest percentage came from the group who had been rated as Satisfactory by the Psychologist. On the other hand, the one individual who did not successfully complete the training program also received a rating of Satisfactory from the Psychologist.

The product-moment correlations which were developed between the various ratings used in the study indicated that there was no significant relationship between the test scores, or ratings based on the scores, and job success as determined by Nursing Supervisors' ratings.

Despite this lack of correlation, the selection program has been relatively successful. This success has apparently resulted as much from the skill of the Personnel Officer as from any other factor. The Personnel Officer is not required to follow the recommendations of the Psychologist. If there are other factors which he feels overrule the test results, he is free to ignore the predictive ratings of the Psychologist. In the case of the hired group, six were rated as Excellent, five were rated as Satisfactory, and three were rated as Poor on the basis of their test scores. From this information it is apparent that there are other factors which the Personnel Officer relies on in making his hiring decisions. This is as it should be. The tests should only supplement the other selection tools. However, the Psychologist's ratings should be accurate enough that the Personnel Officer could confine his search for Aides to the group of applicants with the highest ratings. This procedure has evidently not been possible utilizing the present testing and rating systems.

There are a number of possible reasons for this apparent failure of the testing program. It is possible that the rating system being used to determine job success does not provide a reliable criterion. This supposition can be substantiated by the figures in Table II, which indicate considerable inconsistency among the Nurses and even within the same Nurse as to what factors are most important to the success of the Aide.

Another possibility is that the TMA and the Study of Values may not be appropriate for use in selecting Psychiatric Aides. The use of the Study of Values is particularly questionable. As was indicated in Chapter II, some writers feel that the language of the test is too academic for use with the general public.

Others have indicated that the test appears to be easily faked, a factor which would greatly reduce its value as a selection tool if proven correct. These are only opinions, however, and have not been substantiated by investigation.

A third possibility is that the rating system used to evaluate the job success of the Aides is satisfactory but the process used in assessing the scores of the applicant is not valid. This point can be substantiated by the information in Table V, which indicate that the correlations developed between job success and test scores did not represent the anticipated results.

A fourth possibility is that all of these factors are present to some extent in the systems of selection and rating as they are now being conducted.

These facts enumerated above indicate that if the use of the two psychological tests is going to produce any satisfactory results, various facets of the testing and rating systems must be studied for possible revisions.

The first recommendation is that new cutting scores be established on the basis of the information derived from this study. It is further recommended that the Psychologist use the same descriptive ratings that the Nurses use in rating the Aides. When a much larger sample of hired applicants has been secured, correlations can be computed between test scores and job success to see if the new cutting scores are valid. Particular attention should be given to the establishment of cutting scores which will give a finer discrimination between the applicants who will develop into the best Aides and those who will become Aides of average ability. It is also recommended that a study be made, in cooperation with Nursing Services, of the traits which are most important to the job success of the Aide. An effort should also be made to establish common definitions for these factors. When

this has been accomplished, the Nurses should be thoroughly trained in the use of the rating scale using these common definitions.

If the follow-up study does not provide correlations which are large enough to establish valid profiles, the tests should, obviously, be discarded.

The results of this investigation have indicated that the testing program as it is now being used is not a valid predictor of job success for Psychiatric Aides. It is recommended that new cutting scores be established in an attempt to increase the predictive value of the tests. It is also recommended that certain efforts be made to increase the reliability of the criterion. As these measures are carried out and increased numbers of hired applicants become available for study, correlations can be computed to measure the validity of the new cutting scores.

APPENDIX A

Position No. _____

Employee Evaluation Report

Final Rating _____

Name _____

Class _____

Agency _____

Rating Period _____ to _____

RATER: Rate a total of eight to ten factors which apply to this position. Circle one of the five phrases following each factor which best describes the performance of the employee. Then make an 'x' in the box before the four or five most important factors.

<input type="checkbox"/> QUALITY OF WORK:	Outstanding, highly accurate	Work quite carefully done	Meets standards of quality	Sometimes careless and inaccurate	Poor, undue number of errors
<input type="checkbox"/> QUANTITY OF WORK:	Unusually high output	Above average producer	Work volume satisfactory	Does less than reasonable	Work output very low
<input type="checkbox"/> COOPERATIVENESS:	Refuses to cooperate	Frequently not cooperative	Generally works with others	Willing team worker	Exceptionally good team worker
<input type="checkbox"/> ATTENDANCE:	Habitually late or absent	Often late or absent	Usually on time and on the job	Quite prompt and regular	Always on time, rarely absent
<input type="checkbox"/> DEPENDABILITY:	Extremely dependable	Requires little supervision	Generally reliable	Needs frequent checks	Requires constant supervision
<input type="checkbox"/> INITIATIVE:	Always waits to be told	Often waits for directions	Goes ahead on regular work	Alert for ways to improve work	Self reliant and resourceful
<input type="checkbox"/> APPEARANCE:	Well groomed and neat	Careful about personal appearance	Generally acceptable and appropriate	Often in poor taste	Untidy or inappropriate
<input type="checkbox"/> CARE OF EQUIPMENT:	Extremely careful and skillful	Better than adequate maintenance	Adequate care and use	Tends to neglect equipment	Unskillful, poor maintenance
<input type="checkbox"/> ORGANIZATION OF WORK:	Exceptionally well planned	Careful and effective planning	Reasonably orderly and systematic	Shows lack of planning	Haphazard and careless methods
<input type="checkbox"/> JUDGMENT:	Unreliable, not acceptable	Frequently lacking	Uses good judgment	Sensible, objective decisions	Unusually quick and sound
<input type="checkbox"/> PHYSICAL FITNESS:	Ideal for job	Above average energy	Meets physical requirements	Tires easily, below par	Seriously inadequate

☐ RELATIONSHIPS TO
PATIENTS, INMATES,
CLIENTS, OR OTHERS:

local attitudes
and contacts

Relationships
above average

Maintains normal
relations

Ineffective
or lacking

Irritating or
indifferent

☐ LEADERSHIP:

Poor leadership,
creates low morale

Inclined to
direct, not lead

Usually respected
by subordinates

Good leader, stim-
ulates employees

Capable and
forceful leader

☐ IMPARTIALITY:

Completely with-
out bias

Shows little
favoritism

Generally
impartial

Inclined to
be partial

Definite
partiality

☐ UTILIZING
PERSONNEL:

Always uses the
right person

Makes effective
use of employees

Utilizes employees
reasonably well

Often picks
wrong person

Work assign-
ments poor

☐ TRAINING AND
DEVELOPING OTHERS:

Does excellent
training job

Develops good
workers

Satisfactorily
trains workers

Lacks adequate
capacity to train

Instructs
poorly

Comment briefly on any of the above, or other factors which materially affect his value to the agency.
Indicate whether effect is favorable or unfavorable. If unfavorable, suggest areas for improvement:

GENERAL RATING: Giving proper weight to both Volume and Quality of work done, and to other factors which apply, indicate by
check mark, your opinion as to the general value of this employee's services to the agency.

EXCELLENT

VERY GOOD

SATISFACTORY

FAIR

UNSATISFACTORY

Date

Signature of Rater

Comments of Reviewer:

Date

Signature of Reviewer

I have seen and discussed the ratings on this report. Comments of Employee:

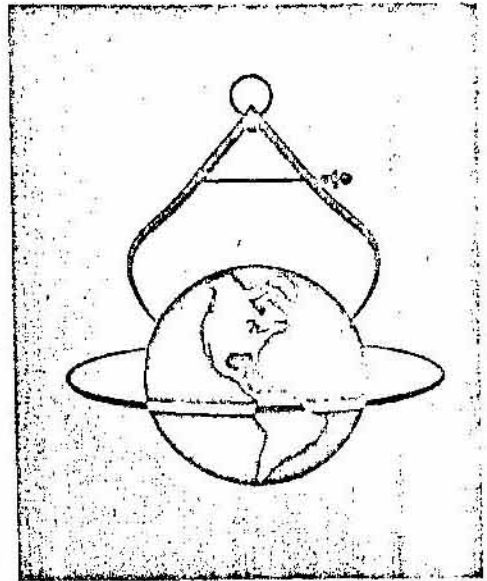
Date

Signature of Employee

Final Rating Approved: Date

Appointing Authority

APPENDIX B



TEST BOOKLET

ALLPORT • VERNON • LINDZEY

Study of Values

THIRD EDITION

HOUGHTON MIFFLIN COMPANY

Boston

COPYRIGHT ©, 1960, BY GORDON W. ALLPORT, PHILIP E. VERNON, AND GARDNER LINDZEY
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The Riverside Press Cambridge

PRINTED IN THE U.S.A.

GC 63

Part I

DIRECTIONS: A number of controversial statements or questions with two alternative answers are given below. Indicate your personal preferences by writing appropriate figures in the boxes to the right of each question. Some of the alternatives may appear equally attractive or unattractive to you. Nevertheless, please attempt to choose the alternative that is *relatively* more acceptable to you. For each question you have three points that you may distribute in any of the following combinations.

1. If you agree with alternative (a) and disagree with (b), write 3 in the first box and 0 in the second box, thus
2. If you agree with (b); disagree with (a), write
3. If you have a slight preference for (a) over (b), write
4. If you have a slight preference for (b) over (a), write

a	a	b	b
0	3	3	0
a	a	a	b
1	2	2	1

Do not write any combination of numbers except one of these four. There is no time limit, but do not linger over any one question or statement, and do not leave out any of the questions unless you find it really impossible to make a decision.

1. The main object of scientific research should be the discovery of truth rather than its practical applications. (a) Yes; (b) No.
2. Taking the Bible as a whole, one should regard it from the point of view of its beautiful mythology and literary style rather than as a spiritual revelation. (a) Yes; (b) No.
3. Which of the following men do you think should be judged as contributing more to the progress of mankind? (a) Aristotle; (b) Abraham Lincoln.
4. Assuming that you have sufficient ability, would you prefer to be: (a) a banker; (b) a politician?
5. Do you think it is justifiable for great artists, such as Beethoven, Wagner and Byron to be selfish and negligent of the feelings of others? (a) Yes; (b) No.
6. Which of the following branches of study do you expect ultimately will prove more important for mankind? (a) mathematics; (b) theology.
7. Which would you consider the more important function of modern leaders? (a) to bring about the accomplishment of practical goals; (b) to encourage followers to take a greater interest in the rights of others.
8. When witnessing a gorgeous ceremony (ecclesiastical or academic, induction into office, etc.), are you more impressed: (a) by the color and pageantry of the occasion itself; (b) by the influence and strength of the group?

The diagram shows a 6x6 grid. The bottom row contains the letters R, S, T, X, Y, and Z. Above each letter is a vertical path. Each path consists of a sequence of squares connected by dashed lines. The paths are labeled 'a' and 'b' at various points. The paths are as follows:

- Path R:** A single square at the top, labeled 'a' above it.
- Path S:** A single square at the top, labeled 'b' above it.
- Path T:** A single square at the top, labeled 'a' above it.
- Path X:** A single square at the top, labeled 'b' above it.
- Path Y:** A single square at the top, labeled 'b' above it.
- Path Z:** A single square at the top, labeled 'b' above it.

- [illegible]

Total

24. Given your choice between two books to read, are you more likely to select: (a) THE STORY OF RELIGION IN AMERICA; (b) THE STORY OF INDUSTRY IN AMERICA?

25. Would modern society benefit more from: (a) more concern for the rights and welfare of citizens; (b) greater knowledge of the fundamental laws of human behavior?

26. Suppose you were in a position to help raise standards of living, or to mould public opinion. Would you prefer to influence: (a) standards of living; (b) public opinion?

27. Would you prefer to hear a series of popular lectures on: (a) the progress of social service work in your part of the country; (b) contemporary painters?

28. All the evidence that has been impartially accumulated goes to show that the universe has evolved to its present state in accordance with natural principles, so that there is no necessity to assume a first cause, cosmic purpose, or God behind it. (a) I agree with this statement; (b) I disagree.

29. In a paper, such as the New York Sunday Times, are you more likely to read: (a) the real estate sections and the account of the stock market; (b) the section on picture galleries and exhibitions?

30. Would you consider it more important for your child to secure training in: (a) religion; (b) athletics?

		a	b		
a	b				
		a		b	
a				b	
		a	b		
				a	b
		a			b
Total					
R	S	T	X	Y	Z

Part II

DIRECTIONS: Each of the following situations or questions is followed by four possible attitudes or answers. Arrange these answers in the order of your personal preference by writing, in the appropriate box at the right, a score of 4, 3, 2, or 1. To the statement you prefer most give 4, to the statement that is second most attractive 3, and so on.

Example: If this were a question and the following statements were alternative choices you would place:

4 in the box if this statement appeals to you most.

3 in the box if this statement appeals to you second best.

2 in the box if this statement appeals to you third best.

1 in the box if this statement represents your interest or preference least of all.

		4		
3				
				2
			1	

You may think of answers which would be preferable from your point of view to any of those listed. It is necessary, however, that you make your selection from the alternatives presented, and arrange all four in order of their desirability, guessing when your preferences are not distinct. If you find it really impossible to state your preference, you may omit the question. Be sure not to assign more than one 4, one 3, etc., for each question.

1. Do you think that a good government should aim chiefly at—(*Remember to give your first choice 4, etc.*)
 - a. more aid for the poor, sick and old
 - b. the development of manufacturing and trade
 - c. introducing highest ethical principles into its policies and diplomacy
 - d. establishing a position of prestige and respect among nations
2. In your opinion, can a man who works in business all the week best spend Sunday in —
 - a. trying to educate himself by reading serious books
 - b. trying to win at golf, or racing
 - c. going to an orchestral concert
 - d. hearing a really good sermon
3. If you could influence the educational policies of the public schools of some city, would you undertake —
 - a. to promote the study and participation in music and fine arts
 - b. to stimulate the study of social problems
 - c. to provide additional laboratory facilities
 - d. to increase the practical value of courses
4. Do you prefer a friend (of your own sex) who —
 - a. is efficient, industrious and of a practical turn of mind
 - b. is seriously interested in thinking out his attitude toward life as a whole
 - c. possesses qualities of leadership and organizing ability
 - d. shows artistic and emotional sensitivity
5. If you lived in a small town and had more than enough income for your needs, would you prefer to —
 - a. apply it productively to assist commercial and industrial development
 - b. help to advance the activities of local religious groups
 - c. give it for the development of scientific research in your locality
 - d. give it to The Family Welfare Society
6. When you go to the theater, do you, as a rule, enjoy most —
 - a. plays that treat the lives of great men
 - b. ballet or similar imaginative performances
 - c. plays that have a theme of human suffering and love
 - d. problem plays that argue consistently for some point of view

d	b	c	a		
b	c	d	a		
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d	b	c	a		
a	d	c	b		
b	c	d	a		
c	a	b	d		
d	b	c	a		
a	d	c	b		
b	c	d	a		
c	a	b	d		
d	b	c	a		
a	d	c	b		
b</					

-
- The diagram shows a 5x5 grid of cells. The bottom row of the grid contains the letters R, S, T, X, Y, and Z. Above this row, there are four more rows of cells. Each cell in these four rows contains a letter (a, b, c, or d) and is connected by a dashed line to a corresponding letter in the row immediately below it. The connections are as follows:
- Row 4 (top): a, c, a, d, b
 - Row 3: a, c, b, c, b
 - Row 2: c, a, b, c, d
 - Row 1 (bottom): b, a, a, a, d
- The letters in the cells are: Row 4: a, c, a, d, b; Row 3: a, c, b, c, b; Row 2: c, a, b, c, d; Row 1: b, a, a, a, d.

Total

	R	S	T	X	Y	Z
a						
b						
c						
d						

SCORE SHEET FOR THE STUDY OF VALUES

DIRECTIONS:

1. First make sure that every question has been answered.

Note: If you have found it impossible to answer all the questions, you may give equal scores to the alternative answers under each question that has been omitted; thus,

Part I. $1\frac{1}{2}$ for each alternative. The sum of the scores for (a) and (b) must always equal 3.

Part II. $2\frac{1}{2}$ for each alternative. The sum of the scores for the four alternatives under each question must always equal 10.

2. Add the vertical columns of scores on each page and enter the total in the boxes at the bottom of the page.
3. Transcribe the totals from each of the foregoing pages to the columns below. For each page enter the total for each column (R, S, T, etc.) in the space that is labeled with the same letter. **Note that the order in which the letters are inserted in the columns below differs for the various pages.**

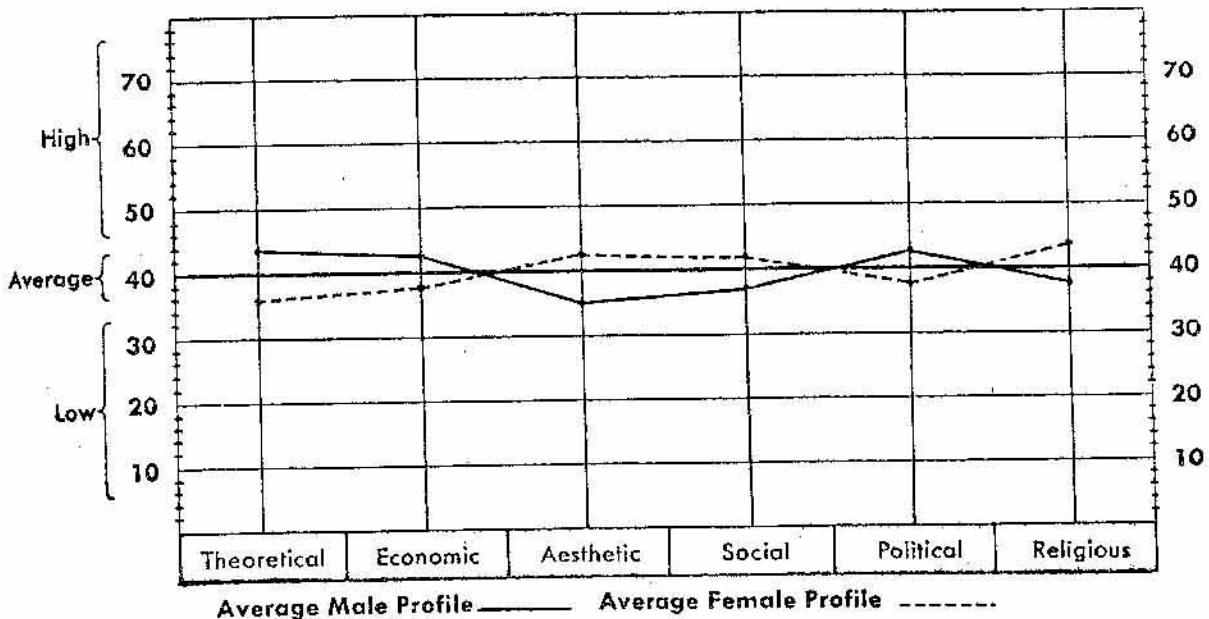
Page Totals	Theoretical	Economic	Aesthetic	Social	Political	Religious	The sum of the scores for each row must equal the figure given below.
Part I							
Page 3	(R)	(S)	(T)	(X)	(Y)	(Z)	24
Page 4	(Z)	(Y)	(X)	(T)	(S)	(R)	24
Page 5	(X)	(R)	(Z)	(S)	(T)	(Y)	21
Page 6	(S)	(X)	(Y)	(R)	(Z)	(T)	21
Part II							
Page 8	(Y)	(T)	(S)	(Z)	(R)	(X)	60
Page 9	(T)	(Z)	(R)	(Y)	(X)	(S)	50
Page 10	(R)	(S)	(T)	(X)	(Y)	(Z)	40
Total							240
Correction Figures	+ 2*	- 1	+ 4	- 2*	+ 2	- 5	
Final Total							240

4. Add the totals for the six columns. Add or subtract the correction figures as indicated.
5. Check your work by making sure that the total score for all six columns equals 240. (Use the margins for your additions, if you wish.)
6. Plot the scores by marking points on the *vertical lines* in the graph on the next page. Draw lines to connect these six points.

*In the 1951 Edition these figures were: *Theoretical* +3, *Social* -3. These new correction figures have been employed in determining the norms in the 1960 manual.

NAME _____ DATE _____
 Last First Middle Initial
 SEX (M or F): _____

PROFILE OF VALUES



INTERPRETATION

The profile can be best interpreted if the scores obtained are compared with the following ranges. (Detailed norms for college students and for certain occupations will be found in the *Manual of Directions*.)

Men

High and low scores. A score on one of the values may be considered definitely high or low if it falls outside the following limits. Such scores exceed the range of 50% of all male scores on that value.

<i>Theoretical</i>	39-49	<i>Social</i>	32-42
<i>Economic</i>	37-48	<i>Political</i>	38-47
<i>Aesthetic</i>	29-41	<i>Religious</i>	32-44

Outstandingly high and low scores. A score on one of the values may be considered very distinctive if it is higher or lower than the following limits. Such scores fall outside the range of 82% of all male scores for that value.

<i>Theoretical</i>	34-54	<i>Social</i>	28-47
<i>Economic</i>	32-53	<i>Political</i>	34-52
<i>Aesthetic</i>	24-47	<i>Religious</i>	26-51

Women

High and low scores. A score on one of the values may be considered definitely high or low if it falls outside the following limits. Such scores exceed the range of 50% of all female scores on that value.

<i>Theoretical</i>	31-41	<i>Social</i>	37-47
<i>Economic</i>	33-43	<i>Political</i>	34-42
<i>Aesthetic</i>	37-48	<i>Religious</i>	37-50

Outstandingly high and low scores. A score on one of the values may be considered very distinctive if it is higher or lower than the following limits. Such scores fall outside the range of 82% of all female scores for that value.

<i>Theoretical</i>	26-45	<i>Social</i>	33-51
<i>Economic</i>	28-48	<i>Political</i>	29-46
<i>Aesthetic</i>	31-54	<i>Religious</i>	31-56

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