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ABSTRACT

A battery of tests dealing with attitudinal, reasoning and job-orientation skills were predictively validated against trainee performance criterion information obtained at completion of the Opportunities Industrialization Center (OIC) manpower training program and at approximately six to eight months following training. Validity coefficients based on program-completion criterion dimensions of "Training Program Adjustment," "Monetary Expectations," "Effective Job Planning," "Personal Social Adjustment" and "Vocational Confidence" were found to be most significant for tests of Job Seeking Skills, Job Holding Skills, Job Knowledge; with somewhat lower validities for Practical Reasoning measures and the least (but still significant) validity levels for attitudinal measures of Self-Esteem and Deferred Gratification. Predictive test validities using post-program criteria that deal with social and vocational adjustments were minimal, largely because of difficulties in collecting a sufficient amount and quality of post-program criterion data. The relatively few significant validity coefficients found were for tests of Job Seeking Skills, Attitude Toward Authority and Practical Reasoning. A number of the measures appear to possess predictive value as guidance tools for use in manpower training programs. (Author)

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Final Report

Validation of Assessment Measures for Use With Disadvantaged Enrollees in Work-Training Programs

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and
Benjamin Shimberg

May 1976
EDUCATIONAL TESTING SERVICE
PRINCETON, NEW JERSEY

FINAL REPORT

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Validation of Assessment Measures for Use With Disadvantaged Enrollees in Work-Training Programs

Research Project in Vocational Education
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Special thanks is due to Mrs. Catherine Neal of the Philadelphia OIC who served as liaison between ETS and OIC and coordinated data collection nationally.

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SUMMARY

From late 1974 through 1975, validity data were obtained for a battery of measures designed for educationally and economically disadvantaged minority group trainees in work-training (manpower) programs. A longitudinal study sample of 391 males and 590 females were tested at entry into the Opportunities Industrialization Center (OIC) program that provides remedial and vocational training for those who lack marketable skills. This sample, drawn from OIC's in 29 cities throughout the U. S., was followed up at program completion (yielding an N of 304) and approximately 6 to 8 months after completion of training. For post-program use, a sample of only 154 respondents could be located, of whom 103 had obtained full-time employment.

Performance criterion information gathered at program completion (short-term criteria) consisted of 30 variables which were factor analyzed separately for males and females to produce such orthogonal criterion dimensions as "Training Program Adjustment," "Monetary Expectations," "Effective Job Planning," "Personal-Social Adjustment," and "Vocational Confidence." Thirty-five post-program (longer-term) criterion dimensions which had to be derived for a sample of males and females combined (because of the sample size available), yielded criterion dimensions designated as: "Overall Employment Success," "Blue Collar Job Success," "Job Seeking Effort," and "Social Adjustment and Job Planning."

The measures of the battery for which predictive validity was to be ascertained deal with: (1) Practical Reasoning skills (in the form of direction-following in hypothetical job settings), (2) Vocational

Orientation (as job knowledge, job seeking skills, job holding skills, vocational aspirations plans and interests), and (3) Attitudinal Perceptions (as self-esteem, attitude toward authority figures, motivation to seek employment and willingness to defer present gratification for future gain). Twenty scores derived from that test battery were correlated with factor scores obtained from the program completion and post-program criterion dimensions.

Analyses of the results indicated that:

(a) The most valid measures for predicting the Program Completion (short-term) criteria were those dealing with Job Seeking Skills, Job Holding Skills, and Job Knowledge. The highest validities were obtained in relation to the "Training Program Adjustment" criterion dimension (r's = mid .20's to mid .30's). Practical Reasoning tests show somewhat lower validities, while minimal, but significant, levels are achieved for the Self-Esteem and Deferred Gratification scales.

(b) In general the various measures yielded better short-term predictive validity for females than for males. For the female sample, Level of Vocational Plans and Aspirations measures resulted in negative validities against several of the Program Completion criterion dimensions. This seems to indicate, somewhat paradoxically, that women with higher occupational goals and desires tend to achieve lower scores on the program completion dimensions.

(c) Relatively little predictive validity was found for the tests using the Post-Program (longer-term) criterion dimensions.

Results, however, are highly tenuous because of data quality and inadequate sample size which did not permit separate analysis for male and female subsamples. The relatively few significant validities (r's in the .20's) found were for "Job Seeking Skills," "Attitude Toward Authority," and "Practical Reasoning" tests against a criterion dimension of "Blue Collar Job Success" and a dichotomous criterion of Employment (i.e., Employed Full Time vs. Never Employed following OIC Training).

(d) The results obtained with this sample of OIC trainees are similar to those obtained in previous validation studies involving younger school dropouts enrolled in a youth work-training program (Neighborhood Youth Corps). Mean test scores, factor loading patterns for the battery, criterion factors, and predictive validities are generally consistent for the OIC and the NYC samples.

It was concluded, from the validities achieved, that a number of the measures are promising as guidance tools for manpower training programs and could, under appropriate circumstances, serve as useful heuristic devices to shape curriculum development or to evaluate behavioral change resulting from program participation. In addition, the factorially derived criterion dimensions can not only serve future test validation needs, but also provide scales for assessing programmatic effectiveness.

Validation of Assessment Measures for Use With Disadvantaged Enrollees in Work-Training Programs

Norman E. Freeberg
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Educational Testing Service

BACKGROUND AND PURPOSE

The scarcity of valid behavioral measures needed to assess trainee attitudinal, cognitive and social capabilities, has constituted a major deficiency in the conduct of work-training (manpower) programs (Backer, 1972; Office of Economic Opportunity, 1972). Attempts to use available paper and pencil tests for guidance or placement services in those occupationally-oriented training settings (serving largely minority group enrollees from culturally, economically and educationally deprived backgrounds) have been open to serious challenge. Basic criticisms levelled at the design of formal (i.e., published) instruments have tended to focus on their inappropriateness for low-verbal skill disadvantaged respondents in terms of format, subject matter, reading level, length, linguistic style, method of presentation and interpretation of scores--these deficiencies being seen as the outcome of test development procedures and normative data samples aimed at middle class, majority group members exposed to conventional educational curricula (Karp & Sigel, 1965; Lennon, 1964; Society for the Psychological Study of Social Issues, 1964).

In an attempt to counter most of the shortcomings cited, a test battery was developed--with support from the Employment and Training

Administration, U. S. Department of Labor--that taps broad constructs pertinent to the curriculum components and professionally perceived guidance or information needs of work-training programs (Freeberg, 1968; 1970). More suitable design features were incorporated in that battery in the form of both pictorial and verbal materials, relatively few items per measure; with all item stems and response alternatives orally presented by the examiner in untimed fashion. Item content, verbal level and style were aimed specifically at adolescent or young adult groups. Measures of the battery dealt with areas of trainee ability in the form of (1) practical reasoning skills (designed around job simulated direction-following tasks), (2) vocational knowledge and awareness (as job-seeking and job-holding skills, knowledge of job requirements, vocational plans, aspirations and interests), and (3) attitudinal perceptions (dealing with constructs of self-esteem, work motivation, willingness to defer gratification and attitude toward authority figures).

Data used for examining the characteristics of these measures were obtained from samples of enrollees in a national work-training program, serving minority group school dropouts--i.e., the Neighborhood Youth Corps, Out-of-School Program (U.S. Department of Labor, 1971). It was found that the tests possess reasonable levels of reliability for operational purposes--with a number of them having potentially useful patterns of concurrent and predictive validity against a variety of performance criteria such as proficiency ratings by guidance counselors, training supervisors, peers and employers, post-training job success (e.g., job level, starting salary, raises) and community, personal and family adjustments (Freeberg, 1970; Freeberg & Reilly, 1972; Freeberg, 1974). Among

the most valid of the measures were those that required some form of cognitive capability (i.e., practical reasoning, job knowledge and job-seeking skills). Attitudinal scales that showed lesser, but significant, levels of validity were the ones dealing with the trainee's feelings of personal worth (self-esteem), his attitude toward persons in authority, and his awareness of proper behavior in the work environment.

The value of the instruments shown to date, has been dependent, almost exclusively, on their use with samples of relatively youthful enrollees (approximately 14 to 21 years of age) in a manpower program that provides only generalized aspects of "work experience" as opposed to a program that concentrates on more specific vocational or technical skills training.* Thus, there remains a need to investigate the wider applicability of the battery to those programs that incorporate the development of vocational skills in their training curricula and that also tend to serve disadvantaged trainee groups of a wider age range.

The present study attempts to address that need by applying the measures to samples of trainees of the Opportunities Industrialization Center (OIC) manpower training program (OIC's of America, 1975), a nationwide program offering remedial and occupational training to adults who lack the cultural, economic and technical capabilities needed to obtain and retain employment. In order to determine the suitability of the tests for use with such a population, it is desirable to examine: (a) the value of each of the tests in the battery in terms of its levels of concurrent and predictive validity for a variety of performance

* See Levitan and Mangum (1969) for a description of the various types of work-training programs that have been federally supported.

criteria, (b) some contrasts between the results obtained and those of previous work-training program samples, in terms of general measurement characteristics (means, variances, factor patterns, validity coefficients) and, (c) the availability and applicability of performance criterion measures that can be used to define training "success" and the coherent outcome dimensions that underlie and help explain those multi-faceted behaviors.

METHOD

A. The Test Battery

The choice of measurement constructs that comprise the battery, had originally been based on information derived from work-training program professionals (e.g., vocational counselors, work-site supervisors, job developers, training project directors) regarding trainee behavioral capabilities deemed most important in shaping their training efforts and thus in the potential employability and overall adjustment of the trainee. These constructs were used to define 13 separate tests that are most conveniently grouped under three behavioral categories of (1) job-related practical reasoning skill, (2) vocational orientation, and (3) attitudinal perceptions of self and others. The measures are described briefly below.

1. Practical Reasoning Skill is comprised of three tests consisting of:

   - Practical Reasoning - Zip Coding (10 items): provides the respondent with information needed for a hypothetical post office job requiring him to sort mail using zip codes.

Questions are presented in a multiple-choice format pertaining to that task.

- Practical Reasoning - Map Reading (10 items): provides a map illustrating several square city blocks along with information needed to answer multiple choice questions about delivering materials to different locations shown on the map.
- Practical Reasoning - File and Sorting (10 items): requires the respondent to sort out potential job applicants based on their background as presented on a set of numbered file cards. Multiple-choice items involve matching file card information to job requirements stipulated in each item stem. (This measure is used exclusively with males, since prior results had indicated that the task lacked sufficient difficulty for females and minimal variability.)

2. Vocational Orientation is a category comprising six measures:
   - Job Knowledge (27 items): requires answers to multiple-choice items regarding a variety of jobs (e.g., carpenter, auto mechanic, policeman) in terms of their educational requirements, starting salary, primary task performed, hours of work, place where work is performed and tools utilized.
   - Job Seeking Skills (17 items): presents multiple-choice items dealing with ways of looking for jobs, some of which entail interpretation of newspaper want ads and portions of job application blanks.
   - Job Holding Skills (11 items): depicts situations that might be encountered on a job with regard to supervisors' requests,

appropriate dress, punctuality, etc., for which the respondent chooses the reply he would give, or the most appropriate behavior called for, in that situation.

- Vocational Aspirations (16 items): utilizes items that present a wide range of jobs both pictorially and by job title (i.e., from "Laborer" to "Scientist"). The respondent indicates the degree to which he would aspire (prefer) to engage in each occupation shown.
- Vocational Plans (16 items): incorporates items showing the same jobs as the Vocational Aspiration booklet with response alternatives that request the degree to which the respondent actually plans (intends) to enter such an occupation. (Both the aspirations and plans measures are scored separately along with a difference score obtained by subtracting plans from aspirations.
- Vocational Interest (28 items): presents pictorial and verbal information regarding job tasks characteristic of a number of occupations. The respondent indicates the degree to which he would favor performing each task. Separate scale scores are derived for each of seven interest categories (4 items each) designated as Clerical, Service, Technical, Outdoor, Science, Business, and Aesthetic.

3. Attitudinal Perceptions are defined by the following four tests:
   - Attitude Toward Authority (12 items): in which scenes depicting responses of an adolescent to authority figures (e.g., teacher, policeman, parents, judge, etc.) are used to elicit

the degree of pro- or anti-authority feelings by the respondent.

- Self-Esteem (16 items): depicts situations pictorially in which the respondent indicates the degree to which he feels himself "worthy" of the desirable outcomes (getting a diploma, job, promotion, etc.).
- Motivation for Vocational Achievement (17 items): presents statements, as item stems, that bear on the desirability of seeking and maintaining employment and willingness to suffer inconvenience in accepting employment. These require the individual to respond (Likert-scale format) in terms of the degree of agreement with the statement or the degree to which a job is acceptable in spite of undesirable features.
- Deferred Gratification (16 items): presents statements dealing with the willingness to delay present reward for future gain to which the respondent indicates his degree of agreement on a five-point scale (Likert-scale format).

The items of each test appear in small (4" x 8") booklets with a single item to a page. They are intended for oral administration to small groups of trainees (maximum of about 12) and are untimed; being paced essentially by the examiner who reads all item stems and response alternatives. Of the 13 measures, 5 are wholly verbal in content and 8 contain both pictorial and verbal information. Where pictorial scenes are presented, a young adult is always depicted as a central figure, thus necessitating separate forms of those 8 booklets for male and

female respondents. More complete descriptions of test rationale and item content are found in Freeberg (1968, 1970).

B. Performance Criterion Measures

Two sets of trainee performance outcomes are to be used as criterion measures for predictive validation of the test battery:

1. Program Completion (short-term) Criteria - which were obtained at the time the trainee completed the OIC skills training program. These were obtained from a questionnaire that yielded a total of 30 usable variables. These are listed in Appendix A with some explanatory information. The items had been derived from five a priori (rational) performance categories of (a) Vocational Awareness and Planning Skills (e.g., awareness of important aspects of jobs, knowledge of steps to take to find employment, level of jobs planned for), (b) Personal-Social Adjustment (e.g., in regard to family, community, police), (c) Vocational Motivation (e.g., willingness to accept training, general views of desirability of employment), (d) Training Program Adjustment (e.g., absences, number of course changes, judgments of proficiency by others, i.e., counselors, instructors, peers), and (e) Vocational Self-Confidence (e.g., perceptions of ability to "make it" in a job setting).
2. Post-Program (longer-term) Criteria - consist of 35 variables (described in Appendix B) obtained 6 to 8 months after OIC training program completion. Items that comprise the questionnaire were derived from four rational dimensions, or categories,

of longer-term outcomes defined as: (a) Extent and Level of Employment (e.g., quality of job obtained, length of job stay, salary, number of jobs held), (b) Job Performance and Adjustment (e.g., job satisfaction, salary raises, promotions, salary expectations, employer proficiency rating), (c) Personal-Social Adjustment (e.g., family relations, community adjustment, health, use of credit, saving money), and (d) Job Motivation and Planning (e.g., effort in obtaining interviews and filing applications, actions to take if present job is lost, attendance at school, number of sources used to find job, level of future job plans).

Both the broad categories and the variables chosen to define them were drawn from work-training program objectives outlined in enabling manpower legislation (Economic Opportunity Act, 1966; Federal Register, 1969), federal agency standards (U.S. Department of Labor, 1971), and research literature of the sort devoted to issues in work-training program evaluation (Borus & Tash, 1970; Wholey, et al., 1970; National League of Cities, 1973).

The criterion questionnaires for trainees were designed for oral administration on an individual basis in a 20 to 30 minute session. Prior application of these criterion instruments with cross-sectional samples of Neighborhood Youth Corps trainees and former trainees (6 months to 1 1/2 years out of the program) had demonstrated the feasibility of most of the variables for their intended purposes (Freeberg & Reilly, 1972). Certain modifications in scoring were required, however, for the present study because of distributional properties of some of the measures. For example, "number of pay raises" and "number of job

promotions," although found to be suitable criteria in previous cross-sectional study, were found to be so highly skewed in this sample (few persons receiving even a single pay raise or promotion) that they could only be applied as dichotomous variables ("Pay Raise vs. No Pay Raise" and "Promotion vs. No Promotion"). Apparently the post-program six-month follow-up period--imposed by study constraints--does not allow sufficient time for more than a small proportion of the ex-trainees to obtain promotions or pay raises; thus tending to weaken their effectiveness as criterion measures.

C. Samples and Data Collection

The test battery was administered at program entry to a sample of 391 male and 590 female trainees enrolled in OIC projects located in 29 cities throughout the U. S.[1] Of the 981 trainees tested at entry, there were 304 (115 males, 189 females) who were able to be followed-up at "completion" of training for administration of the Program Completion Questionnaire.[2] Of the 304 trainees there were 157 who could be located about 6 to 8 months after completing training and who were willing to respond to the Post-Program Questionnaire. Of that 157, 103 (66%) had found full-time employment--30 hours per week for at least one week--after they left OIC. It is this group of 103 that constitutes the basic sample for analyses of post-program criteria, since the job-related performance criterion measures can only be applied to those who hold

[1] See Appendix C for list of cities in which participating OIC's are located.

[2] Time to completion varied somewhat as a function of the particular vocational curriculum in which the trainee was enrolled. In most OIC projects, however, the enrollment period is nominally 4 to 6 months. Any trainee who remained beyond four months was considered eligible for inclusion in the Program Completion Sample.

employment. (Of interest is the fact that the 34% who remained unemployed represent a proportion consonant with U. S. Department of Labor unemployment rates reported for teen-age and young adult minority group members during the 1974-75 recession.)

Eighty-two percent of the trainees followed up were classifiable as minority group members (65% Black, 17% Hispanic) and 18% as White. The age range was from 17 to 35 with a mean age of 20.7. Trainees completed an average of 10.8 years of school and almost 60% indicated that they were high school graduates. The mean time spent enrolled in OIC was 4.6 months.

All phases of testing and questionnaire date collection were carried out by a designated staff member at each OIC project who was also a full-time OIC employee. Each of these individuals took part in a two-day training session that provided familiarization with the study purposes, content of the tests and questionnaires, procedures for trainee follow-up, and instructions for administration of the materials. Responsibility for coordination of training and data gathering was assumed by a professional staff member of OIC in Philadelphia.

D. Description of the OIC Program

In order to appreciate the nature of the data collected during the course of this project is is desirable to understand the organizational characteristics of the Opportunities Industrialization Center (OIC) program and its mode of operation.

OIC was originally founded in Philadelphia in 1964 with the goal of providing job training, primarily for Blacks and other minorities from

the inner city who lacked marketable skills. In addition to providing skills training for a wide range of occupations, the OIC program placed heavy emphasis on assisting trainees in their personal growth and development. Virtually all OIC programs require that trainees go through a four- to six-week "Feeder Program" which endeavors to instill appreciation for one's personal capabilities and a "success orientation," along with instruction in verbal and arithmetic skills needed for functioning in a variety of the vocational curricula offered. Following the Feeder Program, the trainee chooses a specific occupational skill area which he enters for an instructional period of about four to six months. These skill areas range from conventional trades (e.g., machine shop, auto mechanics) to clerical and health-related occupations (e.g., practical nursing).

Trainees tend to be young adults, although individuals over 30 are also accepted. Some form of stipend is paid to the trainees in most programs with the amount dependent upon the terms governing the CETA grant to the local contracting agency. In addition to remedial educational and vocational training, the program provides guidance counseling, job placement, and follow-up of trainees for up to six months after completion of training.

Between 1964 and 1973, OIC expanded from a single center in Philadelphia to more than 100 centers in 43 states. During this period, the national organization (OIC's of America) received its funds directly from the U. S. Department of Labor under a prime contract. With the passage of the Comprehensive Employment and Training Act (CETA), funds for OIC centers were channeled through local prime sponsors. This change in the fiscal and administrative relationship tended to loosen the strong

administrative ties that had formerly existed between the national OIC organization and the local OIC centers. However, the national OIC continues to provide consultation and certain administrative services. An Association of OIC Executive Directors also serves to maintain communication among centers and to reinforce OIC's commitment to the slogan "We Help Ourselves."

E. Special Sampling Problems

A number of constraints encountered in data gathering for the longitudinal samples should be clarified, since they can effect sample biases, the quality of the study results, and the permissible generalizations. Most of these sampling problems have been found to be generic in any attempts to obtain research or evaluation information from (or about) poverty-level, minority group trainees residing in inner-city areas, who have been characterized as so-called "hard-to-locate" populations (Barnes, 1972; U. S. Department of Labor, 1969). Special difficulties have been cited in: (a) attempts to locate respondents through conventional institutional channels (employers, schools, social organizations, etc.), (b) overcoming minority community suspicion of "outsiders" seeking information, (c) the unwillingness of former trainees (especially those who have been out of a training program for a period of months) to cooperate as respondents to questionnaire surveys, (d) a high degree of sensitivity to "invasion of privacy" by all information sources, and (e) recruiting professional interviewers sufficiently familiar with the minority community and the urban locale in which they are to function.

Although the present investigation would have been expected to encounter many of these same concerns, every effort was made in the study design to minimize them. For example, the use of OIC staff personnel to administer the tests and to collect criterion data should have served to overcome some of the suspicion of outsiders that might otherwise have been generated. What could not have been anticipated, however, was the devastating effects of the economic recession of 1974-75--during the very time that the project staff was endeavoring to collect criterion data. The economic pinch caused a number of OIC installations to curtail their programs drastically and, in a few instances, to cease operations altogether. A number of the OIC personnel who had been assigned to assist with the project and who had undergone orientation and training in data collection procedures were reassigned to other duties, causing a substantial loss of follow-up data. The impact on trainees was also considerable. Many of them dropped out of the training program because they could not find part-time jobs to supplement their CETA training stipend. Others left training when they became discouraged about the job outlook. Thus, the severe attrition in the sample (from 981 down to 157) is a function of unanticipated program terminations, reassignment of OIC personnel, a higher than expected dropout rate among trainees, and an unwillingness of some trainees to complete criterion questionnaires.

F. Data Analyses

Given the 13 measures of the test battery along with the 30 program completion and 35 post-program criterion measures, the analyses to be undertaken consist of:

(1) Examination of the characteristics of the tests and the total battery in terms of means and variances, test intercorrelation and resulting factor patterns. These also allow for gross comparisons between the present study sample and previous results obtained with samples of youth work-training program enrollees.

(2) Identification of major interpretable criterion dimensions for use in validation of the battery, by extraction of factors from the 30 x 30 program completion and 35 x 35 post-program criterion intercorrelation matrices and computation, from the loadings, of criterion factor scores.*

(3) Computation of validity coefficients between each measure of the test battery and the factor scores for each of the two sets of criterion dimensions which constitutes the primary analysis of the study.

It should be pointed out that missing data occurred at each stage of longitudinal data collection, so that missing-data analyses were required throughout (e.g., in many instances respondents chose not to answer particular items of the tests or questionnaires; in other instances ratings by peers, instructors, counselors, or employers were not available for significant proportions of the samples.) Furthermore, attrition for the post-program sample, that resulted in an N of 103 employed individuals, necessitated factor analyses of the 35 criteria

*Factor scores were computed by post-multiplying each matrix of Z scores by the rotated factor loading matrix, obtained from a principal components solution.

for the sexes combined. The program completion sample size of 304 (189 females and 115 males), however, provides some reasonable justification for computing criterion dimensions separately by sex.

As a secondary and brief analysis, it was also possible to examine changes in pre- and post-test scores for a sample of 107 (71 females and 36 males) from the 981 trainees originally tested. Pre-test scores were those obtained at the time of entry into OIC and post-test scores at the time of completion of the four to six week "Feeder Program," during which concentrated instruction is given in remedial skills. This relatively small subsample was obtained on an unselected, voluntary basis by data collectors at a few OIC sites, who were willing to expend time and effort beyond the minimum data gathering requirements. As such, there are likely to be a number of unknown selective biases in the subsample and the findings will be touched on only briefly in the Results section below.

RESULTS

A. The Test Battery

Means and standard deviations for 12 tests and 7 Interest subscales are shown in Table 1 for the OIC sample of 981 and for a sample of 560 Neighborhood Youth Corps (N.Y.C.) trainees obtained in 1972.

In general the means and variances are fairly similar for the two samples, although, notably, the mean scores--with the exception of Level of Vocational Aspirations (LVA)--tend to be slightly but consistently higher for the OIC sample. Two of the mean differences for the 12 tests and for three of the Interest subscales do, however, reach significant

Table 1

Test Means and Standard Deviations for
OIC and N.Y.C. Trainees

Test	N.Y.C. Sample (N = 560) M	N.Y.C. Sample (N = 560) σ	OIC Sample (N = 981) M	OIC Sample (N = 981) σ
1. Job Knowledge	19.4	4.2	19.9	3.4
2. Self-Esteem	36.5	4.1	37.8	3.9
3. Deferred Gratification	51.7	6.9	53.5	6.8
4. Level of Voc. Aspir.	184.8	35.1	199.8	32.3
5. Level of Voc. Plans	160.4	34.2	158.0	36.3
6. Attit.toward Authority	42.4	8.7	44.7	8.8
7. Job Seeking Skills	10.9	3.4	12.6	2.9*
8. Job Holding Skills	28.2	4.1	30.3	2.9*
9. Motiv. Voc. Achievement[1]			55.1	13.6
10. PR-Map Reading	5.4	2.6	5.8	2.6
11. PR-Zip Coding	7.0	2.7	7.8	2.3
12. PR-File Card	7.7	2.7	8.0	2.5
Interest:				
13. Aesthetic	9.9	2.5	10.7	2.5
14. Science	9.5	2.7	10.6	2.7*
15. Technical	8.8	3.1	9.2	3.2
16. Clerical	10.9	2.6	11.8	2.4*
17. Business	10.1	2.5	10.8	2.6
18. Service	11.1	2.4	11.9	2.3*
19. Outdoor	6.9	2.8	7.6	2.9

* Mean difference significant at the .01 level

[1] Not comparable measures in both samples. Seven additional items were added to the original ten item MVA measure for use in the present study.

levels of mean difference ($p < .01$). The OIC trainees are apparently more adept at interpreting job want ads and application blanks (Job Seeking Skills) and more sensitive to appropriate conduct in a job setting (Job Holding Skills), than the younger, teen-age school dropouts of an N.Y.C. program. Most of the job tasks depicted for the three significantly higher Interest scales (Clerical, Service and Science) represent a number of areas in which OIC trainees are likely to be qualified by virtue of their training.

As a means of examining the dimensional characteristics of the test battery when applied to the OIC population and, at the same time, providing another level of comparison with prior findings, the test battery was factor analyzed. Intercorrelations of 20 scores for males and 19 scores for females derived from the tests and the Interest subscales are presented in Table 2 for both sexes.

The patterns of zero-order r's are seen to be broadly similar for both sexes--a similarity that is clearly reflected in the factor structure of the battery. Factors were extracted from each matrix using a principal components solution with varimax rotation to orthogonality (Kaiser, 1958). Three readily interpretable factors were found for each sex and are summarized in Table 3 on the basis of loadings of sufficient magnitude to enter into the interpretation (i.e., approximately .30 or greater). Factor I (Intellectual Ability) shows virtually an identical pattern for males and females in its positive loadings on the Job Knowledge, Practical Reasoning, and Job Seeking Skills measures. Almost equally identical is Factor III, which is designated as Vocational Ambition on the basis of its high positive loadings on the Vocational

Table 2

Intercorrelations of Scores for Test Battery

(Males = 391, Females = 590)[1]

		1	2	3	4	5	6	7	8	9	10	11	12	13	Vocational Interest 14	15	16	17	18	19	20
1.	Job Knowledge		.34[3]	.23	.04	-.09	.20	.19	.43	.31	.05	.28	.27	.33	.06	.16	.09	.01	.08	.17	.07
2.	Self-Esteem	.04		.32	.16	.09	.08	.24	.23	.47	.15	.13	.25	.27	.19	.26	.22	.19	.30	.30	.10
3.	Deferred Gratification	.18	.16		.04	-.03	.15	.30	.22	.36	.11	.13	.15	.18	.03	.10	.07	.12	.13	.09	-.02
4.	Vocat. Aspirations	-.04	.08	.06		.48	.43	.07	-.09	.21	.12	-.04	.00	.10	.45	.48	.39	.43	.40	.44	.36
5.	Vocat. Plans	-.19	.03	-.02	.50		-.59	-.01	-.19	.01	.14	-.18	-.10	-.08	.25	.33	.28	.34	.32	.30	.32
6.	Aspir. minus Plans	.16	.04	.08	.38	-.60		.13	.15	.18	-.02	.15	.12	.17	.16	.11	.09	.06	.06	.12	.02
7.	Att. toward Authority	.21	.18	.31	.09	-.04	.13		.30	.17	.04	.20	.21	.16	-.04	.04	.07	.04	.07	.02	.04
8.	Job Seeking Skills	.46	.05	.20	-.05	-.15	.10	.26		.34	.10	.48	.47	.44	.02	.05	.01	-.05	.03	.08	.03
9.	Job Holding Skills	.30	.16	.22	.10	-.05	.16	.23	.25		.16	.20	.28	.30	.16	.23	.14	.19	.21	.26	.10
10.	Motiv.for Voc. Achiev.	.07	.07	.19	.08	.05	.04	.13	.16	.14		-.03	.03	.04	.06	.07	.11	.09	.13	.10	.16
11.	PR-Map Reading	.34	.04	.08	-.09	-.20	.11	.19	.42	.13	.05		.53	.44	-.04	-.02	-.05	-.14	-.07	.01	.04
12.	PR-Zip Coding	.39	.05	.09	-.05	-.20	.16	.21	.51	.17	.06	.49		.60	.07	.07	.00	-.01	.14	.09	.04
13.	PR-File Card[2]														.04	.03	.03	.08	.08	.10	.03
Vocational Interest	14. Aesthetic	-.18	.09	-.03	.38	.37	-.03	.01	-.10	-.03	.08	.00	-.07			.54	.41	.47	.48	.53	.35
	15. Science	-.09	.05	.00	.42	.29	.09	.07	-.03	.07	.08	.01	-.04		.34		.62	.52	.56	.51	.43
	16. Technical	-.24	-.06	-.09	.37	.37	-.04	-.03	-.19	-.05	.04	-.10	-.15		.46	.49		.36	.46	.41	.52
	17. Clerical	.01	.08	.03	.29	.27	-.01	.11	.04	.12	.11	-.07	.00		.19	.31	.18		.61	.46	.29
	18. Business	-.14	.06	.05	.44	.39	.01	.06	-.09	.04	.08	-.07	-.06		.47	.39	.40	.52		.48	.31
	19. Service	-.07	.03	-.02	.46	.37	.04	-.05	.11	.08	.00	-.06	-.06		.42	.42	.37	.29	.43		.46
	20. Outdoor	-.06	.01	.03	.22	.18	.02	-.04	-.02	.03	.06	.14	.03		.37	.37	.53	.06	.24	.25	

[1] r's for males above the diagonal; females below

[2] Test used with males only

[3] r's of .13 or greater significant at the .01 level for males
r's of .11 or greater significant at the .01 level for females

Table 3

Rotated Factor Loadings for Test Battery

(Males N = 391)

Factor I
Cognitive Skill

Test	Loading
PR-Zip Coding	.81
PR-Map Reading	.79
PR-File Cards	.74
Job Seeking Skills	.70
Job Knowledge	.44

Factor Variance = 2.8

Factor II
Positive Attitude

Test	Loading
Deferred Gratification	.74
Self-Esteem	.66
Job Holding Skills	.63
Attit.Toward Authority	.50
Job Knowledge	.39
Motiv. for Achievement	.36
Job Seeking Skills	.30

Factor Variance = 2.2

Factor III
Vocational Ambition

Test	Loading
Voc.Int.-Science	.79
Voc.Int.-Aesthetic	.74
Level of Vocat. Aspir.	.73
Voc.Int.-Service	.73
Voc.Int.-Business	.71
Voc.Int.-Technical	.70
Voc.Int.-Clerical	.69
Voc.Int.-Outdoor	.63
Level of Vocat. Plans	.46

Factor Variance = 4.5

(Females, N = 590)

Factor I
Cognitive Skill

Test	Loading
PR-Zip Coding	.79
Job Seeking Skills	.76
PR-Map Reading	.75
Job Knowledge	.66

Factor Variance = 2.5

Factor II
Positive Attitude

Test	Loading
Deferred Gratification	.72
Attit.Toward Authority	.59
Motiv. for Achievement	.53
Self-Esteem	.52
Job Holding Skills	.45

Factor Variance = 1.7

Factor III
Vocational Ambition

Test	Loading
Voc.Int. -Clerical	.74
Voc.Int. -Business	.72
Level of Vocat. Aspir.	.70
Voc.Int. -Service	.65
Level of Vocat. Plans	.50
Voc.Int. -Science	.48
Voc.Int. -Aesthetic	.39
Voc.Int. -Technical	.30

Factor Variance = 2.8

Interest scales, along with Level of Vocational Aspirations and Level of Vocational Plans. The only minor sex difference on this factor is a reasonable one, in that females who score high on the dimension do not tend to favor the choice of job tasks depicted on the Outdoor scale; probably because they cannot perceive these as appropriate for themselves as women living in an urban environment (i.e., tasks of sowing crops, caring for farm animals).

Factor II is similar for both sexes as one that unequivocally defines the trainee holding Positive Attitudes by virtue of having its highest loadings on those measures that deal with Self-Esteem, Deferred Gratification, Motivation for Vocational Achievement, Attitude Toward Authority, and Job Holding Skills. All of these deal with the individual's perceptions of himself and what he believes would constitute appropriate behaviors in various situations. Here the sex difference of note is a tendency for the factor (among males only) to pick up a slight cognitive component with interpretable levels of loadings on Job Knowledge (.39) and Job Seeking Skills (.30). Not only has a similar sex difference in the loading patterns been found for this particular factor, in results with N.Y.C. samples, but the same three factors discussed above have also appeared as the dominant ones in those previous analyses (Freeberg, 1968, 1970; Freeberg & Reilly, 1972).

Pre- and Post-Score Changes

Mean scores at OIC entry (Pre-Feeder course) and following the four to six week Feeder training are shown in Table 4. Very little change was observed in the test scores, although they tended to be in the expected

Table 4

Test-Retest, Pre- and Post-Feeder Program
Means and Standard Deviations

(N = 107)

Test	Pre-Test M	Pre-Test σ	Post-Test M	Post-Test σ
1. Job Knowledge	19.7	2.7	19.8	2.6
2. Self-Esteem	38.5	5.2	38.9	4.1
3. Deferred Gratification	52.9	6.7	53.0	7.4
4. Level of Voc. Aspir.	208.4	28.0	205.2	28.0
5. Level of Voc. Plans	167.1	36.1	176.9	37.0*
6. Aspirations minus Plans	40.8	33.5	28.9	37.8
7. Attit. toward Authority	44.5	8.9	45.9	8.6
8. Job Seeking Skills	12.4	2.9	13.0	2.7
9. Job Holding Skills	30.6	2.8	31.1	1.8
10. Motiv. Voc. Achievement	53.7	14.2	60.5	13.5[1]
11. PR-Map Reading	5.4	2.5	5.9	2.8
12. PR-Zip Coding	7.7	2.2	8.2	1.9
13. PR-File Card	9.1	1.3	9.6	0.7
Interest:				
14. Aesthetic	11.3	2.3	11.4	2.4
15. Science	11.2	2.6	11.4	2.4
16. Technical	10.0	3.0	10.3	2.7
17. Clerical	12.7	2.2	12.3	2.4
18. Business	11.9	2.4	12.0	2.3
19. Service	12.7	1.9	12.1	2.1
20. Outdoor	7.8	2.9	7.9	2.7

* Significant at .01 level

[1] Significant at .02 level

direction as indicated by the higher mean score after the Feeder Program. However, only two of the mean changes represent significant improvement. These appear for the higher Post-Feeder Motivation for Vocational Achievement score (CR = 4.7; $p < .01$) and Level of Vocational Plans (CR = 2.52; $p \cong .02$).

These results are presented only for cursory examination since, as indicated previously, the relatively small sample of 107 may be biased in a number of ways. In addition, little change in the constructs measured could be expected to occur over such a short time span. Under any circumstance, the contrasts from one time period to another remain difficult to interpret without some form of control group for comparative purposes.

B. Criterion Dimensions

The sets of 30 Program Completion and 35 Post-Program criteria were each factor analyzed using a principal components solution with Varimax rotation to orthogonality. In the case of the Program Completion criteria, the sample size of 304 allowed for separate factor analyses by sex. The Post-Program criterion sample of former trainees who had obtained full-time employment (and for whom the full range of job dependent criterion variables were applicable), however, dictated the necessity of combining males and females into a single sample of 103.

Program Completion (Short-Term) Criterion Dimensions

Interpretable criterion factors and their loadings, as extracted from the 30 x 30 intercorrelation matrices for males and females, are shown in Tables 5 and 6. Along with each set of loadings, the total factor variance accounted for is shown as an indication of factor

Table 5

Rotated Loadings for
Program Completion Criterion Factors

(Males; N = 115)

Factor I
Training Program Adjustment

Variable	Loading
Voc. Skill Instructor Rating	.74
# Absences	-.65
Remedial Instructor Rating	.50
Trouble with Police	-.40
Peer Rating	.37
Feelings of Voc. Adequacy	.35
Counselor Rating	.29

Factor Variance = 2.2

Factor II
Personal-Social Adjustment

Variable	Loading
Get Along with Family	.76
Awareness of Job Characteristics	.72
Save Money	.55
Family Feelings About Trainee	.48
Peer Rating	.41
Importance of Keeping Out of Trouble	.31
# People Giving Hard Time	-.30
# Health Problems	-.30

Factor Variance = 2.4

Factor III
Monetary Expectation

Variable	Loading
Starting Salary Expected	.89
Top Salary Expected	.86
Least Pay for Desired Job	.86
Remedial Instructor Rating	.55
Ways to Look for Desired Job	-.33
Financial Help to Family	.31

Factor Variance = 3.2

Factor IV
Effective Job Planning

Variable	Loading
Level of Long-Term Job Plans	.67
What to do beyond First Job	.63
Important Things to Ask Job Interviewer	.59
# Relevant Ways to Search for Job	.55
# Relevant Reasons for Sel. Present Training Area	.54
Feelings of Voc. Adequacy	.44
Counselor Rating	.30

Factor Variance = 2.5

Table 6

Rotated Loadings for
Program Completion Criterion Factors

(Females; N = 189)

Factor I
Training Program & Social Adjustment

Variable	Loading
Family Feelings About Trainee	.64
Counselor Rating	.64
Get Along with Family	.61
Peer Rating	.56
Remedial Instructor Rating	.53
# People Giving Hard Time	-.53
Feelings of Voc. Adequacy	.47
Voc. Skill Instructor Rating	.29

Factor Variance = 2.6

Factor II
Positive Job Orientation

Variable	Loading
What to do beyond First Job	.67
Long Range Job Plans	.66
Awareness of Job Characteristics	.45
Ability to Carry Out Plans	.43
# Relevant Ways to Search for Job	.41
Important Things to Ask Job Interviewer	.36

Factor Variance = 2.1

Factor III
Monetary Expectation

Variable	Loading
Amount of Pay Acceptable	.85
Starting Salary Expected	.84
Top Salary Expected	.83
Level of OIC Training	.32
# Jobs Willing to Train For	-.32
Voc. Instructor Rating	-.32

Factor Variance = 2.8

Factor IV
Vocational Confidence

Variable	Loading
Job Knowledge	.68
Ability to Perform Job	.65
Save Money	.59
# Relevant Ways to Search for Job	-.38
Feelings of Voc. Adequacy	.37
Job Motivation	.33
Level of OIC Training	-.30

Factor Variance = 2.1

dominance. As before in the analyses of the test battery, loadings of approximately .30 or greater are utilized for factor interpretation. Although factor designations for males and females reflect broad similarities, there are a number of differences in the specific loading patterns. Factor I in each sample (Training Program Adjustment for males and Training Program and Social Adjustment for females) is clearly one that defines trainee behaviors indicative of success in the program based on ratings by peers, counselors, remedial and vocational skill instructors and (for males) absences over the course of training. Only one aspect of social adjustment accompanies program success for males in the form of "Trouble with Police"; whereas, females show a much broader component of family and community adjustments along with their adjustment to the training program (thus, dictating the somewhat different designation for the female version of the factor). Social adjustment variables for males combine to form a readily interpretable and separate factor of Personal-Social Adjustment (Factor II) that defines a trainee who is adjusting in terms of family, community and peers; in his perceptions of work, his need to avoid trouble and his assessment of his personal health.

The factor that is dominant in each sample, in terms of factor variance (Monetary Expectations; Factor III) is quite similar for the sexes; being definable almost exclusively from the high positive loadings on salary expectations (starting salary, top salary and minimum pay expectations for a desired job). Among males, those who have their sights set on higher earnings tend to receive higher ratings by one of the instructors (Remedial Skills Instructor). Females with such ambitions, by contrast, show a slight tendency to receive a lower rating (i.e., from the

Vocational Skills Instructor). Other negative aspects of performance also enter into the factor, to a minor degree, for both sexes. For males, those scoring high on the factor show lesser knowledge of effective ways to search for a desired job. For females, there is an unwillingness to volunteer to train for a variety of different jobs with high monetary expectations.

The remaining criterion factor for males has a vocational focus that depicts Effective Job Planning (Factor IV) dominated by knowledge of what to do if the first job obtained after OIC doesn't work out, a higher level of long-term job plans, knowing important questions to ask a job interviewer about a prospective job, the best ways to search for a job and more relevant reasons for having selected the particular vocational area for training in OIC. This pattern bears a marked resemblance to Factor II for females, which carries the same designation and dominant loadings on most of the same variables.

Relatively unique to the female sample in its loading pattern is Factor IV, Vocational Confidence, which defines a trainee who is confident of her knowledge of a desired job and her ability to perform it, along with a positive attitude toward work in the form of stronger Feelings of Vocational Adequacy and Job Motivation. However, the confidence may be somewhat misplaced (i.e., overconfidence?) since the trainee appears to be less capable of describing relevant ways to search for jobs. Moreover, these women tend to be enrolled in lower status level occupational courses in OIC.*

* Areas of training were rated for status level on the basis of the NORC Occupational Status Scale (Duncan, Hatt & North, 1961).

Although some few criterion variables used here differ from those used with previous (N.Y.C.) study samples, the resulting criterion factor designations dealing with training program adjustments, social adjustment, and planning capability were found to be equally present and interpretable for those younger school dropout trainees of the N.Y.C. program--with specific loading patterns being only approximately comparable. The difference of primary interest is that the Monetary Expectation factor which appears as dominant for OIC males and females was not at all evident in the N.Y.C. samples.

Post-Program (Longer-Term) Criterion Dimensions

From the 35 x 35 intercorrelation matrix of post-program criterion variables (both sexes combined) four interpretable factors were extracted and are presented below (Table 7) in terms of their designations and loadings.

The most clearly interpretable and dominant factor is the one designated as Overall Employment Success (Factor I) with its primary loadings on the variables of Salary Raise, Promotion, Job Satisfaction, Length of Stay on the Job, Saving of Money, and Current Employment Status (i.e., at the time of the interview).

Another and somewhat different form of job success appears as largely specific to the worker who entered a blue collar employment setting (Blue Collar Job Success; Factor II). This cluster of criterion variables depicts a former trainee who entered a blue collar job setting, obtained a higher level job, higher starting salary, expressed greater job satisfaction, had higher job pay expectations for the future, and,

Table 7

Rotated Loadings for Post-Program Criterion Factors

(N = 103)

Factor I
Overall Employment Success

Variable	Loading
Save Money	.59
Raise in Salary (No/Yes)	.58
Met Job Expectations	.55
Job Satisfaction	.55
Employed (At Time of Interview)	.54
Promotion (No/Yes)	.54
Length of Stay on Job	.47
Family Feelings about Trainee	.43
Ways of Finding Next Job	.36

Factor Variance = 3.1

Factor II
Blue-Collar Job Success

Variable	Loading
Top Pay Expected	.67
Job Quality Level	.64
Level of Future Job Sought	.63
Amount of Starting Salary	.58
Job Satisfaction Scale	.49
Blue/White Collar Employment	-.47
Met Job Expectation	.40
# Contacts to Find Trainee	-.35

Factor Variance = 3.0

Factor III
Job-Seeking Effort

Variable	Loading
# Places Interviewed	.82
# Applications Filed	.80
# Sources used to Find First Job	.54
Received Unemployment Payments (No/Yes)	.38
Length of Stay on Job	-.36
Knowledge of Desired Job	-.36
Hours Worked/Week	-.35

Factor Variance = 2.7

Factor IV
Social Adjustment & Job Planning

Variable	Loading
Long Range Job Plans	.72
# People Giving Trainee Hard Time	-.55
# Ways to Carry Out Job Plans	.48
Financial Help to Family	.47
Going to School (No/Yes)	.45
Blue/White Collar Employment	.40
Employer Rating	.35
Hours Worked/Week	-.32

Factor Variance = 2.3

if he left the present job, would tend to seek one of higher status level. Factor III, interpreted as one of Job Seeking Effort, seems reasonably definable on the basis of its highest loadings on number of places interviewed, applications filed, and sources used to find a job. The diligent search, however, does not characterize someone for whom the effort has necessarily paid off, in that this former trainee is one who has worked fewer hours per week, spent less time on the job he held (or holds), and has tended to receive more unemployment insurance payments.

The fourth factor (Social Adjustment and Job Planning) is not as clearly interpretable as the first three, since it seems to incorporate elements that would be thought to constitute somewhat separate dimensions.* The job planning aspect of the factor is apparent in its loadings on long range plans, knowing how to carry out job plans, and attendance at school on the part of the former trainee who tends also to be the one employed in a white collar setting. Coupled with these are the obvious social adjustment indices of providing financial assistance to the family and better community adjustment (i.e., fewer people giving the ex-trainee a "hard time"). Those who score high on this dimension receive a higher employer rating. Paradoxically they are somewhat more likely to work fewer hours per week.

C. Test Validation

Having identified the criterion factors, the predictive test validities--which are of major interest for present study purposes--can now be

* A number of the variables that load on the factor are probably sex-linked (e.g., "Blue Collar/White Collar Employment" correlates .32 with Sex). Combining males and females in this sample is thus more likely to produce such a "hybrid" effect.

determined using criterion factor scores computed from those short-term (program completion) and longer-term (post-program) dimensions. As implied previously, the greater burden of evidence for demonstrating validity must reside primarily with the program completion criteria, because of more acceptable sample characteristics, better analytical possibilities that stem from the larger sample size, and the opportunity to conduct separate analyses by sex.

Short-Term (Program Completion) Validities

Validity coefficients for the 13 test scores and the Vocational Interest subscales, using factor scores obtained from the Program Completion matrices, are presented in Table 8 for males and Table 9 for females.

Significant validity at low to modest levels for a number of the measures is evident--especially in relation to the Training Program Adjustment dimension. For males the highest predictive validity with that criterion factor is found for the attitudinal measure that reflects awareness of how to behave in the job setting (Job Holding Skills; $r = .34$); while two cognitive measures also achieve respectable levels of validity (Job Knowledge; $r = .28$, and PR-File Card Sorting; $r = .24$). Self-Esteem ($r = .20$) and Deferred Gratification ($r = .22$) add additional evidence pointing to the minimal but significant value of other attitudinal perceptions.

Overall, higher levels of test validity are found for the female sample, among whom the Job Holding Skills test ($r = .36$) qualifies as the most valid measure of the battery, just as it did for males. Job

Table 8

Validities for Test Battery Using Program Completion Dimensions as Criteria

Males (N = 115)

Test	Factor I Training Program Adjustment	Factor II Personal-Social Adjustment	Factor III Monetary Expectation	Factor IV Effective Job Planning
1. Job Knowledge	.28**	.19*	.01	.22*
2. Self-Esteem	.20*	.13	-.03	.16
3. Deferred Gratification	.22*	.09	-.03	.13
4. Level of Voc. Aspir.	.02	-.03	.11	-.08
5. Level of Voc. Plans	-.05	.02	.02	.01
6. Aspirations minus Plans	.08	-.05	-.07	-.09
7. Attit. toward Authority	.07	.18*	.15	.15
8. Job Seeking Skills	.15	.20*	.12	.20*
9. Job Holding Skills	.34**	.19*	.03	.06
10. Motiv. Voc. Achievement	.17	.07	.05	.06
11. PR-Map Reading	.13	.00	.01	.05
12. PR-Zip Coding	.17	.06	.05	-.05
13. PR-File Card	.24**	-.06	-.12	-.02
Interest:				
14. Aesthetic	-.06	-.11	-.04	-.12
15. Science	.07	.11	.08	.14
16. Technical	.00	-.01	.24*	.01
17. Clerical	-.02	.14	-.06	-.09
18. Business	-.07	.02	-.02	-.04
19. Service	.07	.16	.01	.04
20. Outdoor	-.02	-.02	.16	-.04

* Significant at .05 level

** Significant at .01 level

Table 9

Validities for Test Battery Using Program Completion Dimensions as Criteria

Females (N = 189)

Test	Factor I Training Program & Social Adjustment	Factor II Positive Job Orientation	Factor III Vocational Confidence	Factor IV Monetary Expectation
1. Job Knowledge	.25**	.28**	.03	.14
2. Self-Esteem	.16*	.01	.09	.05
3. Deferred Gratification	.16*	.17*	.12	.05
4. Level of Voc. Aspir.	-.13	-.18*	-.19*	-.05
5. Level of Voc. Plans	-.36**	-.18*	.07	-.06
6. Aspirations minus Plans	.25**	.02	-.22*	.02
7. Attit. toward Authority	.14	.04	.03	-.02
8. Job Seeking Skills	.24**	.37**	.15	.10
9. Job Holding Skills	.36**	.21*	-.04	.25**
10. Motiv. Voc. Achievement	.03	-.03	.02	-.03
11. PR-Map Reading	.16*	.21*	-.01	.05
12. PR-Zip Coding	.23*	.14	.03	.17*
Interest:				
13. Aesthetic	-.12	-.16*	-.11	-.11
14. Science	.09	-.02	.04	-.02
15. Technical	-.17*	-.20*	-.06	.06
16. Clerical	-.10	-.03	.05	.09
17. Business	.15	-.14	.04	.02
18. Service	-.03	-.07	-.15	-.01
19. Outdoor	.03	-.01	.01	.05

* Significant at .05 level

** Significant at .01 level

Knowledge (r = .25), Job Seeking Skills (r = .25), and PR-Zip Coding (r = .23) represent the cognitive contribution to validity in their predictive value against the "Program Adjustment" cluster of criterion behaviors. Of interest in the test validities with this factor is the coefficient for Level of Vocational Plans in the form of a relatively substantial negative r of -.36. Along with this is the significant positive value (r = .25) for the Aspirations-Plans discrepancy score (LVA minus LVP). OIC females with high levels of vocational expectation (plans), are the ones least likely to display the behavior pattern that defines success at program completion. This apparent disadvantageous effect of too high a level in occupational goal expectations for females is reinforced by the two negative validities for LVA and LVP with the "Positive Job Orientation" factor (r's = -.18). At the same time, those trainees whose job hopes (aspirations) exceed their expectations (plans) to a greater degree--i.e., where vocational plans are kept well below vocational desires--tend to be the ones who show a higher level of training program success.

With the "Positive Job Orientation" factor, both Job Knowledge (r = .28) and Job Seeking Skills (r = .37) measures are again found to be dominant in their validities, as they were for the Training Program and Social Adjustment factor. Other scattered significant validities for males and females on the remaining criterion factors are self-evident and relatively minor in magnitude.

In terms of the overall validity patterns, the most effective of the tests for males would appear to be Job Knowledge, with its predictive capability across three of the four criterion dimensions, followed closely

by Job Holding Skills and some lesser degree of value for the Job Seeking Skills measure. For females, the best of the measures on the battery are, essentially, the same three as for the males but with considerably higher validities and somewhat different ranking--i.e., Job Holding Skills is clearly of first rank, followed closely by the Job Seeking Skills and Job Knowledge measures. The tests of Practical Reasoning show only minor and scattered indications of validity for these short-term outcomes, with somewhat more promise for females than males.

The Interest subscales have the least demonstrable value with these criterion dimensions; nor would they necessarily have been expected to show strong validity patterns, without the opportunity to examine the relationships within specific vocational skill areas in the OIC program (an impractical approach given the presently available data).*

Longer-Term (Post-Program) Validities

Validities for the test battery, based on Post-Program criteria, are shown in Table 10. The levels of validity achieved are not particularly striking for this relatively small and seriously restricted follow-up sample of 103, that required combining of males and females for any useful analyses. Despite the probable sample limitations, however, the results show certain patterns of relationship that merit comment. One such pattern tends to confirm the earlier indication of a negative relationship between occupational plans and employment success (r's = -.22 and -.23 with the two employment success criterion factors) and is coupled

* Lokan (1973) reports greater predictive validity than shown here for these Interest scales when grades in particular vocational skill areas of secondary school programs are used as the criterion.

Table 10

Validities for Test Battery Using Post-Program Dimensions as Criteria

(N = 103)

Test	Factor I Overall Employment Success	Factor II Blue Collar Job Success	Factor III Job Search Effort	Factor IV Social Adjustment & Planning
1. Job Knowledge	.18	-.07	.07	.13
2. Self-Esteem	-.02	.09	.04	.04
3. Deferred Gratification	.06	.17	-.02	-.02
4. Level of Voc. Aspirations	-.03	-.10	-.06	-.08
5. Level of Voc. Plans	-.22*	-.23*	-.00	.00
6. Aspirations minus Plans	.21*	.17	-.06	-.06
7. Attitude toward Authority	.11	.28*	-.05	.10
8. Job Seeking Skills	.11	.20*	.05	.17
9. Job Holding Skills	.05	.00	-.07	.00
10. Motivation Voc. Achievement	.05	.17	.08	-.18
11. PR-Map Reading	.11	.14	.19*	.20*
12. PR-Zip Coding	.18	.29*	.08	.15
13. PR-File Card	.05	.13	.00	-.08
Interest:				
14. Aesthetic	-.21*	-.03	-.04	-.17
15. Science	-.05	.04	-.07	-.03
16. Technical	-.20*	.08	-.09	-.02
17. Clerical	-.03	.00	-.14	-.04
18. Business	-.01	.17	.01	-.03
19. Service	-.17	.23*	-.03	-.04
20. Outdoor	-.03	.16	-.14	.00

* Significant at .05 level

with an indication that favorable outcome attaches to the trainee who maintains his occupational desires (aspirations) well beyond his actual job plans.*

Two of the cognitive skill tests (Job Seeking Skills, r = .20; and PR-Zip Coding, r = .29) provide modest levels of validity with the most predictable of the post-program criterion factors, i.e., the "Blue Collar Job Success" factor. Attitude Toward Authority, in its relation to that same criterion factor (r = .28), represents the one attitude scale with any worthwhile level of validity. For the two remaining criterion performance dimensions of "Job Search Effort" and "Social Adjustment," PR-Map Reading yields the only two significant validities found.

Scattered and more difficult to interpret validities seen in Table 10 for the Interest subscales could be considered an understandable result of having to combine male and female samples on measures known to be sensitive to sex distinctions.

Employment as Criterion

An opportunity to examine "Employment" as a post-program criterion is possible with the availability of the 103 members of the sample who obtained full-time employment (one week or more) following their OIC training and the 54 who had not found employment during the 6 to 8 month follow-up period. Bi-serial correlations between the dichotomous employment variable (Employed vs. Not Employed) and each of the 20 predictor test scores are shown in Table 11.

* In prior study results, using N.Y.C. trainees (Freeberg, 1974), a similar level of negative predictive validity was found between the LVP measure and "Blue Collar Job Success" (r = -.21) as well as with one other job performance criterion factor (r = -.31 with a factor of "Short-Range Job Orientation").

Table 11

Predictive Validities Using Full-Time Employment
(Employed Full Time vs. Never Employed)
as Criterion

(N = 157)

Test	r_{bis}
1. Job Knowledge	-.08
2. Self-Esteem	.14
3. Deferred Gratification	.13
4. Level of Voc. Aspirations	-.04
5. Level of Voc. Plans	.05
6. Aspirations minus Plans	-.04
7. Attitude toward Authority	.20*
8. Job Seeking Skills	.21**
9. Job Holding Skills	.06
10. Motivation Voc.Achievement	-.09
11. PR-Map Reading	.16*
12. PR-Zip Coding	.12
13. PR-File Card[1]	.33*
Interest:	
14. Aesthetic	.05
15. Science	.05
16. Technical	.10
17. Clerical	.07
18. Business	.15
19. Service	.04
20. Outdoor	.11

[1] Males only, N = 43
* Significant at the .05 level
** Significant at the .01 level

The two tests having the most significant levels of validity with this employment criterion are Attitude Toward Authority and Job Seeking Skills. This tends to strengthen their value as long-term predictors, previously shown above, with the "Blue Collar Job Success" dimension as criterion. It seems logical that those who possess capability in knowing where and how to seek employment would be the ones most likely to find it, while a more positive (i.e., "acceptable") attitude toward those in positions of authority also appears to add to that likelihood. Some prospects for the value of cognitive skill capability as an employment predictor also emerge in the r of .33 for the PR-File Card Sorting test (males only) and is reinforced slightly by the minimal but significant r of .16 for PR-Map Reading.

CONCLUSIONS

In this attempt to validate a test battery for use with trainees in a manpower program that stresses vocational skills development (i.e., OIC), it has been possible to demonstrate the extent to which a number of the measures show promise as valid assessment tools. As might have been anticipated, however, the validity achieved tends to be largely a function of the nature of the criterion measures chosen, their temporal position (as short-term or longer-term outcomes), the quality of the criterion samples or data obtainable, and the sex of the respondents for whom validity is ascertained.

Such considerations argue for limiting the conclusions of the present study primarily to the findings based on the short-term (program completion) criteria. Deficiencies in the post-program criterion data

severly limit the generalizations that can be drawn from these findings. Given the foregoing caveat, it can be concluded that:

(a) Predictive validity of the battery was best against empirically defined, independent clusters of short-term performance outcomes (i.e., criterion dimensions) obtained at training program completion.

(b) Fairly consistent significant validities, at modest levels (r's = .20's to mid .30's), appeared for those cognitive tests dealing with knowledge of the requirements entailed in performing a variety of jobs (Job Knowledge), knowing how to search for and apply for jobs (Job Seeking Skills) and in following directions for job-simulated tasks (Practical Reasoning Skill).

(c) In the attitudinal domain, superior validities belong, unmistakably, to the measure that reflects an awareness of appropriate behaviors in a job setting (Job Holding Skills)--essentially on a par with the measures of cognitive ability. Self-Esteem, Deferred Gratification and Attitude Toward Authority scales reach validity levels that are significant but minimal in magnitude and, as a group, fall distinctly below validity achieved with cognitive measures.

(d) Validities obtained for a measure of trainee vocational plans indicate that females whose occupational expectations are higher tend to be <u>less</u> successful in their criterion performance at the completion of the program. For both sexes combined in a single sample a similar result, with criteria of post-program employment and job success, was obtained.

(e) Interest subscales showed little predictive validity against the broad criterion dimensions. Since those dimensions did not reflect specific jobs or different occupational areas, a more definitive assessment of validity would seem to be contingent upon data that allowed for determining differential validities of the various interest scales against subgroups of occupations entered.

(f) Those short-term criteria of success for which the test battery is most predictable are the ones that form a dimension of "Training Program Adjustment" composed of ratings of counselors, instructors, and peers, along with several measures of adjustment to family and community. This would appear to be the dimension for which test prediction of short-term performance is logically most desirable and for which the data are rather readily obtainable.

(g) Using factorially derived post-program criterion dimensions, designated as "Overall Employment Success," "Blue Collar Job Success," "Job Search Effort," and "Social Adjustment and Planning" only a scattered handful of significant predictive test validities could be found. These were primarily in relation to the "Blue Collar Job Success" criterion dimension for the tests of Job Seeking Skills, Attitude Toward Authority, and a measure of Practical Reasoning. As further confirmation of the value of these measures they are also the ones that have positive predictive relationships with the single dichotomous criterion measure of whether or not the trainee obtained full-time employment after leaving OIC.

(h) Measures of the battery may be considered generally applicable to adult trainees in programs that stress occupational skills, as well as to the younger, adolescent, groups found predominantly in "work-experience" manpower programs (for whom the tests were originally developed). Based on scale scores, dimensional structure of the battery and overall validity patterns, including the criterion dimensions derived for use in validation, a reasonable level of similarity could be said to exist in the test performance of these groups. The similarities occur despite numerous differences in sample composition with regard to education, age, marital status, and the economic conditions during the time periods in which data were obtained.

From these conclusions, the inference may be drawn that the most valid of the tests are likely to be useful as guidance tools for operational assessment purposes in manpower training programs. On the basis of findings for both concurrent validity studies (Freeberg, 1968; Freeberg & Reilly, 1972) and short-term predictive validity studies (Freeberg, 1974), the dominant measures most defensible for programmatic use have continued to be the cognitive ones of Job Knowledge, Job Seeking Skills, and Practical Reasoning abilities, along with the attitudinal scales of Job Holding Skills, Self-Esteem and Attitude Toward Authority. Other tests that define logically relevant constructs remain tenuous until further validation attempts can be made with better quality criterion data.

In addition to the use of these tools for guidance or placement purposes (e.g., to identify "high risk" individuals in a formal counseling

framework), the best of the measures might also be used in an heuristic way for defining areas of strength or weakness in trainee groups (e.g., at program entry) and thus aid in modifying curriculum content. Additionally, in situations where there is substantial congruence between program objectives and constructs measured by the tests, there is some justification for their use as measures of change resulting from exposure to the training program (given proper experimental control in any "before-and-after" study design). Finally, the short-term and longer-term criterion dimensions that define independent, multi-faceted aspects of trainee performance (derived here for test validation purposes) can also provide useful coherent scales for assessing program effectiveness over time.

Any operational use of the most valid of the tests, even on an experimental basis, would, in any event, require compilation of some form of user's manual that provides separate sets of normative information for an adolescent population in a work-experience program and for an older population of trainees in an occupational skills type of program. In conjunction with those data, there should be guides to broad interpretation of each measure (or score profiles for sets of measures) indicating ranges of likely trainee criterion performance based on the level of test validities so far demonstrated.

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APPENDIX A

Program Completion Criterion Variables

(1) Feelings of Vocational Adequacy (7 item scale score)

(2) Status Level of Occupation Chosen for Training

(3) Relevance of Reason for Selection of Occupational Training Choice (Irrelevant/Relevant)

(4) Awareness of Job Characteristics (8 item scale score)

(5) Knowledge of Desired Job after OIC (Trainee self-estimate - 3 point scale)

(6) Ability to Perform Desired Job (Trainee self-estimate - 3 point scale)

(7) Expected Starting Salary (hourly)

(8) Expected Top Salary (hourly)

(9) Least Pay Acceptable (hourly)

(10) Job Motivation (7 item scale score)

(11) Number of Relevant Ways to Search for Job

(12) Number of Important Things to ask Job Interviewer

(13) What to Do Beyond First Job (# Relevant responses)

(14) Long Term Job Plans (Status level of job choice)

(15) How to Carry Out Plans (# Relevant responses)

(16) Peer Rating (6 item scale score)

(17) Get Along with Family (3 point scale)

(18) Family Feeling About Trainee--Trainee estimate of how family thinks he/she is doing (3 point scale)

(19) Financial Assistance to Family (Amount of every $10 earned willing to contribute once job is obtained)

(20) Save Money (No/Yes)

(21) Number of People or Institutions in the Community Giving Trainee a "Hard Time"

(22) Health Problems (No/Yes)

(23) Amount of Trouble with Police (4 point scale)

(24) Importance of Keeping Out of Trouble (3 point scale)

(25) Number of Jobs Willing to Train for

(26) Number of Different Training Area Changes while in OIC

(27) Number of Days Absent (from classes)

(28) Vocational Instructor Rating (10 item scale score)

(29) Counselor Rating (10 item scale score)

(30) Remedial Instructor Rating (10 item scale score)

APPENDIX B

Post-Program Criterion Variables

(1) Number of Contacts (to locate Ex-Trainee)

(2) Working Now (at time of interview - No/Yes)

(3) Blue Collar/White Collar (work setting)

(4) Job Quality (3-item scale)

(5) Number of Hours Worked per Week

(6) Length of Stay on Present Job

(7) Number of Jobs Held since OIC

(8) Number of Sources used to find First Job

(9) Number of Places Interviewed Before First Job

(10) Number of Applications Filed

(11) Extent to which Trainee Met Expectations (3-point scale)

(12) Amount of Starting Salary (Present or most recently held job)

(13) Pay Raise (No/Yes)

(14) Promotion (No/Yes)

(15) Job Satisfaction (9-item scale score)

(16) Top Salary Expectation

(17) Level of Job Sought (if left or lost present job)

(18) Job Knowledge (Trainee estimate - 3-point scale)

(19) Ways to Search for Next Job (# relevant responses)

(20) Level of Long Range Job Plans

(21) Ability to Achieve Plans (# relevant responses)

(22) Going to School Now (No/Yes)

(23) Get Along with Family (3-point scale)

(24) Family Feelings about how Trainee is doing (Trainee Estimate--3-point scale)

(25) Financial Contribution to Family (# of dollars for each $10 earned)

(26) Number of People Giving Trainee "Hard Time"

(27) Health Problems (No/Yes)

(28) Number of times seen a Doctor (since leaving OIC)

(29) Save Money (3-point scale)

(30) Importance of Keeping Out of Trouble (3-point scale)

(31) Use of Credit (3-point scale)

(32) Ease of Obtaining Credit (3-point scale)

(33) Number of Visits to State Employment Service (since OIC)

(34) Unemployment Payments (No/Yes)

(35) Employer Rating (4-item scale score)

APPENDIX C

Twenty-Nine Cities from which OIC Projects Were Drawn for Study Participation

Albuquerque, New Mexico
Atlanta, Georgia
Boston, Massachusetts
Brooklyn, New York
Chicago, Illinois
Cleveland, Ohio
Detroit, Michigan
Erie, Pennsylvania
Huntington, West Virginia
Indianapolis, Indiana
Jackson, Mississippi
Knoxville, Tennessee
Little Rock, Arkansas
Lubbock, Texas
Menlo Park, California
Milwaukee, Wisconsin
Minneapolis, Minnesota
Montgomery, Alabama
Oklahoma City, Oklahoma
Philadelphia, Pennsylvania
Phoenix, Arizona
Providence, Rhode Island
Roanoke, Virginia
Rocky Mount, North Carolina
Spokane, Washington
Stockton, California
Topeka, Kansas
Washington, D. C.
Wilmington, Delaware