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The objective of this study was to determine the relationship between training and job performance and 30 independent variables which were assumed to be related to success or failure of 67 adult males enrolled in vocational programs. Psychological, sociological, educational, employment, and economic measures were utilized to collect data on these participants during Manpower Development and Training Programs and in the followup portion of the study. The measures which were significant (.05 level) for successful training performance were (1) Work Interest Flexibility, (2) Intuitive Mechanics, (3) Revised Beta Examination, and (4) environmental adjustment and overall adjustment on the Emo Questionnaire. Course performance, personal characteristics, and peer evaluations were all significant (.05 level) indicators of satisfactory job performance. (EM)

PERFORMANCE RELATED TO INDICATORS OF POTENTIAL OF TUSKEGEE INSTITUTE MDTA TRAINEES

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FOREWORD

Serving the disadvantaged in the United States, serving those who come from abroad, and serving them where they are in their own distant lands are a Tuskegee Institute tradition and commitment.

For more than three-quarters of a century, the disadvantaged adult has been one of the target populations to which the educational services of Tuskegee Institute have been directed. In the course of these long-continued endeavors, a considerable body of knowledge about the social and psychological characteristics of this population has been accumulated here. Know-how of approaching and meeting their educational needs has been experimented with and the more successful techniques have become weapons in our educational arsenal for battle against illiteracy and ignorance.

Tuskegee Institute continues experimentation to improve its understanding and know-how; and Tuskegee continues to demonstrate use of the education skills developed here. In staffing this area of educational service, Tuskegee Institute has assembled persons with unusual competencies in communication, adult education, industrial education, the culture of poverty, and the psychology of intellectual limitation.

This monograph shares with others interested in the education and training of disadvantaged adults experiences gained in the conduct of an experimental project at Tuskegee Institute. Tuskegee Institute takes satisfaction from its peculiar competence to serve the common welfare and the target population in rendering this educational service.

L. H. Foster, President
Tuskegee Institute

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CONTENTS

INTRODUCTION

The economic use of resources for the training of adults for new occupations followed by the placement of those trainees where their job performance will satisfy an employer while their achievement is felt by them to be rewarding is the challenge that faces adult education and training programs.

Successful training and satisfying job-placement reasonably might be achieved if reliable indicators should be used to determine the potential of those adults presenting themselves for training, especially for participation in short-term intensive programs. The pressing question needing answers is "are there reliable indicators of the potential of the population from which trainees are drawn?"

For this question, psychologists and specialists in tests and measurements have been busy seeking answers through development of tests and the establishment of their validity. The efforts and reactions to the results coming from them have provided a babel of discussion of the merits and demerits of testing. The authors of this monograph would gladly avoid involvement in the controversy while anticipating with resigned equanimity the dismissal of it at best, and denunication of it at worst. We make no claim to competence in the testing area. We only relate here the tests used with this particular group of trainees with regard to their performance in the training program, and their performance on their jobs following training.

The appraisal undertaken here makes use of the description of input characteristics of the trainees from a testing program

conducted by a counseling psycholog. the socioeconomic background described by a sociologist, in-training evaluation by instructors, peer evaluation by follow trainees, and employers' evaluation of job performance. We propose simply to describe performance and those indicators that seemed to be related to performance.

SOCIOECONOMIC BACKGROUND OF TRAINEES

A prime relevant concern with a group entering an educational experience is the accumulation of previous educational experiences. Seventy-eight percent of the trainees in this program reported that they had completed the seventh grade or higher in school. Performance on The Iowa Tests of Basic Skills reading test placed only 20 percent at the seventh grade or above.

Opinions about their school experiences were not sharply focused. Most of the trainees felt they had been average or successful in their school work; only 16 percent reported the school experiences to have been difficult. They generally liked the subjects studied without preferences; less than five percent reported liking only one or no subjects; and 31 percent reported disliking two or more subjects. Half of them had no idea how they ranked in their classes, and 18 percent thought they were in the upper 25 percent of their classes. Twenty-seven percent felt the education they received to be sufficient to achieve the goals they have set for themselves.

The trainees were rural and small town dwellers; the homes of 83 percent were in rural communities or in towns of less than 5,000 population. Only one trainee lived in a town with more than 15,000 population. The age distribution was:

TABLE I

AGE DISTRIBUTION

Years	Number	Percent
Under 25	19	21
25 - 34	30	34
35 and older	40	45
Total	89	100

Marital status reported: 71 percent were married; 10 percent had been married, but were not living with spouse and 19 percent were unmarried. Thirty-three percent owned the home they occupied; 39 percent lived in rented quarters and the remainder lived with relatives or had some other arrangement. Of the 30 trainees who reported owning their homes, only half of them had purchased the property themselves.

More than one third (35 percent) of the trainees had four or more children; 15 percent, three children; 15 percent, two children; 17 percent, one child; and 18 percent, no children. They had begun families early; only seven percent of those with children had their first child after age 30.

The trainees had grown up in large families; 63 percent had four or more siblings and another 13 percent had three siblings. Eighty-seven percent reported living their childhood years in rural areas, or in places of less than 15,000 population; 86 percent of the fathers of the trainees had an eighth-grade education or less, and 14 percent more than an eighth-grade education. Only three percent reported their fathers' occupations as being other than laborer, service worker, or farmer.

Verbal comments on memories of home life are of dubious value, but for what they may be worth, 63 percent of the trainees reported growing up in a home with both parents. Only six percent reported an unhappy home life as children; 77 percent reported no preference for one or the other parent; 63 percent considered their parents to have been successful or partly successful. When parent-child relationships were inquired about, 71 percent reported being included in leisure-time activities of parents often or most of the time. In getting help with their teenage problems, mother was reported as giving help in 60 percent of the cases, and father in 22 percent of the cases. Only 20 percent reported adult consideration with them of possible occupational choices, while 90 percent of them felt that their parents wanted them "to be better" than the parents in a vague generalized way.

Employment Record. Eighty-two percent of the trainees had been fully employed for more than two years, and nearly half of them (46 percent) had worked on one or two jobs, and 35 percent on three of more jobs. Their employment had not been occupationally consistent, and apparently they had worked at whatever jobs they could get since only 18 percent reported that their jobs had been highly related. Thirty-eight percent were employed when they applied for the training program, and of those who were unemployed, 13 percent had been unemployed for six months or more. Twenty percent reported their annual earnings in most recent employment to be more than $3,000. More than 50 percent had worked on one job less than three years.

Financial Status. Current monthly living expenses were reported as being less than $250 by 57 percent, and less than $350 by 90 percent. Only 11 percent reported saving 10 percent or more of their incomes. Twenty-five percent spent 40 percent or more of their incomes on monthly credit payments, and 49 percent spent less than 10 percent on such payments. In terms of total assets, 20 percent were in debt, and 58 percent reported assets of less than $5,000. Sixty-three percent had less than $10,000 in life insurance.

Social Participation. The trainees as a group were a stable population; 62 percent of them had lived at their present address for eight or more years, and 75 percent for five of more years. As might be expected of rural people, the trainees were not "joiners"; 25 percent belonged to no organization and 47 percent belonged to one or two; 53 percent to no affiliate of a national organization. Only 20 percent reported participation in community activities.

Health. Only 8 percent reported freedom from minor illnesses. Self-diagnosis of headache, backache, stomach trouble, and other illnesses were reported by 85 percent of the men. Eighty-two percent reported never having been hospitalized, and 1 percent having been hospitalized once. Only 8 percent reported having been absent from work for 10 days or more because of illness. Only 9 percent considered themselves not to be healthy.

In profile, the average trainee was:

1. Thirty-five years old.
2. Married.
3. Had four children.

4. Previously employed as unskilled worker.

5. Had lived most of his life in a rural area, or in a town of less than 5,000 population.

6. Was functionally literate between the fifth and sixth grade.

INPUT CHARACTERISTICS

Tests were administered early in the program in order to get as accurate an assessment as possible of the abilities, traits, and aptitudes of the trainees prior to their being influenced by the exposure to the new experiences being offered. Understandably, there was considerable opposition to the tests on the part of some of the trainees; many of them raised the question of the necessity of taking so many tests in order to learn an occupational skill. When it was explained to them that the purpose of the tests was to find out what their needs were so that they could be helped, they were somewhat less reluctant to cooperate.

Due to the fact that the majority of the tests were verbal, and required a fairly high degree of reading ability, it was necessary for the examiners to read and interpret the quest. .s to those trainees who were handicapped by the lack of reading skills.

There are no sure indicators of how trainees will perform either in the course of training or on jobs following training. Evaluation of the effect of training, however, depends upon measures of what trainees bring to the training or acceptance of assumptions about them in this regard. Such measures of potential as are available were not designed for a population like the one from which the Tuskegee Institute trainees came. The most the psychologist or social scientist can do in setting the framework for evaluating the training of the culturally disadvantaged is to select instruments

that hopefully may describe the input characteristics of trainees who undergo a training program.

Dr. Emma W. Bragg, Ph.D., Diplomate in Counseling Psychology, then Professor of Counseling Psychology at Tuskegee Institute, served the project from May until September 1966 as Director of Counseling, and subsequently became its consultant. She chose the instruments to be used in describing input characteristics, administered them, and prepared a painstaking report of the results. This report is excerpted from Dr. Bragg's precisely professional presentation of 176 pages which include 98 tables of sophisticated statistical analysis.

The report given here is for laymen of whatever description who are concerned about training the disadvantaged. Instead of Dr. Bragg's statistics, simple descriptive tabulations are given. The simple object of this report is to indicate what psychological equipment the trainees had when they entered the training program. Later in the report, relationships between input of the trainees and output of the training program will be examined for meaningful relations, if there are such.

The order of inquiry into input characteristics is:

1. Occupational Interests
2. Aptitudes
3. Intellectual Ability
4. Perceptual Ability
5. Initial Skills Proficiency
6. Personality and Adjustment

The tests given and reported on are listed below:

1. Closure Flexibility (Concealed Figures). L. L. Thurstone and T. E. Jeffrey, The Psychometric Laboratory. The University of North Carolina, 1956.

2. Closure Speed (Gestalt Completion). L. L. Thurstone and T. E. Jeffrey, The Psychometric Laboratory. University of North Carolina, 1956.

3. Perceptual Speed (Identical Forms). L. L. Thurstone and T. E. Jeffrey, The Psychometric Laboratory. The University of North Carolina, 1956.

4. Work Interest Index (Non-Verbal). Melany E. Baehr, and Richard Renck, Robert K. Burns, Industrial Relations Center. University of Chicago, 1959.

5. Non-Verbal Reasoning Test. Raymond J. Corsini, Industrial Relations Center. The University of Chicago, 1966.

6. Verbal Reasoning. Raymond J. Corsini and Richard Renck, Industrial Relations Center. The University of Chicago, 1958.

7. Flags: A Test of Space Thinking. L. L. Thurstone and T. E. Jeffrey, The Psychometric Laboratory. The University of North Carolina, 1956.

8. Intuitive Mechanics. L. L. Thurstone and T. E. Jeffrey, 1956.

9. Mechanical Movements. L. L. Thurstone and T. E. Jeffrey, The Psychometric Laboratory. The University of North Carolina, 1956.

10. Understanding Communication. Thelma G. Thurstone, The School of Education. The University of North Carolina, 1956.

11. Word Fluency. Developed by Industrial Relations Center, 1961.

12. Cree Quentionnaire. Thelma G. Thurstone and John Mellinger, The Psychometric Laboratory. The University of North Carolina, 1957.

13. Emo Questionnaire. George O. Baehr and Melany E. Baehr, 1962.

14. A. C. Test of Creative Ability. A. C. Spark Plug Division of the General Motors Corporation, 1953.

15. Personal History Index. Melany E. Baehr, Robert K. Burns, and Robert N. McMurry, 1965.

16. A. V. Index. Experimental Test of Achievement Value. Developed by Sheppard and Belitsky. The Job Hunt, Job-Seeking Behavior of Unemployed Workers in a Local Economy. John Hopkins Press, Chapter 7, p. 36, 1966.

17. J. I. A. Inventory. Experimental Test of Job Interview Anxiety. Developed by Sheppard and Belitsky. The Job Hunt. Job-Seeking Behavior of Unemployed Workers in a Local Economy. John Hopkins Press, Chapter 7, p. 50, 1966.

18. Revised Beta Examination. Published by the Psychological Corporation, New York, New York. C. E. Kellogg and N. W. Morton. Re-standardization, Lindner and Gurvitz, 1946.

19. Tomkins Horn Picture Arrangement Test. Silvan S. Tomkins and Daniel Horn, Springer Publishing Company, 44 East 23rd Street, New York 10, New York, 1965.

20. The Cassell Group Level of Aspiration Test, Published by Western Psychological Services. Los Angeles, California, (Revised), Russell N. Cassel, 1957.

21. Minnesota Vocational Interest Inventory. Kenneth E. Clark The Psychological Corporation, 304 East 45 Street, New York, New York, 1965.

22. The Rotter Incomplete Sentences Blank. Julian B. Rotter and Jane E. Rafferty. The Psychological Corporation (Adult Form), 1950.

23. Nichols Proficiency Test. An Experimental Test of Achievement Covering the Areas of Brickmasonry, Carpentry, Meat Cutting. Developed as a graduate thesis by James Nichols under the supervision of Dr. A. P. Torrence, School of Agriculture, Tuskegee Institute.

24. Mooney Problem Check List. Leonard V. Gordon and Ross L. Mooney. The Psychological Corporation, New York, New York, (Adult Form), Revised 1950.

25. Gray Oral Reading Test. William S. Gray. Test Division of the Bobbs-Merrill Company, Indianapolis, Indiana, 1963.

Occupational Interest

Work Interest Index. Occupational interests of the MDT trainees as described by the Work Interest Index centered around white-collar, stylized, fairly routinized, structured jobs. Their highest interests

were specifically (1) "business contact," (2) "clerical routine," (3) "artistic and stylized" factors. The "business contact" factor involved business contact in routinized and structured social situations; for example, hotel desk clerk, grocery checker, airline passenger agent, etc. The "artistic and stylized" factor involved interests in making stylized products such as glassblowers, flower maker, etc. The "clerical and routine" factor involved interests in concrete, organized procedures such as general office worker, bookkeeping machine operator, inventory clerk.

The trainees were lowest in their interests involving "authority and prestige" or independent judgment. This factor included situations which were unpredictable and which were not covered by established routines and procedures; for example, civil lawyer, newspaper reporter, etc.

All of their interests as measured by the Work Interest Index fell within the average and above average range. There were no below average interests.

The "flexibility of interests" factor showed the trainees to be "high average." This was interpreted to mean that they had many professed interests, and seemed not focused or concentrated in their interests, as measured by this test. This interpretation was based upon the fact there were no extremely high and low peaks of interest but contrarily, the pattern was homogeneously "average."

TABLE II

WORK INTEREST FLEXIBILITY SCORE

Standard Score	Number	Percent
Not given	8	9.0
20-29 Very low	0	0.0
30-39 Low	0	0.0
40-60 Average	51	57.3
61-70 High	26	29.2
71-80 Very high	4	4.5

Comparing the occupational profile of the trainees with the several occupational norm groups reported in the test manual, we can see that the trainees did not seem to fit the profile of any reported occupational group.

As to "aspiration level," the trainees were described on this test as low average. This finding was accounted for by the fact that the three factors which the trainees were highest in had also the lowest status ratings.

TABLE III

WORK INTEREST INDEX ASPIRATION SCORE

Standard Score	Number	Percent
Not given	8	9.0
20-29 Very low	0	0.0
30-39 Low	8	9.0
40-60 Average	72	80.9
61-70 High	1	1.1

The Minnesota Vocational Interest Inventory, a recently published (1965) instrument, is designed to measure the vocational interests of persons at the non-professional level who seek employment without having attended college; those planning to enter skilled, semi-skilled and unskilled occupations.

On the Work Interest Index, and the Minnesota Vocational Interest Inventory trainees showed lowest interest in the mechanical occupations. The occupations for which the trainees were being prepared included bricklaying, carpentry, and meat cutting. All of these occupations involved manual skill and in some aspects, mechanical skill.

In many instances, the trainees, on the whole, tended to show no preference for outdoor occupations. The trades of brickmasonry and carpentry, for which some of the trainees were prepared required outdoor working conditions.

> The trainees appeared not highly or differentiatingly interested in the occupations for which they had professed interest and for which they were being trained. With respect to the separate occupational scales in this inventory, it may be said that the trainees preferred occupations labeled "white collar" as opposed to "blue collar" and "clean hands" as opposed to "dirty hands," "clerical and routinized" as opposed to "technical and mechanical."

Aptitudes

The MDT Project trainees were administered two tests for mechanical aptitude: (1) Intuitive Mechanics Tests and (2) Mechanical Movements Test, both experimental tests copyrighted by the Industrial Relations Center of the University of Chicago (1956, 1959).

Intuitive Mechanics Test (Weights and Pulleys). This test Intuitive Mechanics, is designed to measure one of the significant components of mechanical aptitude, the so-called second space factor, defined as the ability to visualize a flexible configuration, a diagram or a drawing which has internal movement of displacement of the parts.

TABLE IV

INTUITIVE MECHANICS TEST SCORE

Standard Score	Number	Percent
Not given	7	7.9
20-29 Very low	0	0.0
30-39 Low	17	19.1
40-60 Average	64	71.9

Mechanical Movements Test. This test is designed to measure a significant component of mechanical aptitude--the second space factor defined as the ability to visualize a flexible configuration in which there is internal movement or displacement of the parts. The test has been found by Louis Thurstone, one of its developers, to significantly differentiate those subjects with a high degree of mechanical interest and experience.from subjects with a low degree of mechanical interest and experience. The test has been chiefly used for selection of personnel for mechanical occupations for the Army, Navy, and industrial organizations.

TABLE V

MECHANICAL MOVEMENTS TEST SCORE

Standard Score	Number	Percent
Not given	1	1.1
20-29 Very low	6	6.7
30-39 Low	27	30.3
40-60 Average	55	61.8

The MDT trainees scored higher in mechanical movements than in intuitive mechanics. Their average standard score as compared with the total norms group was average for the mechanical movements and low average for the intuitive mechanics.

Flags: A Test of Space Thinking. This test is concerned with visual orientation in space. At least two of the primary mental abilities are concerned with visual orientation in space. Thurstone identified these, according to the test manual, as first and second place factors. Space thinking is a measure of the "first space factor" while the Intuitive Mechanics and Mechanical Movement Tests measure the second space factor. The first space factor was defined by the test author as the ability to visualize a rigid configuration when it is moved into different positions. A rigid configuration is one with no internal movement or change when it is moved into a different position. This factor is one of the five clearly defined factors in Thurstone's mechanical aptitude research, and at least two of the primary mental abilities are concerned with visual orientation in space.

The standard score of 39 placed the average of the trainees as "low" in comparison with the norms. The trainees performed on the average lower than the hourly group, and the standard deviation of the trainees was larger than that of any occupational norms group excepting only the total combined norms.

The trainees appeared to have difficulty with this test which was timed. They were not speed-oriented. Also, the task again involved perceptual ability to discriminate small differences in spatial design when the design was moved into a different position. It appeared that the trainees performed better on the second space factor than on the first space factor tests.

> The aptitude tests used gave results that indicated they were not appropriate for use with this trainee population thus providing no aptitude measure.

Intellectual Ability

Revised Beta Examination. During late May 1966, applicants to the MDT training program were administered the Revised Beta Examination and the Gray Oral Reading Test, two instruments which the director and associate director used in the admissions process along with other criteria.

The Revised Beta Examination was preferred to the Wechsler Adult Intelligence Scale because personnel were not available for individual testing of all applicants in the short period of three days. The Revised Beta measures general mental ability of persons who are relatively illiterate, those who have little formal education, and those who do not speak English. This test required no reading;

it was administered orally, the subject being instructed to check or cross out answers.

TABLE VI

REVISED BETA IQ SCORE

Score	Number	Percent
90-109 Average	37	41.6
80-89 Below average	29	32.6
71-79 Inferior	14	15.7
70 and below Defective	9	10.1

Gray Oral Reading Test. This test constructed by the late William S. Gray, Professor of Reading Emeritus, University of Chicago, was designed to measure growth in one of the several strands of reading. The major functions of the test are: (1) To provide an objective measure of growth in oral reading; (2) To aid in the diagnosis of oral reading difficulties; and (3) To guide placement in reading. The Gray Oral Reading Test was not designed to take the place of silent reading tests but is to be used along with them. It is designed to determine the extent of understanding at the simplest level, rather than to measure comprehension. According to the test manual, the test measures fluency and accuracy of oral reading. The manual recommends that other tests, including silent reading tests, should be used with the Gray Oral Reading Test to diagnose reading improvement needs.

The trainees' reading levels, as established by this test, extended from grades one to twelve, the average reading level was grade 8.06. The standard error of measurement for grade 8, Form A, male was .80. This means that the range of reading levels extended for 68 percent of the subjects from 7.26 to 8.86 grade levels.

Correlations between the Gray Oral Reading weighted scores and selected criteria of intelligence as measured by the Revised Beta Examination and chronological age showed a low positive correlation between reading and intelligence, significant beyond the .01 level. The low positive correlation was due to the fact that the intelligence test used, Revised Beta Examination, was not verbally-loaded. Thus this intelligence test was not expected to have a high degree of relation to an instrument designed to measure language facility.

Non-Verbal Reasoning Test. This untimed test, Corsini Chicago Series, is designed to measure, through the medium of pictorial problems, a person's capacity to think logically. It is alleged to be relatively culture-free, not influenced by facility in languages, fair to people of limited formal education who are not accustomed to taking tests or who are not familiar with paper and pencil tests.

MDT trainees stood at a standard score of 31 as compared with the total norms, descriptively in the "low" range, within the lowest sixteen percent of the norms. The group of laborers with whom the trainees can most appropriately be compared stood within the high average range.

Verbal Reasoning Test. This timed test (15 minutes) is designed by Corsini and Renck, Chicago series, to measure a person's

capacity to reason logically from written material. To some extent, according to the test manual, this capacity is related to language facility and particularly verbal comprehension. The items are 12 problems giving verbal description of activities of four brothers, followed by a three-part question, the answer to which may be deducted from the information given in the description.

The trainees scored higher when compared with the laborers than when compared with the total norms. As compared with the laborers, the trainees were "low average" but compared with the total norms, the trainees were "low" in verbal reasoning. Thus, the trainees were more like the laborers' norms than the total norms.

The trainees compared more favorably on the Verbal Reasoning Test than on the Non-Verbal Reasoning Test with respect to the norms. It may be that the non-verbal item was more difficult for the trainees than was the verbal item. However, on both tests, the trainees averaged in the low range of scores as compared to the total norms.

Understanding Communications. This test (Thelma G. Thurstone, Chicago series) is designed to measure comprehension of verbal material in the form of short sentences and phrases. The main task is one of understanding the whole selection and its implications even though the test did involve some knowledge of vocabulary. In other words, the task is to solve a problem presented in verbal form. It involves real understanding and reasoning. Speed of reading and vocabulary and word fluency are of minor importance if the subject has good verbal comprehension. The items, 40 in number, consist of one or more sentences which the subject is required to complete by checking the correct word among four choices.

When compared with the unskilled group, the trainees were in the low range of scores (31 standard score), but when compared with the total norms, they were rated as very low.

In summary, in comparison with the total norms, the trainees were lowest in Understanding Communications Test; next highest in Non-Verbal Reasoning, and highest in Verbal Reasoning with standard scores of 27, 31, and 39 respectively. Thus, it may be said that the trainees were significantly better in verbal reasoning than in verbal comprehension. They were not significantly different in verbal reasoning and non-verbal reasoning; however, they were better on the former test. For the trainees, the Understanding Communication Test became less of a comprehension test and more of a test of speed, vocabulary, and word fluency. It appeared that the Verbal Reasoning Test and Non-Verbal Reasoning Test were purer and less contaminated. An explanation for the comparative performance on the two reasoning tests may lie in the trainees' greater familiarity with the verbal than with the non-verbal type of item.

Word Fluency Test. Word fluency as opposed to speed of talking is differentiated by the authors of the test manual as the state of "never being at a loss for words." The typical salesman may have a limited education and great fluency while a professor of English may have a broader and deeper vocabulary but not the ability to make easy conversation.

The MDT trainees with a standard score of 27 ranked "very low" in the lowest two percent in comparison with the total norms on the Word Fluency Test.

Perceptual Abilities

Closure Flexibility Test. The test is designed to establish a profile of scores on various basic mental abilities. The mental ability it measures is defined by L. L. Thurstone as the ability to hold a configuration (diagram drawing or figure) which is "hidden" or embedded in a larger, more complex drawing, design or figure. The test, a ten-minute timed test, is also designed to measure, temperament to some extent, and to show potential for differentiating among occupational groups in industry. The test, therefore, can be used (1) to study the nature of perceptual abilities as a kind of mental functioning, (2) to study temperament, and (3) to differentiate among occupational groups in industry.

Thurstone, in a study of mechanical aptitude, found a correlation of .63 between reasoning (inductive) and flexibility of closure factor. Other authors have found the flexibility of closure factor to have a well-defined relationship with an analytic reasoning factor.

The mean score of the trainees on the Closure Flexibility Test was lower than those of all occupational groups listed. The trainees were more homogeneous than any of the occupational norms groups.

Closure Speed Test. This test, a companion of the Closure Flexibility Test, is a measure of the "first" closure factor, defined as the ability to perceive an apparently disorganized or unrelated group of parts as a meaningful whole. In the Closure Flexibility Test, the task was to locate the embedded figure or

design; whereas, the task in this test is to make a pattern out of disorganized parts or ambiguous patterns. The Closure Flexibility Test measured the "second" closure factor.

The speed of closure factor which this test is designed to measure has been found related to mechanical aptitude (Thurstone) and to reasoning (Botzum); to temperament and mental abilities (Pemberton). Pemberton reported the following temperament pattern for those who scored above the median on the Closure Speed Test:

1. Socially outgoing
2. Confident and impulsive
3. Not logical or theoretical
4. Possessing strong artistic interests

The distribution of scores of the trainees tended toward a heavier concentration in the lower end of the distribution with a standard deviation a bit higher than what one would expect in a normal distribution.

Perceptual Speed (Identical Forms). This test, developed by Thurstone and Jeffrey, is considered one of the primary mental abilities in visual thinking. The test manual describes the ability measured by this test as the ability to compare visual configurations (diagrams; drawings; figures) and to identify two figures as similar or identical. This test (sometimes called Identical Forms) is a measure of perceptual speed, not a measure of the ability to form gestalts (Closure Speed) or the ability to identify patterns in a disorganized context (Closure Flexibility). It seemingly has no relationship to thinking or to sharpness of eyesight.

The trainees' average standard score placed them in the "low" category as compared with the total combined norms. Their average score was lower than that for any other occupational group listed thus raising questions about applicability to this population.

Initial Skills Proficiency

The only proficiency test taken by the trainees prior to actual training was the series of Nichols Proficiency Tests, an experimental test series developed locally by a graduate student in the School of Agriculture, under the supervision of Dr. A. P. Torrence, who served as the student's chief faculty advisor.

The descriptive statistics on the Nichols Proficiency Test of the trainees were arranged by trade areas in which they were trained. Because the total possible score on this test varied by the trade area, no comparisons should be made among the occupational groups.

To further validate this test, it will be profitable to compare the performance of tradesmen in general with those of trainees in bricklaying, carpentry, and meat cutting, and with successfully-employed workers in each field. It would be expected that if the test is measuring technical proficiency in these fields, the scores will increase significantly from trainee groups through successfully-employed workers in each field. Trainees were given this test at entrance and again at termination of their training with 68.5 percent of trainees making unsatisfactory initial scores. The tradesmen-in-general group could be used as a criterion group (exclusive of the occupations used in the Nichols Test) since it would be expected that the tradesmen-in-general would not perform as well on these occupational scales as the occupational groups concerned.

Personality and Adjustment

The Rotter Incomplete Sentences Blank. Considered a projective test, the Rotter Blank can be scored normatively and clinically. The psychologist chose to use the normative method where scores can run from 0 to 240 in the direction of maladjustment.

The test manual indicates that items on an incomplete sentence blank are not equivalent; therefore, the odd-even technique for determining reliability is not applicable, and would tend to give a minimum estimate of internal consistency. The items on the ISB were divided into halves deemed as nearly equivalent as possible. This yielded a corrected split-half reliability of .84 when based on the records of 124 male college students, and .83 when based on 71 female students.

The scoring plan involves judgments and matching of sentences against criterion sentences, so the reliability of scoring is an important factor.

In Table 16, one sees the distribution of total scores on the Rotter Blank for the male trainees with a range of 76 scores. The standard deviation of 16.22 is more than one-sixth of the range (60-136). The rule of thumb runs that in a normal distribution, the standard deviation is about one-sixth of the range.

The normative groups with which the trainees were compared were college students. The manual indicates that though the test was not formally standardized on general adults the changed items for the adult form and scoring principles make it reasonable. The trainees were on the average less maladjusted than the average college subjects

and our trainees were more variable in their adjustment scores than the college norms.

Further comparison with normative groups showed that the trainees' average total adjustment scores were lower than those of the validation groups. This finding was interpreted to mean that the trainees may be considered "adjusted" as defined by the Rotter Incomplete Sentences Blank.

Mooney Problem Check Lists. This test, the Adult Form, 1950 Revision, was administered by trainee number rather than by name so that confidentiality might be guarded. The score on this test is the number of problems which the subject has checked as a matter of concern to him.

The test is so constructed that some categories contain more questions than do other categories. Therefore, the mean number of problems in each category must be considered in light of the total possible problems included in the test:

1.	Health	36 items
2.	Economic Security	36 items
3.	Self Improvement	36 items
4.	Personality	72 items
5.	Home and Family	36 items
6.	Courtship	18 items
7.	Sex	18 items
8.	Religion	18 items
9.	Occupation	18 items
	Total	288 items

The category presenting the largest number of problems is "Economic Security;" the next largest number or problems is "Self Improvement," and the third largest, "Personality," even though the category of "Personality" has twice as many questions as "Economic Security" and "Self Improvement."

The question of why the trainees appeared to perceive more problems in the category of "Economic Security" than in "Occupation" may be answered in two ways: (1) the "Occupation" category has half as many items as "Economic Security" and (2) the questions in the "Occupations" category seem for the most part to be concerned with on-the-job problems.

Job Interview Anxiety Inventory. This test was taken from Sheppard and Belitsky The Job Hunt: Job-Seeking Behavior of Unemployed Workers in a Local Economy, John Hopkins Press, Baltimore, Maryland, 1966. The test consisted of eight questions with scoring of 1, very low degree of anxiety, and 4 very high degree of anxiety, thus giving a possible scale extending from 8 to 32. A mean of 17.49 for the MDT trainees was considered low as compared with the norms; the variability of scores showed a normal distribution since the standard deviation was around one-sixth of the range.

Job interview anxiety, according to the authors referred to above, appeared to be related positively to the number of dependents a worker has and negatively related to age. If older workers have anxiety, they have been found to also be unsuccessful in finding new jobs. Further, the authors continue, job interview anxiety is related positively to the number of dependents a male worker has and the uncertainty of his employment status; the worker with a large

number of dependents has an even higher degree of such anxiety. The younger the worker, the greater are his anxieties.

Emo Questionnaire. This is a diagnostic personality test where the extent of one's adjustment is measured by his ability to make internal and environmental adjustments. A combination of internal and environmental adjustment, where the frequency, intensity and conformity scores are considered, yields a diagnostic score. If the total diagnostics score is less than 8, the test manual states, the score is regarded as an unfavorable sign since lack of response to the questionnaire indicates the subject is apt to have any of the following characteristics: lacks understanding of himself; is overly cautious about giving information about himself; leans over backward to protect himself; or experiences the questionnaire as a threat and freezes up. The total diagnostics score for the MDT trainees was 34.26, well above the critical score of 8.

Personal History Index. The Personal History Index was included in the test battery given the trainees during their orientation period and/or soon thereafter. The test manual gives the purpose of the Index as assisting in predicting future job success on the basis of past performance and experience. An evaluation of the past performance and experience is made by an analysis of the scores obtained on eight performance factors. These factors of content items were identified through a series of factorial studies done by the authors of the Index.

The factors of the Index are defined by the authors in the following way:

Factor 1. School Achievement (SA) - A general liking for and adjustment to the school environment.

Factor 2. Higher Educational Achievement (H) - Special or technical accomplishment and qualifications resulting in a relatively late vocational start and late assumption of family responsibilities.

Factor 3. Drive (D) - Inner drive to be outstanding in performance; to attain high goals even in face of setbacks; to achieve success and advancement.

Factor 4. Leadership and Group Participation (L) - A desire to establish contact with others as shown by membership and interpersonal activity in organizations and an interest in influencing others through community and social activities. A high score suggests active participation and possible leadership in personal contact situations of various types.

Factor 5. Financial Responsibility (F) - Ability to manage a personal economy of defined proportions--to earn, invest, save, and accumulate. The assumption is that a person who cannot demonstrate satisfactory financial responsibility in his personal affairs is likely to be less satisfactory in assuming financial responsibility for organizations of for others.

Factor 6. Early Family Responsibility (R) - Early marriage and establishment of a family, with the husband ordinarily the sole provider. Demonstrated achievement in handling the family's financial affairs.

Factor 7. Parental Family Adjustments (A) - Development of realistic and constructive attitudes in the early family environment; including relationships with siblings, parents, between parents and child. The underlying assumption is that if good interpersonal relations were set up in the parental family during the formative period, persons are more likely to achieve satisfactory adjustment as adults.

Factor 8. Stability (S) - Established security and stability in the work situation, resulting from the past history of good performance. Presently, concerned more with the maintenance of what has been achieved than with plans for improvement or development.

Standard Scores of seven age groups and the MDT trainees were compared on the Personal History Index. In "School Achievement,"

the trainees did not considerably differ from any of the age-groups. The trainees stood at the 45 standard score, which was considered average.

In "Drive," the trainees were most like the 25-29 year old group and were less like the older groups. In this factor of "Drive," the trainees were considered lowaverage. This finding agreed with the low average rating of the trainees on the occupational aspiration of the Work Interest Index. In "Leadership," the trainees rated average and were not significantly different from any of the age groups. In "Financial Responsibility," the trainees were significantly lower than all age groups except the 2-24 year olds and the 25-29 year olds; in other words, the younger groups. The trainees were considered low in "Financial Responsibility;" in other words, their growth in financial responsibility was considered retarded. In "Early Family Responsibility," the trainees were more like the younger groups than the older groups; they were significantly lower in this factor than are the older groups. Responsibility for being the sole financial support and demonstrated achievement in handling the financial affairs of the family apparently was also one of the areas of retarded growth of the trainees, who were considered low average in this factor. In "Parental Family Adjustment," the trainees were very much like all age groups with the exception of the youngest group--those from 2-24. In this factor, the trainees were considered average. In "Stability," the trainees are more like the younger groups and became less and less like the older groups as the age of the groups increased.

The Cas:el Group Level of Aspiration Test. This test is designed to assess certain gestalt-type aspects of personality rather than isolated or fragmented ones, according to the test manual. The theory behind the test is that all human behavior is goal-directed, either on a conscious or on an unconscious level.

More specifically, the test is designed to "assess the discrepancy between the real world (physical field, or the world as others perceive it) and the world as it is perceived by the individual. Five scores are concerned with varying aspects of the personality related to this phenomenon and provide measures of the irreality dimension rather than the non-existence of it, but implies a degree of absence of acceptable sensory phenomena for the general of self-perceptions in relation to previous performance."

The "Level of Aspiration Quotient" is the chief single score of the test. It is the ratio between aspiration and intelligence. The measure of intelligence used was the Revised Beta Examination.

An LAQ (Level of Aspiration Quotient) of 100 indicates a balance between aspiration and intelligence. An LAQ above 100 indicates greater aspirations than intelligence, but with low irreality dimension. 'LAQ' below 100 indicate low aspirations for the subject's intelligence, but with high irreality dimension. Twenty out of 95 trainees tested had scores above 100.

The MDT trainees compared with the typical norms, with a standard score of 42, at a "low average" rating. The delinquent and in-prison norms have the same standard score (42) as the MDT trainees were compared with the typical norms.

Construct validity evidence on the LAQ as reported in the test manual tends to assist in the understanding of what the LAQ is measuring:

TABLE VII

CORRELATION BETWEEN SELECTED CHARACTERISTICS AND LEVEL OF ASPIRATION QUOTIENT

Test	Level of Aspiration Quotient
Intelligence	-.482
Chronological Age	.376
School Achievement	.350
PRA Test of Insight in Human Relations Cooperation	.077
Competition and Aggression	.279

(r's of .128 + above are significant at .01 level.)

Based on typical high school juniors and seniors with 200 males and 200 females, these data report that the "Level of Aspiration Quotient" (LAQ) is negatively correlated with intelligence (-.482), positively related to chronological age and positively related to school achievement. With respect to human relations data, the LAQ is more related to the aggressive and competitive spirit than to the cooperative attitude.

If interpretations are correct, an imbalance could be expected in this ratio of aspirations to intelligence among the trainees, who through psychological literature on the culturally disadvantaged have

been described as cooperative rather than competitive in their interpersonal relations, poor in school achievement, and lower on the average in intellectual level.

The Tomkins-Horn Picture Arrangement Test. This test was devised at the Harvard Psychological Clinic in 1942 by Silvan Tomkins, former professor of psychology, Princeton University, and Daniel Horn, now of the American Cancer Society. It was inspired by the Thematic Apperception Test authored by Henry Murray of Harvard University. The particular technique was suggested by the "Picture Arrangement" sub-test of the Wechsler-Bellevue Intelligence Test.

This test is so constructed that the unusual response can be extracted, with logic of test interpretation resting upon the response that is "rare" or improbable when one compares one person with others.

The test consists of twenty-five plates each containing line drawings of three different but related situations with the same "hero" depicted in all three situations within each plate and in all twenty-five plates. The subject was asked to indicate the order of the pictures which made the most sense to him. He was asked to indicate his ordering of the pictures by the use of three symbols (△□○) which appeared at the bottom of each picture. He was also required to write a sentence on each of the three bottom lines of each page explaining briefly what was going on in each situation. The three drawings were shown at angles of 120 degrees so that one drawing was always upside down and it was necessary for the subjects to completely inspect all drawings before arranging the symbols.

Tests used as indicators of the input characteristics of the trainees did not all prove to be instruments applicable to the population studied as suggested by indeterminate results. However, further assessment of them will be made by observing performance in training and seeking any relationships between test results and performance. Test results that seemed to be sufficiently focused to be meaningful showed the trainees as a group to have the following characteristics:

Interest of the trainees appeared to be neither high nor differentiated in the occupations for which they had professed interest and for which they were being trained.

Aptitude tests used did not prove to be meaningful measures for this trainee population.

Intellectual ability was measured as being average and below, and their verbal reasoning ability was significantly better than their verbal comprehension.

Personality and adjustment measures showed the trainees average total adjustment scores to be lower than those of the validation groups, and may be considered to have been "adjusted" when they entered the training program.

EVALUATION OF PERFORMANCE IN TRAINING

Groupings of Trainees and Gross Differences Between Groups

Trainees were divided equally into three technical training groups: brickmasonry, carpentry, and meat processing; and into two literacy categories: "A" - those with higher than eighth grade equivalency, and "AA" - those with less than eighth grade equivalency. A logical preliminary consideration is the differences between the groups in characteristics that might have relevance to success in the training experience.*

Technical Training Groups

In terms of the clearly obvious characteristics, the meat processing trainees as a group were younger, had higher IQ scores, and had a higher literacy level than the other two groups; the carpentry trainees as a group were older with 40 percent of their number over age 40, double the meat processing percentage, having inferior or defective IQ scores, and the highest percentage of trainees who tested below the eighth grade reading level; the brickmasonry trainees as a group had the smallest percentage of trainees over age 40, less than half that of carpentry, the highest percentage of trainees with inferior or defective IQ scores and only a slightly smaller percentage reading below the eighth grade level than the carpenters.

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*Since the numbers in the categories are constant, tables in the text will use percentages rather than repeat the numbers.

Literacy Level Groups

Literacy level was used as the criterion for differentiating between trainees with those who read below the eighth grade level being put in Group "AA" and those who read below the eighth grade level in Group "A". The actual reading level division was:

TABLE VIII

READING LEVEL AT ENTRY TO TRAINING

	Group "A" (Percentage)	Group "AA"
Below Eighth Grade	21	96
Eighth Grade and Above	79	4
Mean	9.6	4.9
Standard Deviation	2.3	1.5

It is interesting to note that in Group "AA" where 96 percent of the trainees read below the eighth grade level, 40 percent had IQ scores classified as inferior or defective, while in Group "A," where 79 percent of the trainees read at the eighth grade and above level, only 15 percent had IQ scores classified as inferior or defective. However, when the correlation coefficient between entrance reading level and the Revised Beta IQ score is obtained, it is not significant.

TABLE IX

CORRELATION BETWEEN ENTRANCE READING LEVEL AND IQ SCORES

	Entrance Reading Level	
	Group "A"	Group "AA"
Revised Beta IQ Score	r = .13	r = .34

The level of emotional health as described by the Emo Questionnaire was as follows:

TABLE X

INTERNAL ADJUSTMENT SCORE

	Group "A" (Percentage)	Group "AA"
Above Average	47	49
Average	28	42
Below Average	21	4
Not Reported	4	4
Mean	55.3	59.3
Standard Deviation	16.0	11.6

TABLE XI

ENVIRONMENTAL ADJUSTMENT

	Group "A" (Percentage)	Group "AA"
Above Average	19	9
Average	43	49
Below Average	34	38
Not Reported	4	4
Mean	46.9	44.0
Standard Deviation	14.6	12.4

TABLE XII

OVERALL ADJUSTMENT

	Group "A" (Percentage)	Group "AA"
Above Average	36	38
Average	36	44
Below Average	23	13
Not Reported	4	4
Mean	52.7	55.1
Standard Deviation	15.6	13.6

Except for the differential in literacy there were no marked differences in the "A" group and the "AA" group in age, IQ scores, and level of emotional health. An exception is that the higher

literacy level group had a percentage below average on the internal adjustment scale five times that of the lower literacy level group.

Teachers' Evaluation

There were three technical instructors, two communications instructors, and two computation instructors, each of whom made three evaluations of the performance of each trainee he or she taught at three-month, six-month and twelve-month intervals. The numerical scores were grouped into three general levels of reported performance--low, average, high.

A first consideration is what kind of scorer the instructor was. The following table shows scoring of the trainees by vocational skills instructors:

TABLE XIII

SCORING ON SKILLS INSTRUCTORS EVALUATIONS

Scoring Category at each Evaluation	Brickmasonry	Carpentry	Meat Processing
		PERCENT	
High			
First	50	54	69
Second	45	52	59
Third	52	62	53
Average			
First	30	33	28
Second	34	28	37
Third	27	17	35
Low			
First	20	13	3
Second	21	13	4
Third	21	21	12

The communications skills instructors had the following scoring pattern:

TABLE XIV

SCORING ON COMMUNICATION TEACHERS EVALUATIONS

Scoring Category at Each Evaluation	Communication Teacher # 1		Communication Teacher # 2	
	Section 1	Section 2	Section 1	Section 2
High				
First	70	79	40	37
Second	55	54	59	50
Third	62	62	72	25
Average				
First	28	21	51	50
Second	28	46	30	37
Third	31	31	20	56
Low				
First	7	0	9	13
Second	17	0	11	13
Third	7	7	8	19

The computation skills instructors had the following scoring pattern:

TABLE XV

SCORING ON COMPUTATION TEACHERS EVALUATIONS

Scoring Category at Each Evaluation	Computation Teacher # 1		Computation Teacher # 2	
	Section 1	Section 2	Section 1	Section 2
High				
First	43	19	55	43
Second	66	38	59	77
Third	48	25	61	46
Average				
First	40	31	28	50
Second	24	38	26	15
Third	38	31	31	46
Low				
First	17	50	17	7
Second	10	25	15	8
Third	14	44	8	8

A second consideration of the instructors' evaluations was what relationship may be observed between the vocational skills instructors' scores and the communication and computation instructors' scores. On the third or exit evaluation, the scores showed the following relationships which were significant as measured by Chi Square:

TABLE XVI

RELATIONSHIP OF EXIT EVALUATIONS OF SKILLS INSTRUCTORS AND BASIC EDUCATION INSTRUCTORS

Vocational Skills	Communication Skills		Computation Skills	
	High	Low	High	Low
High	38	8	33	13
Low	12	26	3	32
	$X^2 = 24.18$		$X^2 = 27.82$	

Another check on the communication and computation skills instructors' evaluation was made by re-administering the Iowa Tests of Basic Skills at the end of training and comparing the results which indicated a significant relationship.

TABLE XVII

RELATIONSHIP BETWEEN IOWA TEST OF BASIC SKILLS AND TEACHERS EXIT EVALUATIONS

Iowa Tests of Skills	Teachers' Exit Evaluation	
	High	Low
7.5 and above	19	5
4.5 - 7.4	25	28
4.4 and below	1	3
	$X^2 = 9.90$	

Performance of Trainees in Each Technical Training Area

A few simple measures were decided upon to give some idea of the performance of trainees in the period of their instruction. First, there was the attempt to determine entry level of performance in the technical skills for which they were to take training, and the entry level of performance in basic education skills. Second, there were periodic evaluations of the trainees by teachers on two scales: (a) Course Performance Rating, and (b) Personal Characteristics Rating. These rating instruments were designed to determine the ability of instructors to evaluate the performance of those they taught as well as to indicate any change in the performance of the trainees.

Entry and Exit Levels of Performance

The Iowa Tests of Basic Skills was administered three times, June 1966, December 1966, and June 1967. This battery undertook measurement of performance on vocabulary, reading, language, and arithmetic in terms of school grade level. Following are results of the tests reported for each technical training area for subgroups "A" and "AA" within each training area:

TABLE XVIII

VOCABULARY

	Brickmasonry		Carpentry		Meat Processing	
	"A"	"AA"	"A"	"AA"	"A"	"AA"
June 1966	7.0	4.4	7.2	4.2	5.6	5.0
December 1966	7.3	4.5	7.5	4.6	7.0	5.5
June 1967	7.8	4.7	4.7	5.3	7.6	5.8
Gain between June 1966 and June 1967	0.8	0.3	0.2	1.1	2.0	0.8

TABLE XIX

READING

	Brickmasonry		Carpentry		Meat Processing	
	"A"	"AA"	"A"	"AA"	"A"	"AA"
June 1966	6.3	3.9	6.4	3.4	6.6	5.0
December 1966	6.6	4.0	6.3	4.1	6.6	4.8
June 1967	7.3	4.4	7.4	6.0	7.3	5.8
Gain between June 1966 ard June 1967	1.0	0.5	1.0	2.6	0.7	0.8

TABLE XX

LANGUAGE

	Brickmasonry		Carpentry		Meat Processing	
	"A"	"AA"	"A"	"AA"	"A"	"AA"
June 1966	6.4	3.7	6.3	3.9	5.4	5.0
December 1966	6.7	4.1	6.7	4.3	6.8	4.9
June 1967	7.2	4.7	6.8	5.1	6.9	6.0
Gain between June 1966 and July 1967	0.8	1.0	0.5	1.2	1.4	1.0

TABLE XXI

ARITHMETIC

	Brickmasonry		Carpentry		Meat Processing	
	"A"	"AA"	"A"	"AA"	"A"	"AA"
June 1966	6.6	4.1	6.3	4.5	7.1	5.7
December 1966	7.7	5.0	7.3	4.8	7.6	6.3
June 1967	8.6	6.1	7.4	5.8	7.8	6.8
Gain between June 1966 and June 1967	2.0	2.0	1.1	1.3	0.7	1.1

TABLE XXII

GROUP "A" GAINS

	Brickmasonry	Carpentry	Meat Processing
Vocabulary	0.8	0.2	2.0
Reading	1.0	1.0	0.7
Language	0.8	0.5	1.4
Arithmetic	2.0	1.1	0.7

TABLE XXIII

GROUP "AA" GAINS

	Brickmasonry	Carpentry	Meat Processing
Vocabulary	0.3	1.1	0.8
Reading	0.5	2.6	0.8
Language	1.0	1.2	1.0
Arithmetic	2.0	1.3	1.1

From the foregoing figures there are three dramatic changes. In the meat processing (Group "A"), there was an advance of two grade levels in vocabulary, in both the brickmasonry groups, there was an advance of two grade levels in arithmetic, and in carpentry (Group "AA") there was almost a three-grade level gain in reading.

When we compare the gains in the "A"-Groups and the "AA"-Groups, we find confusion. There are intervening variables that require

attention. These intervening variables are the characteristics of the groups being compared, and the instructors, since instructors of language and mathematics were assigned to one technical area. There was a mathematics instructor for brickmasonry, another instructor for carpentry, and still another for meat processing. The same was true for communications. The intervening variables may have influenced the education of the trainees, but for our appraisal the result is simply what it turned out to be.

Consideration of the effectiveness of technical training should include estimation of the knowledge about, and know-how of the vocation a person has prior to entry into training and what he knows at the conclusion of training. No accepted instrument is available to make the desired assessment, so one was devised and used. It is the previously described Nichols Proficiency Test. This test was administered prior to training, and at the conclusion of training with the following results:

TABLE XXIV

ENTRY AND EXIT SCORES ON NICHOLS PROFICIENCY TEST

	Entry Score		Exit Score	
	Number	Percent	Number	Percent
Not Reported	8	8.7	9	9.8
Below Average	72	78.3	32	34.8
Average	8	8.7	25	27.2
Above Average	4	4.3	26	28.2

What this test shows is simply that about 13 percent of the trainees knew something about the vocation for which they were being trained when they entered training. The repetition of the test after training indicated what they learned in the process. There should be no implications about breadth of knowledge and proficiency on the basis of this test. It very simply says persons knew more about the job after training.

We proposed at the outset to get appraisal of the training experience from both teachers and trainees. Instruments were developed to secure these appraisals. Trainee evaluation of instructors failed completely. All instructors were rated perfect. Trainees apparently were not reassured by admonitions that anonymity would be carefully observed. Some measure of instruction is still needed by those being taught.

If the testing of trainees had any value, we want to know how the psychologist's appraisal of input characteristics meets the instructors' appraisal of performance. What kind of people did the instructors have to deal with? The Emo Admustment Scale can be related to instructors' evaluation. Less than 20 percent of the trainees were internally maladjustment on the Emo Scale. In their evaluation, instructors reported less than 10 percent of the trainees were below the average in their classes.

When the instructors evaluated their trainees, those they described as being below average in their classes were 60 percent below average on the Emo Environmental Adjustment Scale. It becomes important to remember that the trainees rated below average by instructors were also rated below average on the Emo Scale.

The Cassel Level of Aspiration scale was used to determine the goal aspiration of trainees when they entered training. Instructors evaluated trainees when they left the program. The results were:

TABLE XXV

GOAL ASPIRATIONS AT ENTRY AND INSTRUCTORS' EVALUATION AT EXIT

Aspiration Test Score	Instructors' Evaluation High	Low	Total
High	9	9	18
Low	36	33	69
Total	45	42	87

It is apparent from this contingency table that there is no relationship between the results of the Cassel Level of Aspiration Test and instructors' evaluation of performance in training.

The extent of correspondence between instructors' evaluation and peer evaluation of proficiency in training is given in the following contingency table:

TABLE XXVI

RELATIONSHIP BETWEEN PEER EVALUATION AND

INSTRUCTORS' EVALUATION OF TRAINEES

Peer Evaluation	Instructors' Evaluation High		Low		Total	
	Number	Percent	Number	Percent	Number	Percent
High	29	69	13	31	42	100
Low	15	36	27	64	42	100
Total	44		40		84	

In approximately two-thirds of the cases, peer and instructor evaluations concur.

There is some correspondence between trainees' absentee record and instructor evaluation. The highest rated trainees had the fewest absences from classes and the trainees rated poorest had the most absences.

TABLE XXVII

ABSENTEE RECORD AND INSTRUCTORS' EVALUATION

Days Absent	Instructors' Exit Evaluation of Trainee Performance: Below Average	Average	Above Average	Superior	Total
Not given	0	4	3	0	7
Less than 10 days	0	15	19	4	38
10 to 19 days	0	7	14	0	21
20 or more days	7	11	6	0	24
Total	7	37	42	4	90

OBSERVED RELATIONSHIPS BETWEEN INSTRUCTORS' EVALUATIONS AND INPUT CHARACTERISTICS

On the basis of three work interest indicators reported on in the discussion of Input Characteristics, the trainees as a group had no focused or concentrated work interest. They showed lowest interest in mechanical occupations. Only two trainees indicated carpentry to be their highest vocational interest, while 30 were to be assigned to training in carpentry. The trainees preferred indoor to outdoor, white collar to blue collar, and clean to dirty hands pursuits.

The results of these psychological tests appear to be consistent with the work history of the trainees. Their employment records showed that they had worked on several jobs, apparently whatever jobs they could get, since only 18 percent reported that the jobs they had been employed on had been highly related.

From counseling interviews, there is corroborative evidence that the trainees wanted to "do better," "make more money," "improve living conditions" without any great concern about the skills.

It may be concluded that:

> The trainees entered training without great interest in the skills for which they were to be trained.

The following contingency tables show the relationship between scores in the Work Interest Index given at entry to the training

program and the composite instructors' evaluation of the performance in training at conclusion of training.

TABLE XXVIII

WORK INTEREST FLEXIBILITY AND INSTRUCTORS' EXIT EVALUATION

Work Interest Flexibility Score	Instructors' Exit Evaluation of Trainees Performance			
	Below Average	Average	Above Average	Total
Low	0	0	0	0
Average	4	21	28	53
High	2	12	17	31
Total	6	33	45	84

$X^2 = 6.55$

TABLE XXIX

WORK INTEREST ASPIRATION AND INSTRUCTORS' EXIT EVALUATION

Work Interest Aspiration Level Score	Instructors' Exit Evaluation of Trainees Performance			
	Below Average	Average	Above Average	Total
Low	0	4	4	8
Average	6	28	41	75
High	0	1	0	1
Total	6	33	45	84

$X^2 = 2.88$

For these qualitative measures and small numbers, the calculation of chi square is sufficient to indicate existence of absence of a significant relationship without straining to establish a degree of relationship under the circumstances. The relationship between the Work Interest Flexibility score and the instructors' exit evaluation score is considered significant, while the relationship between the aspiration level scores and the instructors' exit evaluation scores are considered not to be significant.

We may advance an hypothesis that the intervening variables - counseling, interaction in the training situation, and stipends influenced trainees' performance in their classes, but we had no indicators to measure the influence of intervening variables.

Aptitudes. In some learning theories, aptitudes are classified as intervening variables. For our purposes, we chose to consider them as antecedent variables because trainees were enrolled in training and assigned to a training group without a test of aptitudes. The tests of aptitudes were given before training began, but were not used to place trainees. Our interest here is to determine whether or not aptitude test scores have a relationship to evaluation of training performance scores.

The two tests used, Intuitive Mechanics Test and Mechanical Movements Test were considered by the psychologist as instruments that would come nearest to giving indication of the aptitudes of our trainees. Results obtained showed trainees scoring in the "Low" and "Average" categories on both tests. Despite doubt about these tests having any usefulness for our purposes, we did examine

the relationship between trainees' scores on them, and instructors' evaluation scores on trainee performance.

TABLE XXX

MECHANICAL MOVEMENTS TEST SCORES

AND INSTRUCTORS' EXIT EVALUATION

Mechanical Movements Test Score	Instructors' Exit Evaluation of Trainee Performance			
	Below Average	Average	Above Average	Total
Low	3	18	12	33
Average	4	19	33	56
High	0	0	0	0
Total	7	37	45	89

$X^2 = 3.16$

TABLE XXI

INTUITIVE MECHANICS TEST SCORES AND

INSTRUCTORS' EXIT EVALUATION

Intuitive Mechanics Test Score	Instructors' Exit Evaluation of Trainee Performance			
	Below Average	Average	Above Average	Total
Low	1	31	19	51
Average	4	0	34	38
High	0	0	0	0
Total	5	31	53	89

$X^2 = 36.01$

The relationship between the performance and the Intuitive Mechanics test is considered significant, while the relationship between performance and the Mechanical Movements test is not considered significant.

We may conclude that:

> No acceptable measure of aptitude of trainees for the skills for which they were trained was used. Aptitudes for this group of trainees were not determined.

Intellectual Development. With evidence of lack of focused interest on the part of trainees when they entered the program, and no evidence of aptitudes for the training they were given, general intellectual development became the third antecedent variable to be considered.

The indicators of intellectual development that were used are:

Revised Beta Examination to determine IQ

Non-Verbal Reasoning Test

Verbal Reasoning Test

Perceptual Abilities

- Closure Flexibility
- Closure Speed
- Perceptual Speed

Rationale for the use of the Revised Beta Examination has been repeated several times in this report. We come now to observe the relationship between scores on this test and instructors' evaluation scores which is significant.

TABLE XXXII

REVISED BETA SCORES AND
INSTRUCTORS' EXIT EVALUATION

Revised Beta Examination Scores	Instructors' Exit Evaluation			
	Below Average	Average	Above Average	Total
Inferior or Defective	3	16	4	23
Below Average	2	12	16	30
Average	2	9	22	33
Total	7	37	42	86

$X^2 = 13.0$

The Non-Verbal Reasoning Test is designed to measure, through the medium of pictorial problems, a person's capacity to think logically. Such a test would seem to be particularly appropriate for use with these trainees. The relationship between scores on this test and instructors' evaluation scores is shown below:

TABLE XXXIII

NON-VERBAL REASONING TEST SCORES AND INSTRUCTORS'
EXIT EVALUATION

Non-Verbal Reasoning Test Scores	Instructors' Exit Evaluation			
	Below Average	Average	Above Average	Total
Low	6	36	44	86
Average	0	1	2	3
High	0	0	0	0
Total	6	37	46	89

$X^2 = .42$

TABLE XXXIV

VERBAL REASONING TEST SCORES AND INSTRUCTORS' EXIT EVALUATION

Verbal Reasoning Test Scores	Instructors' Exit Evaluation			
	Below Average	Average	Above Average	Total
Low	3	10	10	23
Average	3	24	33	60
High	0	3	3	6
Total	6	37	46	89

$X^2 = 1.37$

The relationship between instructors' evaluation of trainee performance and scores on the Revised Beta Examination are considered significant. The relationships between performance scores and both the Verbal and Non-Verbal Reasoning Tests were not significant. Scores on the perceptual abilities tests were so concentrated in the low range of scores as to suggest that effort to discover the relationship between then and instructors' performance scores would be a futile exercise.

The fourth antecedent variable to be considered is emotional adjustment. The indicators of emotional adjustment used were:

The Rotter Incomplete Sentences Blank

The Emo Questionnaire

The latter provided scores on internal adjustment, environmental adjustment, and overall adjustment. An attempt is made to describe whatever relationship there may be between instructors'

evaluation scores and scores made on tests used as indicators of emotional adjustment. The Rotter Incomplete Sentences Blank is designed to describe maladjustment and direction of maladjustment.

TABLE XXV

ROTTER TEST SCORES AND INSTRUCTORS' EXIT EVALUATION

Rotter Incomplete Sentences Blank Scores	Instructors' Exit Evaluation of Trainee Performance			
	Below Average	Average	Above Average	Total
Low	2	11	8	21
Average	3	17	25	45
High	1	3	7	11
Total	6	31	40	77

$X^2 = 2.62$

The chi square obtained indicates there is no significant relationship between scores on the Rotter Test and scores on instructors' evaluation.

TABLE XXXVI

EMO QUESTIONNAIRE OVERALL ADJUSTMENT SCORES
AND INSTRUCTORS' EXIT EVALUATION

Emo Questionnaire Overall Adjustment Scores	Instructors' Exit Evaluation of Trainee Performance			
	Below Average	Average	Above Average	Total
Below Average	4	8	5	17
Average	0	17	19	36
Above Average	3	9	21	33
Total	7	34	45	86

$X^2 = 12.34$

TABLE XXXVII

EMO QUESTIONNAIRE ENVIRONMENTAL ADJUSTMENT TEST SCORES
AND INSTRUCTORS' EXIT EVALUATION

Emo Questionnaire Environmental Adjustment Score	Instructors' Exit Evaluation of Trainee Performance			
	Below Average	Average	Above Average	Total
Below Average	4	2	10	16
Average	2	15	24	41
Above Average	1	17	11	29
Total	7	34	45	86

$X^2 = 15.62$

TABLE XXXVIII

EMO QUESTIONNAIRES INTERNAL ADJUSTMENT SCORES
AND INSTRUCTORS' EXIT EVALUATION

Emo Questionnaire Internal Adjustment Scores	Instructors' Exit Evaluation of Trainee Performance			
	Below Average	Average	Above Average	Total
Below Average	1	7	4	12
Average	3	10	18	31
Above Average	3	17	23	43
Total	7	34	45	86

$X^2 = 2.74$

The chi squares obtained indicate there is a significant relationship between instructors' evaluation and the Emo Overall Adjustment Scale and Environmental Adjustment Scale, but not a significant relationship between instructors' evaluation and the Emo Internal Adjustment scores and the Rotter Incomplete Sentences Blank scores.

To test the creative ability of the trainees, the Cree Questionnaire and the AC Test of Creative Ability were administered, Chi Square distributions showed a significant relationship between the instructors' evaluations and the Cree Questionnaire ($X^2 = 18.31$), but not between the instructors' evaluation of performance and the AC Test of Creative Ability ($X^2 = 8.82$). No measures of creativity on the parts of trainees in the course of training were used so creative potential and creative performance may not be related.

Other tests whose results showed no significant relationship to the trainees' performance as reported in the instructors' evaluation were:

1. Space Thinking
2. Word Fluency
3. Understanding Communication

The following tests appeared useful as indicators of the performance potential of the population in this MDT training project:

1. The Revised Beta as a measure of mental ability.
2. The Work Interest Index and the Minnesota Vocational Interest Inventory proved useful as measures of interest.
3. The Gray Oral Reading Test as a measure of the reading levels.
4. The Iowa Tests of Basic Skills proved useful as measures of skill levels.
5. The Rotter Incomplete Sentences Blank, Cassel Group Level of Aspiration and the Emo Questionnaire proved useful in measuring aspects of personality and adjustment, but they should be used in connection with other measures of personality and adjustment rather than the single use of either.

Job Performance

Relationships of Job Performance to Training Performance and to Input Characteristics may be described for male trainees. (Comparable data for Nurses Aide Trainees is not available.) The following discussion describes the characteristics of the 84 male trainees who completed training, the 17 who were not located at the time the analysis was undertaken (two additional carpentry trainees were located later and appear in the foregoing totals), and the 67 trainees for whom complete interview data is available.

There were 17 trainees who completed training and were placed on jobs who were not found for interviewing in the follow-up survey. Examination of the records of these 17 trainees provided the following description of them.

TABLE XXXIX

CHARACTERISTICS OF TRAINEES NOT INCLUDED IN FOLLOW-UP SURVEY

Characteristics	Percent
Age	
Under 30	41
30 - 39	24
40 and over	35
IQ Rating	
Average	24
Below Average	52
Inferior or Defective	24
Technical Training Area	
Carpentry	29
Brickmasonry	24
Meat Processing	47
Literacy Level	
"A"	35
"AA"	65

Representation in the "Not Included" group of under 30 and over 40 trainees was greater than their representation in the trainee population while the 30 - 39 age group was under-represented. Nearly two-thirds of those "not included" were in the lower-literacy ("AA") group. The average IQ group was under-represented, and the below-average and inferior IQ groups were over-represented. In terms of the skills training areas, the meat processing trainees were over-represented.

The former trainees included in the follow-up survey were of the following training identification:

TABLE XL

ACADEMIC GROUPING AND TECHNICAL TRAINING AREA OF TRAINEES IN FOLLOW-UP SURVEY

Academic Grouping	Brickmasonry	Carpentry	Meat Processing	Total
"A"	12	13	10	35
"AA"	12	12	8	32
Total	24	25	18	67

The employment histories of this group reported that all of the trainees had been employed following training. The number of jobs on which they had been employed were:

TABLE L

NUMBER OF JOBS HELD BY TRAINEES IN FIRST SIX MONTHS FOLLOWING COMPLETION OF TRAINING

Job	Number	Percent
One job	30	44.8
Two jobs	20	29.9
Three jobs	10	14.9
Four jobs	7	10.4
Total	67	100.0

When considered in terms of vocational skills training area, initial employment as a result of the project job placement service, 62 were placed in jobs for which they had been trained. Five took employment unrelated to their training--two from carpentry, and three from meat processing.

Fifty-six first-job employers of these trainees were located. Fifteen each of the carpenters and meat processors, and 16 of the brickmasons were reported as having done satisfactory work. Five carpenters and five brickmasons were reported as having done unsatisfactory work. No meat processors were reported as having done unsatisfactory work.

TABLE LI

REPORT ON SECOND JOB EMPLOYMENT

	Brickmasonry	Carpentry	Meat Processing
Number reporting second jobs	19	13	5
Job unrelated to training	4	3	2
Satisfactory performance	9	8	2
Unsatisfactory performance	4	0	1
No employer report	6	5	2

TABLE LII

HOURLY WAGES ON FIRST AND SECOND JOBS

Hourly Wages	Vocational Skills					
	Brickmasonry		Carpentry		Meat Processing	
	First	Second	First	Second	First	Second
Not given	--	--	1	--	--	--
Less than $1.00	--	--	1	--	--	--
$1.00 - $1.99	7	6	16	10	6	4
$2.00 - $2.99	17	12	6	1	11	1
$3.00 - $3.99	--	--	1	2	1	--
Total	24	18	25	13	18	5

A relationship between satisfactory performance and length of time on the job may be expected. The following shows what the relationship was:

TABLE LIII

LENGTH OF TIME EMPLOYED ON FIRST JOB AND PERFORMANCE ON JOB

Length of time on First Job	Performance on First Job		
	Not Given	Satisfactory	Unsatisfactory
Not given	--	3	1
Less than 1 month	3	3	4
1 - 2 months	--	7	4
3 - 4 months	2	4	1
5 months or more	2	29	0

The economic impact on those who completed the training may be measured by comparison of employment status and earnings as reported in the intake interview at the beginning of training and by the six-months afterward survey.

TABLE LIV

EARNINGS OF TRAINEES BEFORE AND SIX MONTHS AFTER TRAINING

Employment and Weekly Earnings	Before Training	Six-Months After Training
Farmers	11	--
Unemployed	23	11
$20 or less	3	1
$21 - $39	6	--
$40 - $59	16	3
$60 - $79	8	22
$80 - $99	--	13
$100 - $139	--	13
$140 and above	--	4
Total	67	67

The 33 male trainees who reported earnings in the intake interview had average weekly earnings of $47.48 with a range from less than $20 per week to $79 per week. In the survey, 56 male trainees reported earnings that averaged $85.92 per week with a range, excepting one case, from $40 to $170 weekly.

The overall picture is one that demonstrates the improvement that MDTA type training can bring in the economic status of the disadvantaged adult, but there are questions that arise that need attention.

1. How to account for those unemployed at the time of the survey?

2. What does the 55 percent of trainees who had more than one job in six months mean?

3. What indicators were there during the training experience of success or lack of success in on-the-job performance?

The trainees were grouped for instruction into two categories: "A"--those with higher than eighth grade equivalency and "AA"--those with less than eighth grade equivalency. We now give attention to any relationships between the "A" group and the "AA" group in job performance subsequent to training.

The 67 former trainees who were interviewed in the follow-up survey were divided--35 in the "A" group and 32 in the "AA" group. Employer reports on trainees in jobs were secured with the following results:

TABLE LV

EMPLOYERS' APPROVAL OF TRAINEES WORK ACCORDING TO JOB AND LITERACY GROUPING DURING TRAINING

	"A"			"AA"		
	1st Job	2nd Job	3rd Job	1st Job	2nd Job	3rd Job
Not given	7	3	3	4	0	6
Satisfactory	25	10	4	21	9	4
Unsatisfactory	3	4	0	7	1	0
Total	35	17	7	32	20	10

TABLE LVI

HOURLY WAGES OF TRAINEES ACCORDING TO JOB AND LITERACY GROUPING DURING TRAINING

	"A"			"AA"		
	1st Job	2nd Job	3rd Job	1st Job	2nd Job	3rd Job
$1.00 - $1.99	1	6	3	0	14	2
$2.00 - $2.99	12	8	2	17	4	4
$3.00 and over	22	2	2	14	0	2
Not given	0	1	0	1	0	0
Total	35	17	7	32	20	10

TABLE LVII

NUMBER OF JOBS HELD ACCORDING TO LITERACY GROUPING DURING TRAINING

Number of Jobs	"A" Group	"AA" Group
One	18	12
Two	10	10
Three or more	7	10
Total	35	32

TABLE LVIII

LENGTH OF TIME WORKED ON FIRST JOB ACCORDING TO LITERACY GROUPING DURING TRAINING

	GROUP "A"	GROUP "AA"
Not given	2	2
Less than one month	3	7
One to four months	11	11
Five months or more	19	12
Total	35	32

Twenty-seven percent of Group "A" trainees held one job for six months following training while 18 percent of Group "AA" remained on the first job. Eleven percent of Group "A" and 15 percent of Group "AA" had three or more jobs in that period of time.

Ten of Group "A" and 16 of Group "AA" trainees worked at some time for less than two dollars per hour. Twenty-six of Group "A" and 16 of Group "AA" worked for $3.00 or more her hour.

Fourteen employers of Group "A" trainees and 17 employers of Group "AA" trainees had suggestions as follow about trainees as their employees:

TABLE LIX

EMPLOYERS' SUGGESTIONS ABOUT TRAINING OF EMPLOYEES ACCORDING TO LITERACY GROUPING DURING TRAINING

	Group "A"	Group "AA"	Total
More practical experience	6	4	10
Better selection of trainees	3	9	12
Specific skills needed to be taught	4	3	7
Need to develop speed	1	1	2
Total	14	17	31

The trainees' evaluation of their training and work experience was sought through asking the questions that follow. The responses to these questions are given also.

LX

TRAINEES EVALUATION OF THEIR TRAINING AND WORK EXPERIENCE

	Undecided or Not Given	Percent Yes	Percent No
1. Are you satisfied with present job?	16	75	9
2. Was training sufficient for job?	--	92	8
3. Has basic education helped on the job?	2	98	--

	Percent
4. What was the most beneficial part of training?	
Not given	5
Everything	19
Technical Skill	40
Technical Skill and Math	13
Technical Skill and English	3
Technical Skill, English, and Math	12
Counseling	5
On-the-job Training	3
	100
5. What in your training was unnecessary?	
Not given	5
Counseling	3
Related Activities	28
Testing	3
Basic Education	5
Nothing	56
	100
6. What was your reason for leaving the first job?	
Not given	0
Work ended or laid off	33
Health problem	6
Irregular work	10
Didn't like employer or fellow employees	3
Transportation problem	1
Wages too low	5
Found better job	8
Working on first job	34
	100

Of special interest are the eleven trainees among the 67 who were reported unemployed at the time of the survey. Four of them were meat processing trainees, three were carpentry trainees, and four were brickmasonry trainees.

Work in the construction trades is seasonal and uncertain and the carpenter or brickmason with limited training has difficulty in competing for the jobs available. It is interesting to note that in terms of literacy level eight belonged to the "A" Group and three to the "AA" Group. According to the teachers' evaluation, all were average or above average on the personal characteristics scale while seven were below average and four were average on the technical skill scale. A most interesting fact is that peer ratings on the socio-metric scale placed eight of them in the isolate category, two in the acceptable category and one in the star category. The suggestion of peer evaluation as an indicator of job performance is an intriguing one.

TABLE LXI

DESCRIPTION OF TRAINEES FOUND UNEMPLOYED IN FOLLOW-UP SURVEY

Literacy Group		Teachers' Evaluation Technical Skill	Personal Characteristic	Peer Identification	Reasons given for Unemployment
Brickmasonry					
1	A	Average	Average	Acceptable	Work was irregular
2	A	Below Average	Average	Isolate	Unable to work because of weather
3	AA	Below Average	Average	Isolate	Completed first job; laid off second job
4	A	Below Average	Average	Isolate	Laid off first job; second job completed
Carpentry					
1	AA	Below Average	Average	Isolate	Health not good; worked two weeks on first job; none since
2	AA	Below Average	Average	Isolate	Completed job; not called again
3	A	Average	Average	Isolate	Employer could not provide full time employment
Meat Processing					
1	A	Average	Above Average	Isolate	Employment on job not training-related and quit
2	A	Average	Above Average	Acceptable	Has disability retirement. Worked in a person's place who returned; may work again
3	A	Below Average	Above Average	Isolate	Left first job because of illness. Left second job because would not let cut meat
4	A	Above Average	Above Average	Star	June to January apprenticeship. Manager let him go. Manager says he was willing and worked hard but lacked minimum speed

The crucial question the follow-up survey sought an answer for was employers' satisfaction with the work of the trainees they had hired. Employers were asked to rate an employer simply as "Satisfactory" or "Unsatisfactory" with the following result:

Satisfactory	46
Unsatisfactory	10

The next question to be asked is "What indicators observed in the training experience are related to satisfactory job performance?" Relationships between satisfactory job performance and the following factors were examined:

1. IQ Rating
2. Literacy Level
3. Work Interest
4. Emotional Adjustment
5. Teachers' Evaluation
6. Peer Evaluation

The results of examination of trainees' records for relationships are given below:

TABLE LXII

RELATION OF SATISFACTION OF JOB PERFORMANCE AND SELECTED CHARACTERISTICS OF EMPLOYED TRAINEES

	Number: 46 Satisfactory	Number: 10 Unsatisfactory
1. IQ Rating		
90 - 109 Average	23	3
81 - 89 Below Average	8	2
71 - 80 Inferior	10	4
70 and below Defective	5	1
2. Literacy Category		
Below 6th grade	20	5
6 - 8 grade	21	5
9th grade or above	5	-
3. Work Interest		
High	15	5
Low	31	5
4. Emotional Adjustment		
Poor	25	5
Good	21	5
5A. Teachers' Evaluation Course Performance		
High	32	2
Low	14	8
5B. Teachers' Evaluation Personal Characteristics		
High	41	6
Low	5	4
6. Peer Evaluation		
Star	9	2
Highly Acceptable	17	1
Acceptable	16	5
Isolate	4	2

SUMMARY

The objective of this analysis was to determine the relationships that were found to obtain between the dependent variables--Performance in Training and Performance on the Job, and assorted independent variables assumed to be related to success, or lack of success, in training and on the job.

We have a small number of cases--a possible total of 84 trainees who completed training, and 67 of whom were included in the follow-up survey. To determine the relationship between our qualitative variables, the idea of correlation applied to non-quantitative data, called contingency, is used. The X^2 (chi square) measure may be used to express significance of relationships since our number of cases is both small and constant. The fact that a large N (number of cases) is likely to produce a large X^2 is of no importance in our circumstance where the N remains constant. The significance is determined at .05 level. The larger the chi square, the stronger the relationship between the variables is clearly evident in this analysis.

A summation of our findings presenting the qualitative variable considered, the indicators used and the significance of relationship between the variable and performance in training and performance on the job is given below:

Qualitative Variable	Indicator (Tests used)	X^2	Relationship to Performance in Training
INTEREST	Work Interest Flexibility	6.55	Significant
	Work Interest Aspiration	2.88	Not significant
APTITUDES	Mechanical Movement	3.16	Not significant
	Intuitive Movement	36.01	Significant
INTELLECTUAL DEVELOPMENT	Revised Beta Examination	13.0	Significant
	Non-Verbal Reasoning	.42	Not significant
	Verbal Reasoning	1.37	Not significant
ADJUSTMENT	Rotter Incomplete Sentence Blank	2.62	Not significant
	Emo Questionnaire		
	Internal Adjustment	74	Not significant
	Enrivonmental Adjustment	15.62	Significant
	Overall Adjustment	12.34	Significant

			Relationship to Satisfactory Job Performance
TRAINING SUCCESS	Teachers' Evaluation		
	Course Performance	8.13	Significant
	Personal Characteristics	5.22	Significant
	Peer Evaluation	4.45	Significant

From several training programs for adults, it is observed that men are reluctant to enroll in basic education classes, but when basic education is tied to a high priority value they will apply themselves to learning what they see as essential. To learn to read in order to vote with citizenship education classes or to learn to figure in connection with skill training in a vocational class is found to be taken better than attending simple reading and figuring classes.

In their economic position and social status, the disadvantaged have learned to cooperate even in acceptance of a place of subordination. Development of new aspirations and a spirit to combat those influences that restrict them can be a stimulus to acquire knowledge needed to improve their condition.

Tests used to describe the interests of trainees at Tuskegee showed them not to be highly or differentiatingly interested in the occupations for which they had professed interest and for which they were being trained. The tests showed them to prefer occupations labeled "white collar" as opposed to "blue collar" and "clean hands" as opposed to "dirty hands," "clerical and routinized" as opposed to "technical and mechanical." Tests showed the trainees to be better "adjusted" than other groups with whom the tests had been used. Statistically, there were no significant differences in the performance of the two literacy level groups in training or on the job following training. Peer evaluation and averaged instructor evaluation proved to be good general indicators of on the job performance.