AN ANALYSIS OF THE RELATIONSHIP BETWEEN VOCATIONAL ASSESSMENT PROCEDURES AND VOCATIONAL TRAINING OUTCOMES IN A CETA TRAINING CENTER

by

Ruth L. Petkoff

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APPROVED:

L. Miles, Chairman

M. Lichtman

M. Bourouvalas

A. Mysior

N. Chaiofsky

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(ABSTRACT)

The purpose of this study was to discover if predictive variables could be identified to assist manpower programs with decisions concerning trainee program assignment. The primary problem explored was: What is the relationship between selected trainee characteristics, specific vocational assessment procedures and successful outcomes in a CETA skills training center? The research concentrated on demographic variables of age, sex, ethnic group membership, education and family status, as well as scores on three specific assessment procedures: academic tests, work samples, and a work behavior rating instrument.

The study involved a sample of 137 subjects who had completed a vocational assessment experience, had enrolled in one of four vocational classes, and had been terminated, either successfully or unsuccessfully, from a skills training program at the Northern Virginia CETA Skill Center during fiscal year 1981-82. Demographic and test data were analyzed by means of a discriminate analysis program in an effort to differentiate between successful and unsuccessful trainee termination.

The results of the study indicated that for each of the three assessment techniques tested: (1) Academic Tests, (2) Work Samples, and (3) Work Related Behavioral Observations, several significant variables were identified. Results of the discriminant analysis were astonishingly high and appear to demonstrate that statistical relationships

can be proven to exist between certain trainee characteristics, assessment procedures and training outcomes. When the discriminant analysis using the various demographic variables, scores on the work behavior rating instrument, academic tests and work samples were performed, the results were impressive. The discriminant analysis yielded predictive accuracies of 81%-100% for successful and unsuccessful terminatins in three training area. Thus it would appear that the specific demographic variables highlighted by the three assessment techniques employed at the Northern Virginia CETA Program are valuable indicators of trainee outcome.

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INTRODUCTION

Unemployment among culturally, educationally and economically disadvantaged adults ranks as one of our nation's most serious economic problems. The proportion of unskilled jobs in the American economy has decreased substantially over the past decade. This reduction in job opportunities places the worker, who is at the low end of the employment ladder due to a lack of skills, in the ranks of the long-term unemployed. As unemployment of large numbers of these individuals grows persistently upward, pressure is placed on public policy makers. In an effort to ameliorate this situation a variety of legislative enactments, policies and guidelines have evolved.

The Comprehensive Employment and Training Act (CETA) is one such legislative effort and has become a major factor in national manpower policy. First enacted in 1973, it authorized a combination of programs designed to provide specific employment and training services which was intended to prepare and place eligible individuals in unsubsidized employment.

Manpower programs, which are principally concerned with skills training, perform a most important role in meeting the job preparation and placement needs of the disadvantaged. The goal of manpower training programs generally is to obtain suitable employment in the private sector for each trainee. However, due to increased hiring qualification and job competency demands, the problem of training the disadvantaged adult has become exacerbated. Adequate job performance necessitates a substantial degree of appropriate skills, knowledge, attitude and aptitudes.

Training programs for disadvantaged adults emphasize the increasing importance of vocational assessment as an integral part of the process of job preparation and employability development. The Office of Research and Development of the Employment and Training Administration, U.S. Department of Labor, has sponsored research programs and developmental efforts to devise assessment tools and instruments which are tailored to meet the specific needs of the disadvantaged (DOL, 1964, 1968, 1969, 1970).

Vocational assessment is "a process designed to assess and predict work behavior and vocational potential, primarily through the application of practical, reality-based assessment techniques and procedures" (Nadolsky, 1971, p. 1). The armed services, vocational rehabilitation institutes, and other government agencies have long given attention to vocational assessment as a means of properly placing individuals into training programs, or jobs in a wide range of occupations. "It (vocational evaluation) is a service which developed and evolved within a rehabilitation context, but has recently become a definite service within most of the varied manpower programs" (Nadolsky, 1971, p. 3).

Section 205 of the CETA Public Law 95-524 provides an explicit legislative requirement for vocational assessment and mandates that:

> An assessment of appropriate training and supportive services shall be made at the time of entrance to a program assisted in part or in whole by this title, which shall be reviewed periodically throughout the duration of the individual's participation in a program funded under this title. Such assessment shall be included in each individual's participation in a program funded under this title. Such assessment shall be included in each individual's employability plan.

Thus the statute indicates not only the recognition by the funding agencies of the importance of assessment to determine the vocational potential of CETA participants but specifically requires that program operators make an assessment of appropriate training and supportive services when participants are initially enrolled into the program.

The intent of this requirement is to focus attention on the ability to predict training potential and work behavior by assessing, in advance, the specific aptitudes and abilities of a participant. This is done by relating assessment findings to work requirements, and outlining training services which are based upon the logical relationship between client assets and occupational requirements. Thus participant assessment is not only required for all CETA-sponsored programs under current legislation, but will occur wherever there is more than one service delivery option for an agency's participants. That is, gathering essential information from which decisions can be made is mandatory when an agency can select from several possible training options for a participant. The product of the assessment process is a written employability development plan, a document prescribing the training required and the supportive services to be provided each participant. The employability development plan is designed to assist each participant to obtain the most accurate description of his/her abilities and interests in relation to available job prospects.

If the CETA programs are to succeed in meeting a client's total training needs, as well as adhering to the mandated regulations of the CETA Act, understanding of the assessment process will significantly contribute to the elimination of unemployment and under-employment.

Background of the Problem

The advent of Section 205 of the CETA PL 95-524 requiring that an employability development plan, based on an assessment procedure, be developed for each participant has necessitated a re-examination of the assessment process. The fact that the 1979 guidelines mandated assessment indicates an implicit assumption that vocational assessment has value. It implies that knowledge of a client's personal characteristics

will assist in predicting behavior in a prospective work situation. Vocational assessment makes the statement "if . . . then" which has its analog, "If we determine this to be . . . then the options will be . . . ." The focus is on prescriptive as well as predictive results. That is, if there is a well-defined diagnosis of an individual's vocational potential, appropriate training and supportive services can be identified. These, in turn, will help the client to develop the requisite abilities and proficiency demanded by employers, such that ultimately he/she may attain employment.

Because legislation mandated an assessment process, educational and training institutions across the nation are developing procedures for the assessment of their CETA clients. However, this activity is taking place without any real data with respect to the results of their methods. The impact of vocational assessment on participants of vocational training programs has been a major concern of educational institutions, rehabilitation agencies, the armed services and the employment and training division of the Department of Labor (Backer, 1972; Bruno, 1978; Nadolsky, 1971; Mangum & Walsh, 1978; U.S. Department of Labor, 1969). Questions concerning the value and methods of such assessment have been given extensive attention (Backer, 1973; Nadolsky, 1973; Calabro, 1973). The extent to which assessment has contributed to the various outcomes of occupational training has been a matter of substantial controversy in vocational training. In most programs, a number of different assessment procedures are generally applied. To date, however, there is no definitive data concerning the effectiveness of any individual procedure or any combination of procedures. It is not known whether the various procedures used duplicate or complement each other as predictors of trainee performance. While there is much testimony to the effectiveness of vocational assessment, there is a dearth of quantitative research in this area. Thus, the relationship of vocational assessment to the performance and outcomes of

disadvantaged adults enrolled in skill training programs remains unclear. Because of the importance and magnitude of this issue this study was undertaken.

Statement of the Problem

The primary problem explored in this study was: What is the relationship between vocational assessment and training outcomes in CETA skill training programs?

To provide guidance for the collection of data for this study, the following research questions were posed:

1. What is the relationship between the selected demographic variables of age, sex, ethnic group membership, education, family status, hours of training, hours absent and trainee outcomes?
2. What is the relationship between scores on academic tests and trainee outcomes?
3. What is the relationship between scores on selected work samples and trainee outcomes?
4. What is the relationship between scores on a work behavior rating instrument and trainee outcomes?
5. Will combining the factors studied significantly increase the predictability of trainee outcomes?

Objectives of the Study

The overall purpose of this study was to examine the effects of a vocational assessment experience upon the performance and outcomes of one hundred and thirty-seven (137) individuals enrolled in a CETA Skill Training program. More specifically, the objectives were to determine:

1. The relationship between specific demographic variables of age, sex, ethnic group membership, education, family status, hours of training, hours absent and trainee outcomes.
2. The relationship between scores on academic tests and trainee outcomes.
3. The relationship between scores on selected work samples and trainee outcomes.
4. The relationship between scores on a work behavior rating instrument and trainee outcomes.
5. Whether combining the factors examined significantly increases the predictability of trainee outcomes.

Trainee outcomes were measured in terms of "successful" and "not successful" terminations. Federal Regulations require three types of terminations: (a) positive for job placement; (b) other positive; and (c) non-positive. For the purposes of this study, the first two outcomes were considered successful and the third not successful.

Definition of Terms

For the purpose of this study, the following definitions apply.

Vocational Assessment: A formal process wherein academic tests, work samples, and a work behavior rating instrument are used for the purpose of obtaining information concerning the aptitudes, skills, attitudes, and personality traits of enrollees.

Skill Training: The instructional process of providing classroom training and work experiences in specific occupations or cluster occupational categories.

Skill Center: A centralized self-contained facility, operating on a full-time basis, generally under public school administration, specially designed to provide institutional skill training in a variety of occupations for CETA eligible trainees.

CETA Client: A participant in a program funded by The Comprehensive Employment and Training Act Amendments of 1978, Public Law 95-524. To be eligible for entry into the program an individual must be economically disadvantaged, and either unemployed or under-employed. The phrases "economically disadvantaged", "under-employed person", and "unemployed person" are used as precise terms in the CETA regulations and, therefore, will also be so used throughout this study.

Terminations: Trainees were considered to have been terminated from the program either successfully or unsuccessfully according to any of the following conditions:

(1) Successful termination includes:

Positive for job placement: Any individual who was placed on a job after training, or any trainee who obtained a job through his/her own efforts.

Other Positive: Any trainee who terminated for one or more of the following reasons:

(1) to enroll full-time in an academic or vocational school;

(2) to enter military service;

(3) to enroll in another manpower vocational program not funded by CETA;

(4) to engage in another activity which would increase his or her employability.

(2) Unsuccessful termination includes:

Non-Positive: Any trainee who terminated for any reason other than those listed under job placement or any other positive termination.

Significance of the Study

Current practices in training programs for adults enrolled in CETA vocational skills classes place heavy emphasis on vocational assessment. Reliable evidence with respect to the value of assessment procedures is badly needed. Programs cannot afford to continue on the basis of unreliable information or hunches regarding the assessment process. Prime sponsors, program operators, and training administrators all require precise information regarding what has happened to their clients after they have gone through an assessment process. It is the intent of this study to meet this need regarding one particular assessment program.

It is anticipated that this study will contribute to a phase of the research required to substantiate assessment practices as an integral component in vocational education programs for diadvantaged adults. It will help to build a systematic knowledge base and concomitantly provide a basis for critical evaluation of the assessment process in adult vocational training programs. The study will have practical implications as well and should lead to the improvement of current assessment procedures. It will provide practitioners with a greater understanding of assessment outcomes which will result in improved placement of individuals into proper training. It will also develop useful information and peripheral knowledge which will render ancillary benefits to employment and training educators responsible for developing and operating assessment programs as well as administrators who are required to make decisions concerning assessment procedures. The study will also be of interest to persons concerned with assessment in other settings such as vocational rehabilitation agencies, the military services, vocational training establishments and private sector personnel offices.

Limitations of the Study

The following limiting factors apply to this study:

1. The population examined will be composed of CETA eligible trainees enrolled at the Northern Virginia Skill Center from October 1, 1981 through September, 1982. The uniqueness of the Skill Center setting and the trainee sample studied limit the interpretations that can be made on the basis of the results obtained. This study will deal with CETA trainees in Arlington, Virginia. The sample is not intended to be considered typical of other adult trainees enrolled in CETA programs in other communities.

2. While there are undoubtedly many peripheral factors which influence training outcomes for adult trainees, only a selected group of factors will be investigated.

Organization of the Study

Following the background information and purposes of the study discussed in Chapter One, general and research literature in the field related to the research problem is reviewed in Chapter Two. The major emphasis of Chapter Three is on the methodology of the study, the collection of data, and the analysis of the data. In Chapter Four, the result of the study and the analysis of the data are discussed relative to the questions posed. Chapter Five is devoted to a summary of the study, conclusions based on the data obtained, and recommendations for further research.

CHAPTER TWO

REVIEW OF THE LITERATURE

Overview

The review of the literature for this study is organized into three parts. The first section is concerned with manpower legislation and regulations as they relate to the education and training of adults. The section sets out the philosophical and legislative foundations for developing the concepts of the assessment process. It is essential to understand the federal government and state roles in program policy since the operation of the program concerning the selection of individuals for training is limited by governmental policies and regulations. The second part identifies studies relevant to trainee characteristics, selection of trainees, and selected variables as predictors of trainee success in manpower training programs. The third section discusses the state-of-the-art of assessment and testing. It also attempts to review available information concerning assessment techniques which have special potential for use with disadvantaged adults in manpower training programs.

Manpower Regulations and Selection

A logical commencement point for tracing the start of manpower programs, designed to improve the employability and earning prospects of persons suffering various disadvantages in competition for jobs, is the Manpower Development and Training Act (MDTA) of 1962, Public Law 95-524. Initially the Act was the result of a special Senate committee which focused on the problems of unemployment. The 1960's witnessed a paradoxical situation in the American economy. Hundreds of thousands of Americans were chronically unemployed or underemployed, while at the same time a shortage

of qualified workers existed. That is, the rapid technological changes of the period were forcing thousands of people out of jobs while new technologies and occupations, for which there was a serious shortage of qualified workers, were going unfilled. Levitan (1972) points out: "The combination of increasingly sophisticated technology, the growth of white collar jobs, and the competition of rising educational attainment created a demand for remedial manpower programs. The objective was to improve the employability of those experiencing a variety of disadvantages in the competition for jobs" (p.251). What impressed the senators on this special committee on unemployment, he points out, was the image of adult male family heads with considerable labor market experience, coal miners, steel workers, factory hands, suddenly without jobs as machines took over their employment functions.

The major concern before the nation was clearly the improvement of the creeping unemployment situation. The primary objective of the congress was the expansion of training and retraining programs so that individuals who were unemployed could become productive members of the working community in a reasonable period of time. The threat that automation and technology would displace experienced workers, leaving their skills obsolete and themselves stranded in the labor market, was a major factor in government planning. The challenge of what to do about the jobless became the seed that blossomed into the Manpower Development and Training Act of 1962.

The legislative program was conceived as vocational training for adult workers who had been displaced by technological and economic change. As the then Secretary of Labor Willard W. Wirtz (1963) reported to the Congress, "The new MDTA training program is designed to help unemployed workers meet the requirements of available jobs and facilitate their orderly transition from occupation to occupation and from industry to industry" (p.2).

The original Act was not designed to assist the chronically unemployed, the disadvantaged, unemployed youth, members of minority groups, or any of the other categories of people who suffered from unemployment or under-employment. Its primary emphasis was the retraining of those workers who had lost their jobs because of technological change. Mangun (1967) clearly points this out when he states, "It is clear that the program was originally designed to retrain experienced adult family heads displaced from established jobs by technological and economic change" (p.7).

However, the problem of automation and technological change proved to be not nearly as widespread as had been feared. What did become increasingly apparent was the need for training those persons who had no skills at all. The need for skills training of almost any kind was as great as, if not greater than, the need for retraining those individuals whose skills had become obsolete or whose jobs had been replaced by machines. Thus, the focus of the MDTA shifted and began to concentrate on the groups where the incidence of unemployment was especially high. With the passage of time, more emphasis was placed on helping the disadvantaged. Changes, in the form of additional amendments to the MDTA, were enacted in recognition of other basic problems of unemployment. The new target groups included youth, products of the post-war baby boom; racial minorities who were suffering increased joblessness due in part to the decline in agricultural employment; women, who were suddenly flooding an already tight labor force in unprecedented numbers, as well as older persons and welfare recipients. Levitan (1971) points out that in 1966 and 1967 it was mandated by the MDTA that 65 percent of trainees were to be those identified as disadvantaged. The U.S. Department of Labor defined, "A disadvantaged individual, for manpower purposes, is a poor person who does not have suitable employment and who is either (1) a school

drop out, (2) a member of a minority, (3) under 22 years of age, (4) 45 years of age or over, or (5) handicapped" (Field Memorandum No. 44-89, 1969).

The initial thrust of the MDTA was for vocational skills training within institutional settings, such as community college, skill centers, private and public vocational schools. At first the program provided only classroom and shop training for those individuals who were not expected to obtain employment without such training. Trainees were enrolled in class-size single-occupation programs such as auto mechanics carpentry and typing. When it was discovered that many trainees failed to absorb skills instruction due to an inability to read and write with reasonable proficiency or to perform simple mathematical computations, additional MDTA amendments expanded the program to include other supportive services such as basic education, assessment, and counseling. The MDTA program thus became a vast undertaking. In the decade between March 15, 1962 and June 3, 1972, the federal government allocated approximately $2.5 billion to enroll 2 million trainees (Grossman, 1973). By fiscal year 1977, 445 prime sponsors operated substantial CETA programs with funds of more than $12.7 billion.

However, despite huge allocations of federal funds, there was general discontent with the concept of broad federal guidelines. Those at the state and local levels felt that nationally uniform budget allocations did not meet the needs of their local labor markets. Consequently, a move for decentralization of manpower programs was begun. Decentralization received its greatest boost from the revenue sharing policies of the Nixon Administration. The objective of the revenue sharing approach was to release funds to the state and local government with the proviso that such funds be devoted to providing manpower services (Ginzberg, 1976). As a result, the Comprehensive Employment and Training Act (CETA) was signed into law on December 28, 1973. The

law stipulated that federal funds would be provided to local and state governments for the training or retraining of the disadvantaged workers. (Manpower Information Clearinghouse, 1973). Under this arrangement, unlike the federally administered program of the preceding 12 years, CETA programs would more readily be tailored to meet the needs and labor conditions at the local level.

The enactment of the CETA introduced new concepts into the administration of federally funded manpower programs. The first concept that changed the operations of the programs was the idea of local control. It was assumed that local officials were attuned to the needs of their communities, more sensitive to local conditions, and were therefore better equipped to oversee the planning, development, and operation of training programs within their jurisdictions then were programs operated at the federal level. Thus, state and local units became "prime sponsors" of CETA programs rather than the Federal Government. The new arrangement specified that all states, cities, counties, and combinations of local governmental units, with populations of 100,000 or more, would receive direct federal aid grants to design and administer their own programs. These states and local government units had the option to operate their own programs or develop contractual arrangement with local educational agencies or other facilities to provide these services.

A second concept emanating from the change in statute was flexibility. It is clear that the new law established a flexible, decentralized system of employment and training activities, and provided and expanded the kinds of services that prime sponsors could choose to make available to participants. The increased flexibility provided additional services such as classroom and on-the-job training, work experience, subsidized jobs with public and nonprofit agencies, basic education and other supportive services. The Program Activities and Service Guide (1973) describes the many activities available

to participants as well as strategies, models and techniques which may be employed by program operators to implement these programs.

The change in program administration was not, however, devoid of problems. A pressing concern centered on matters pertaining to participant selection. Because of the increase in CETA activities designed for disadvantaged adults and the increasing number of potentially eligible participants, the problem of selection became more critical. The CETA regulations contained explicit language in reference to the intake and selection of trainees. It provided that, "A sound intake process assures that eligible persons who may best benefit from the program are enrolled" (p.11-1).

It is the clause "who may best benefit from the program" which presents a problem. Some prime sponsors interpret this language to mean those individuals who are most in need of training, while others take the position that training should be provided to those most likely to succeed. Thus the assessment process becomes the crucial element in selection

The importance of the assessment process has been discussed from several perspectives. One point of view is that intake and assessment processes are in reality screening advices and do not constitute a commitment to serve the disadvantaged. Walther (1973) points out:

> It has frequently been argued that manpower programs are avoiding their responsibilities unless they concentrate on the clients with the most severe employability problems, the ones who need help the most. This is the familiar "creaming" controversy of the last decade. Research results suggest the paradox that manpower programs may be doing the very clients they want to help a disservice if they follow selection and retention policies which overload the program with poorly motivated and low-achieving enrollees.

Walther takes the position that a disproportionate number of trainee terminations before completion of their program was indicative of poor selection processes. His study

recommends that more emphasis be placed on pre-training assessment in selection in order to avoid a high drop-out rate.

Levitan and Taggert (1971) concur, in reporting on a project which dealt with the handicapped, ". . . yet those chosen for rehabilitation were 'creamed' openly and without apology from the universe of an estimated 4 million physically handicapped. After an initial evaluation, only those with reasonable prospects of success were helped" (p.23).

Weismer (1973) is also in agreement, stating that: "specific diagnostic information must be obtained if appropriate instructional strategies and effective remedial prescriptions are to be delivered for students classified as disadvantaged" (p.39).

In a study of trainees in a MDTA program in Texas, Andrews (1971) relates an experience wherein a number of trainees were enrolled in a program without adequate assessment. Soon many of them dropped out of training. He makes the point that this is particularly tragic for the unqualified trainee who is bound to fail. Since most of these participants have already had a great deal of experience with failure, they desperately need to find a place where they can achieve some measure of success. In addition, since money and training positions are limited, such inappropriate practices frequently eliminate individuals who could have benefited from the program.

Summary

Training policy in national manpower programs has been determined more or less by haphazard legislation. The jumble of implementing regulations and directives has made difficult the problem of selecting clients for potential completion of skills training and subsequent employment. While the literature concerning manpower training is quite extensive, due to the diversity of types of programs and their objectives, relatively

little of this body of literature directly addresses the concerns of this study. Manpower training research efforts have mainly concentrated on the impact of training on the labor market. While much research has been performed in the field of placement, earnings, attitudes toward work, job satisfaction, hiring practices, and discrimination in employment, one of the weakest links in the delivery of training programs for the disadvantaged lies in a lack of knowledge of the assessment process. However, as previously stated, this section has been included here because it is essential to understand the role the government plays in formulating program policy and because the selection of participants is constrained by governmental parameters and regulations. While research studies are sparse in this area, there is general agreement in existing literature which confirms the need for adequate and appropriate assessment procedures relating to manpower training programs.

Research Relating to Trainee Characteristics

The literature concerning trainee characteristics has dealt with the identification of factors related to the participation and achievement of disadvantaged adults in vocational training programs (Andrews, 1971; Calabro, 1973; Kuntz, 1968; Monson, 1969; Pucel, 1968). Other studies have been more concerned with the relationship between motives for attendance and social and personality variables (Boshier, 1973; Erwin, 1975; Hubbard & Marquis, 1976). Each of these studies will be addressed briefly in this section.

One important study which focused on participation and achievement was conducted by Pucel (1968). He conducted a study of descriptive data of trainees in order to determine whether such descriptive data were predictive of employment status upon the completion of training. The personal variables investigated included age, sex, marital status, the number of years of formal education, high school curriculum, and

the individual's scores on the General Aptitude Test Battery. He concluded that there was no single predictor of success in training.

The purpose of a study conducted by Monson (1969) was to determine the relationship between length of training and self-concept; age and self-concept change; mental ability and self-concept; and educational accomplishments and self-concept change. In defining the purpose of his study Monson states:

> Motivation of school learning and training depends upon such factors as the learner's purpose or intent to learn, his self-concept, his self-confidence, his level of aspiration and his knowledge and appraisal of how well he is doing in relation to his goals.

Monson divided the population under consideration into those who completed the training program and those individuals who did not. Those who failed to complete the program were further divided into those who passed the G.E.D. tests and those who failed. Monson determined that educational accomplishment and age were significant factors in changing self-concept during the training program. He further found that older trainees reflected a more positive self-concept change than did younger trainees.

Kuntz (1968) also found that older trainees achieved success more often than younger trainees. He investigated the correlation between test scores, selection procedures and trainee success in gaining employment in training related occupations. He collected data for 244 unemployed or under-employed persons enrolled in eight training classes at the James Connally Technical Institute. Utilizing a multivariate approach, Kuntz examined the relationship between assessment and subsequent success or failure in obtaining training related employment. Eleven assessment variables, intelligence, verbal aptitude, numerical aptitude, spatial aptitude, form perception, clerical perception, motor coordination, finger dexterity, manual dexterity, age, and educational level were considered. Only three variables, finger dexterity, age, and

educational level, were found to be significantly related to an increase in salary after training. Specifically, persons employed in training related occupations were older, had more education, and displayed signficiantly higher finger dexterity scores than those who were less successful. Kuntz concluded that age, educational level and finger dexterity were reliable variables to be considered in selecting trainees.

Another approach to the assessment of trainee characteristics was taken by Calabro (1973). He studied nine independent variables: age, sex, marital status, last grade attended in school and beginning occupational training, wide range achievement tests reading scores, spelling scores, arithmetic scores and military service. The data were derived from MDTA application information forms and MDTA termination forms obtained from the Community College of Denver.

Unlike Kuntz and Monson, Calabro concluded that, while age had the highest correlation with program completion of any variable included in the study, age alone did not account for enough of the variance to be of practical value.

Andrews (1971) sought to determine what statistical relationships could be demonstrated to exist between certain trainee characteristics and successful training in a Nebraska Manpower Skill Center. He postulated that if solid predictive criteria could be developed, counseling effectiveness and trainee satisfaction could be improved. A sample of 596 cases who had been terminated from seven different skill areas of the Omaha Skill Center in 1969 and 1970 was obtained from the record folders of terminated trainees. Demographic and test data were analyzed to determine the relationship of various factors to successful and unsuccessful terminations from the Center. Like Kuntz and Monson, Andrews found that older trainees were significantly more successful in their training than the younger trainees. He further concluded that females were more successful than males, and that non-whites were more successful than whites.

More recent research, relating to trainee characteristics and achievement, demonstrated the potentiality of a biographical information questionnaire (BIB) as an assessment device. The BIB, which was developed under a research contract from the Department of Labor by Richardson, Bellows, Henry & Company, (RBH), is a questionnaire form containing 66 items of biographical data. Many of the questions are similar to those found in traditional application forms. The items cover nine major categories: home and family, work and military experience, education, self-image, organization of time, attitude, values, and feeling. The questionnaire has been used in predicting length of participation in Job Corps (RBH, 1970), and for predicting job tenure among Employment Services applicants (RBH, 1971). The most recent study conducted by RBH (1979) involved administration of the BIB to Work Incentive program enrollees (WIN) in 10 cities. The results indicated a strong correlation between BIB scores and WIN outcomes in the participating cities. It was found that the success levels (percent employed) of the cities actually using BIB scores in making program decisions were substantially higher than those which did not. The researchers concluded ". . . that biographical information utilization can identify in advance of placement and from among disadvantaged populations, a significant sub-group who will remain in employment and in manpower programs longer and who are consequently more likely to be successful." (p.59)

Another research project, funded by the Department of Labor, was conducted by the Institute of Social Research at the University of Michigan. The major effort of this research was directed toward the development of valid, reliable measures of achievement orientation. The researchers Hubbard and Marquis (1976) state:

> The impact of personality variables on training outcomes and economic success is unclear. Some variables do seem to help account for better performance in the job market and in training. However, the explanations for these results are not always consistent, do not always conform to existing theoretical models. What is needed is the development of more comprehensive models of achievement motivation that can be applied to the complex problems of training and employment. (p.90)

In addition, Monson (1969), Pearce (1966)and a California State Department of Education progress report on Manpower Training (1974) recommend that additional research be conducted on trainee characteristic variables. These research efforts clearly recognize the potential value of vocational assessment procedures and indicate an appreciation for their relevance in adult training programs. A void exists in the literature pertaining to vocational assessment of disadvantaged adults within the field of vocational training. The present state of the art is only in its earliest stages and as a result concepts and strategies are inconclusive. Almost all of the researchers emphasize that a major problem for the study of special groups was the paucity of research upon which to make sound inferences.

In developing theoretical research procedures for a study of adult education participation and dropouts, Boshier (1973) concurs and elaborates:

> These relationships between motives for attendance and the social, psychological and institutional variables typically studied in participation surveys, are at present unclear because major motivation studies have employed theoretically impoverished checklist methods of date collection. (p.262)

Boshier challenges adult educators to conduct research that is meaningful and useful to the practioners in the field. He contends that reliance on old models of inquiry limit the field's scope of investigation and recommends that researchers expand the spectrum of inquiry in order to meet current needs.

Summary

This review of research concerning trainee characteristics indicates that the utility of assessment of trainee performance, as yet, remains unclear (Calabro, 1973; Hubbard & Marquis, 1976; Kuntz, 1968; Monson, 1969). Reliable social, psychological, and institutional variables are difficult to identify (Hubbard & Marquis, 1976) and adequate data collection methods have not been developed (Boshier, 1973). Although a number of researchers have attempted to identify appropriate variables and to establish an effective methodology, to date, only age has been identified as a reliable variable (Calabro, 1973; Kuntz, 1968; Monson, 1969). Although age is regarded as the best predictor of performance to date, it only accounts for a small proportion of the variance observed in trainee outcomes.

While the research literature relative to trainee characteristics has been sparse and inconclusive, three researchers have attempted sophisticated multivariate approaches to identify reliable variables (Andrews, 1972; Calabro, 1973; Kuntz, 1968). These important studies are the precursors of this research effort. They provide valuable information which will be considered and incorporated into this model.

Participant Assessment

The purpose of this section is to present relevant background information as well as conclusions from some of the major studies in the area of participant assessment. A comprehensive search of the literature on participant assessment procedures for disadvantaged adults discloses that there is virtually no literature bearing upon the identical type of vocational assessment program with which this study is concerned. Although innumerable journal articles, professional books, bulletins, manuals, and other printed matter were examined, almost none of the information, even though some of

it was related, described an identical project. This is primarily due to the fact that most of the literature relates to educational and employment testing. Consequently it appears that this study involves breaking nearly unbroken ground.

Various terms have been used to describe the process of assisting individuals to make sound vocational decisions, thereby facilitating the most effective use of manpower. Super (1957) makes reference to the term "vocational appraisal", Nadolsky (1971) reports on "vocational evaluation", and Neff (1966) uses the terms "vocational assessment" and "vocational evaluation" interchangeably. For the purposes of this study the term "assessment" will include the concepts of appraisal and evaluation and the commonly used terms "evaluation" or "appraisal" will be referenced only in direct quotes from other sources.

Theoretically, vocational assessment is the process of acquiring information relative to the strengths and limitations of an individual, and prescribing a specific vocational plan for the individual on the basis thereof. Empirically, vocational assessment defines the data to be observed in a work situation together with the methodologies for evaluating potentials, interests, aptitudes, and behavior relevant to successful placement in a training or vocational program (Scelfo & Micali, 1978).

Much time and effort has been committed to the development of procedures and methods to evaluate and predict an individual's work potential. Various sectors of society, concerned with special interests and needs, have devised a broad range of assessment techniques. The categories of standardized testing and work samples appear most prominent among the techniques reported in the literature for predicting vocational potential (Neff, 1966; Moed, 1960). While vocational assessment is not limited to these approaches, Sankousky (1969) points out that they do comprise the bulk of the methods used. A brief overview of these basic areas will be discussed as a means of generally

placing the assessment process into perspective and a way specifically to place this study into the broader range of vocational assessment.

Standardized Testing

The traditional testing approach of measuring vocational potential relies exclusively on standardized psychometric tests. These tests provide measurement tools which utilize abstract tasks, usually paper and pencil tests, used in isolated testing situations. The mental testing movement, which started as an effort to measure intellectual ability, has since become a massive effort to measure almost every determined human ability, including the ability to work (Neff, 1966). This method has been found to be unsatisfactory when used with the variety of people found in both rehabilitation services and industrial settings. According to Neff, pure psychometric testing is inappropriate "when we confront the problem of assessing the vocational potential of people who differ in very important ways from the population samples upon whom the tests were standardized" (1966, p.684). Another serious limitation to this approach is the important differences between the characteristics in a testing situation and those in actual work settings. Backer (1972) in summarizing the shortcomings of traditional paper and pencil tests stated:

> Most traditional paper and pencil tests are similar to classroom examinations with which many disadvantaged persons have a history of failure, and which therefore may make them feel anxious and uncomfortable.
>
> Many of these tests have written directions at a rather high reading level which must be understood by the testee if measurements are to be valid.
>
> Individual test items also may be at a relatively high reading level and may reflect cultural content of which the disadvantaged have little knowledge.

> Item content of tests designed for children but administered to disadvantaged adults may be simple enough in reading level but uninteresting or insulting. This can seriously damage motivation to perform.
>
> Many disadvantaged persons have inadequate experience with tests of any kind, and so do not have the "test wiseness" important to yielding test results that fairly estimate characteristics/capabilities.
>
> Many tests do not seem to bear any significant relationship to the individual characteristics pertinent to job success for most of the jobs the disadvantaged will be seeking.

Gordon (1969) reviewed research studies of test validity for use with disadvantaged youth. His study emphasizes that the disadvantaged are not represented in the normative or validation population for traditional psychological tests. Generally, tests are standarized on samples of white middle-class persons rather than a true sample of the general population. Since white middle-class individuals are generally found to have norms, values, and experiences different to those of many minorities and disadvantaged persons, these tests are often found to be biased against these groups. He therefore concludes that these tests have little or no validity for use with this type of population. In addition he opined that it is often very difficult to establish a relationship between test scores and actual performance on the jobs in which the disadvantaged are placed.

It was reports such as this which made the use of testing in CETA programs a matter of major interest to the U.S. Department of Labor's (DOL) Employment and Training Administration. During 1975, in response to a letter received from the Justice Department to the Department of Labor expressing concern that CETA prime sponsors might be using tests which could interfere with the equal opportunity rights of eligible CETA clients, the DOL authorized a study to investigate this possibility. Accordingly, a questionnaire was developed and administered to CETA prime sponsors and their subagents regarding their use of testing instruments in CETA programs. Mark Battle

Associates (1976) a government contractor was hired to analyze the data from this survey and compare its findings with the available testing literature, to determine whether these tests were appropriate for CETA programs. Findings based on this survey data indicated that the 2685 prime sponsors and subagents who responded to the survey were using 321 different tests. Of the 321 tests used, 196 were not found in the testing literature. The most utilized test was the U.S. Employment Service (USES) General Aptitude Test Battery. In fact, 23% of CETA prime sponsors and their subagents utilized USES developed tests. Additional research was conducted by the Department of Labor to determine whether the tests used were valid for minorities, women, and specific occupations. The DOL findings reported that only 18% of the tests used were valid for specific occupations, while 69% of the tests were not valid for women and 70% of tests were not valid for minorities.

One of the most recent tests used in manpower programs is the Test for Adult Basic Education (TABE). The TABE comprises a series of achievement tests in reading, arithmetic, and language. These tests were developed to meet a growing need for instruments especially designed to measure adult achievement. However, aside from changes in vocabulary to eliminate juvenile references, this is not a specially designed instrument for adults but a repackaging of the California Achievement Test (CAT) which was originally designed for a population of primary through high school students. The norms are based on 1963 standarization of the 1957 CAT and no adult norms are available. Further, minorities are not mentioned in standarization. Although a great deal of research and data has been collected on the use of CAT with school children, no research is reported with respect to the use of the adaptation with adults. The Rehabilitation Research Foundation reports their experience with the use of the TABE as a basic diagnostic instrument in their operation of a skill training project for inmates

at a correctional center in Alabama. They report that they place their students on a learning track according to the scores on the locator test for the TABE. However, no information as to reliability or validity of the TABE is reported. Still, as Alan Cohen in his review of the TABE for Mental Measurement Yearbook states, "With all its inadequacies this battery may prove to be a useful tool for psychometricians and educators faced with populations of adult semiliterates, especially in a test market that has little else to offer for this population" (Buros, 1971, p.32). Thus, the usefulness of the TABE in adult programs is still undetermined.

While there is a dearth of research relating to test fairness in manpower programs, the demand for unbiased selection methods in personnel selection in the private sector of industry has forced the field to critically examine its practices concerning the full utlization of the disadvantaged, blacks, women, and other special groups. Impetus to address the fairness of selection tests to members of disadaantaged groups came from the Equal Employment Opportunity Commission (EEOC) and the Office of Federal Contract Compliance (OFCC). Bennett (1969) points out that both EEOC and OFCC have placed the burden of proof of fairness upon test users. This requirement for hard facts has attracted the attention of individuals employed in personnel selection. However, "hard facts have proved elusive" (Bray & Moses, 1978, p.549). A major survey of five studies of research on test fairness was sponsored by the Ford Foundation and reported by Kirkpatrick, et al. (1968) involving over 1200 employees who were tested, one-third of whom were minority group members. The major conclusions of this study were (1) that no general statement could be made concerning whether tests are fair or unfair from one ethnic group to another, and (2) that separate validity studies must be conducted for disadvantaged and majority groups. This study alerts test researchers to the danger of assuming that correlations of test scores with post-employment outcomes

will be the same for minority and other groups. While there are several specific studies dealing with test fairness (Grant & Bray, 1970; Gael & Grant, 1975; Ruda & Albright, 1968) they are relatively inconclusive.

An interesting study in the selection test area was conducted by Parry (1968). Working with ten experienced industrial psychologists, she asked them to estimate the validities of several widely used tests. Only one member of the group was able to provide estimates which approximated the true range. The other psychologists generally over-estimated the validities.

It is findings such as these that have been criticized by the EEOC. The DOL guidelines on employee selection procedures require that tests used to measure eligibility for hire must demonstrate evidence of their content validity. Validity implies that a test measures what it is intended to measure. Content validity suggests that the skills and qualities demonstrated in the testing situation explicitly measure skills and qualities that will be required in performing the job activity for which the test is administered (Adkins, 1976). While tests are not designed with a deliberate intent to discriminate the use of inappropriate tests can have an adverse impact on minority group and the disadvanatged. This is one type of discrimination which CETA training program must be aware of and avoid.

Work Samples

Research relative to work samples as assessment devices for disadvantaged adults is also limited. A work sample is a well-defined work activity which incorporates tasks, materials and tools identical or similar to those involved in an actual job or group of related jobs. It is used to assess an individual's vocational aptitude, worker characteristics, and vocational interest. Neff (1966) defined a work sample as a "mock-

up, a close simulation of an actual industrial operation, not different in its essentials from the kind of work a potential worker would be required to perform on an ordinary job" (p.685). Work samples focus primarily on fundamental worker traits such as finger dexterity, eye-hand coordination, and color discrimination. The purpose is to determine the extent to which a client possesses skills related to specific jobs.

Work samples as an approach to vocational assessment have several advantages. A major advantage is that work samples help to eliminate existing cultural, educational, and language barriers (Sakata & Sinick, 1965). Applicants with limited reading and writing skills who cannot perform adequately on paper and pencil test, can function with work sample tasks. Other advantages stem from the very nature of work sample activities. Clients become more involved and motivated, while their potential employers are better able to relate the type of information generated by work samples to actual tasks required on the job (Sakata & Sinick, 1970). In addition, work sample tasks do not generate as much test anxiety in disadvantaged persons who may fear standard tests.

The work sample concept of vocational assessment combines the best elements of the mental testing and job analysis approach and is an effective compromise between psychological testing with concomitant objectives of standardization and statistical rigor, and job analysis with its direct observations of actual work performance. Neff (1966) notes: "This method constitutes an effort to capitalize on the virtues of both psychometric testing and job analysis, while trying to avoid the limitations of both of the older approaches" (p. 685).

The utilization of work samples, as a means of assessing worker potential, has actually been in use for many years. Hoffman (1969) traced the technique to the work of one of the early leaders in psychometrics, Hugo Musterberg, a Harvard professor and founder of the science of industrial psychology. In 1910 Musterberg built a model

streetcar for use in the selection of streetcar operators. However, the major contribution to the work sample approach came about as the result of pioneer efforts in rehabilitation work undertaken in New York City's Institute for the Crippled and Disabled (ICD). As early as 1930, their staff members were using standardized tests as part of rehabilitation treatment for the physically and mentally handicapped. Because these tests emphasize speed and accuracy, the handicapped performed poorly on these measures. This resulted in their being erroneously deemed unemployable. Upon recognition of this situation ICD undertook the development of alternative methods of evaluating the vocational needs of their clients. Years of research and development culminated in the publication of the now well-known Testing, Orientation and Work Evaluation in Rehabilitation (TOWER) System of work samples. The TOWER System, consisting of over one hundred separate work samples in fourteen broad occupational groups, was the first systematic individualized approach to vocational assessment which was not dependent on pencil and paper testing. Rosenberg (1967) conducted one of the major studies designed to determine its predictive validity and to cross-validate the system over a broad geographical area. The results of this comprehensive study indicated that the TOWER System scores were generally not as accurate as instructors' ratings. It also noted that correlation coefficients between TOWER scores and instructor ratings rarely exceeded .19. In summarizing the results of this study, the researcher concluded that due to the many difficulties in its application, "the true validity of TOWER remains unknown" (p.48).

In an effort to overcome some of the shortcomings of standard assessment tools and practices when used with disadvantaged persons, the U.S. Department of Labor (DOL) undertook the direct development of new assessment techniques. Under the sponsorship of DOL, the Jewish Employment and Vocational Service of Philadelphia

(JEVS) began developing a standardized work sample battery for use in providing manpower services to the disadvantaged. The JEVS system was primarily designed to assess the vocational potential and work behavior of an inner-city disadvantaged population. The system contained a battery of twenty-eight (28) work samples arranged in a hierarchy of increasing complexity, which allowed for the assessment of performance, interest, and work behavior. A work sample evaluator observed and appraised the individual's performance with each work sample, recorded pertinent data on two special record forms, entitled Work Sample Sheet and Work Behavior Impressions. At the conclusion of the assessment, a detailed assessment report was prepared describing the skill levels and work behaviors of the person tested. The results were directly related to worker trait groups in the Dictionary of Occupational Titles.

In 1967, the DOL contracted with JEVS to conduct a one year experimental study in order to establish the utility and validity of the system. In this study (JEVS, 1968) a sample of 268 subjects was administered a two week work sample assessment. Their results were compared to those of a control sample of 206 Human Resource Development (HRD) applicants, matched as to age, sex, race, educational level, handicap status and reading ability, who did not receive the work sample assessment. Both groups were offered the same full range of counseling, training and placement services. Outcome criteria were derived from interviews and questionnaire assessments by HRD counselors and supervisors, analysis of actual training and placement successes as provided by HRD records, and follow-up interviews with the applicants. The statistical treatment of the data used primarily frequency counts, percentages, and chi squares. The response of the counselors and their subjects was highly favorable. Compared with the control group, the experimental group was determined to have significantly more placements of substantially longer duration, and significantly fewer referrals to job

openings per successful placement. The results are persuasive that a work sample program will increase the number of placements in gainful employment and training.

A more recent study of the JEVS system was performed by Nadolsky (1973). His investigation was designed to determine the effectiveness of the JEVS system with a culturally disadvantaged population by comparing it with a specific model-based system. His stated purpose in this research effort was to either support or negate the superiority of the JEVS system in vocational evaluation programs for the culturally disadvantaged. The approach taken in this study involved a comparative investigation of the overall effectiveness of two vocational assessment systems, the JEVS system and a model developed during the first stages of a two stage research project conducted by the researcher at Auburn University. The effectiveness of each system was determined by the degree of consistency between vocational evaluation recommendations and follow-up outcomes. Sixty (60) unemployed individuals who were to be randomly assigned to either group comprised the sample subjects. However, due to difficulty in obtaining equipment, random assignment did not occur. Instead, the first thirty-four (34) subjects who participated in the project were evaluated in the model-based system and an additional thirty-one (31) subjects were evaluated under the JEVS system. Because of the lack of random assignment, the researcher provided a descriptive analysis of the basic similarities and differences between the two groups of subjects. The sub-populations were essentially equivalent with respect to the variables of age, education, Beta I.Q., and reading and arithmetic grade level as measured by the Wide Range Achievement Test. The variable of race was equivalent among both groups since the racial composition of each group was ninety-seven percent (97%) black and three percent (3%) white. The differences in the two populations occurred on the variable of age and sex. The JEVS sub-population was composed of seventy-four percent (74%) females

and twenty-six percent (26%) males; while fifty-six percent (56%) of the model-based sub-population was female and forty-four percent (44%) male. The researcher concluded that the limitations imposed by the inability to randomly assign participants to either system did not produce a substantial bias in the project's outcome.

The results of this study revealed that the JEVS system was significantly more effective in enabling disadvantaged clients to obtain immediate employment while a higher percentage of clients, evaluated under the model-based system were able to obtain and maintain employment over a more extended time. The researcher in question recommends that consideration be given to allowing experienced vocational evaluators use the JEVS system work samples on an individual basis and as part of a complete system instead of requiring that they be employed within a strict hierarchial order or as a self-contained system.

The usefulness of the JEVS system has also been discussed by other researcher (Backer, 1972; Kulman & Drachman, 1973; Nadolsky, 1973). It has been referred to as the most promising assessment tool developed. As of 1972, thirty-five (35) projects, including twelve (12) Work Incentive Programs and eighteen (18) Concentrated Employment Program centers, had adopted the JEVS approach (U.S. Dept. of Labor, 1978). The use of work samples help to eliminate any existing cultural, educational or language barriers (Sakata & Sinich, 1970). "Work sample tasks do not generate as much test anxiety in disadvantaged persons who may distrust or fear standard tests. In fact, they produce greater motivation to perform by providing a type of actual work experience to persons whose previous contact with the world of work may have been very slight" (Manpower Research Review, 1973).

The major developers and researchers of work samples have been JEVS in the manpower area and ICD in the rehabilitation field. However, a number of other

organizations have developed their own work samples for use in specified settings. Clawson (1968) reports on the development of a work sample system for the vocational assessment of the blind. Ireland (1964) describes the work samples used in vocational assessment at the Cleveland Vocational Guidance and Rehabilitation Service Center. However, research directed at examining the effectiveness of these work samples is scanty. In an empirical study with a sample of maintenance mechanics, Champion (1972) found a work sample to have greater predictive validity than paper and pencil tests for predicting a foreman's evaluation of work performance. Gorden (1967) found that a work sample was a valid indicator for predicting final selection into the Peace Corps for Peace Corp applicants. While these few validity studies have been encouraging, they have not been conclusive. Gorden (1967) and Muchinsky (1975) have described a number of potential applications for work samples and have made suggestions for further development of the technique. In addition, they both call for further research and validity studies.

Summary

Work samples as a method of assessing vocational potential for the disadvantaged have received considerable attention, as well as an increase in use, in the recent past. Over the past ten years there has been a substantial increase in the number of commercial systems developed. Botterbusch (1976) has compiled a very useful comparison on seven such systems. Prediction has been the main goal of the work sample. Arguments both for and against its predictive validity have resulted in a growing literature on work samples and their promise as an assessment instrument (Backer, 1972; Nadolsky, 1971; Sakata & Sinich, 1965; Sidwell, Ireland & Kleckers, 1962; Sinich, 1966, Williamson, 1961). Most of the assessment techniques reviewed are of relatively

recent origin. Many of them have their roots in older works in other fields, e.g., the work sample grew out of several decades' effort in vocational rehabilitation. In this section, two work sample systems were discussed in some detail. These systems were developed at the Jewish Employment & Vocational Services (JEVS), Philadelphia and the Institute for the Crippled and Disabled, New York (TOWER). Both systems attempt to assess vocational potential through the observation of participant performance on job-like tasks. None of the techniques or methods seems to have achieved their aims as yet, but some of them do seem to merit further investigation. A number of valuable insights have been derived from the literature. Two of the more noteworthy conclusions on assessment are (1) assessment instruments all have their limitations as well as their special uses and strengths; and (2) the need for additional research is confirmed. It is evident that if adult training centers are to successfully enroll members of the target population the programs are intended to service, they must develop selection procedures consistent with their purpose. It is a fairly straight forward matter to determine whether or not a person is CETA eligible, based upon financial criteria. However, the determination of whether or not the individual has a reasonable expectation of success is a matter which requires more study.

There is general agreement in the literature confirming the need for adequate and appropriate assessment procedures. The great preponderance of evidence derived from this review of the literature indicates a definite need for further research in the area of understanding trainee characteristics and assessment procedures, for the selection and successful completion of manpower training programs.

CHAPTER THREE

METHODOLOGY

The research methodology for this study is discussed in this chapter. The specific components of the methodology include the population, design of the investigation, instrumentation, procedures for data collection, and methods of data analysis.

Population

The population included in this study consisted of one hundred thirty-seven (137) students enrolled in classroom training in the Northern Virginia CETA SKill Center during fiscal year October 1981-1982. These individuals were economically disadvantaged and unemployed or under-employed at the time of their enrollment into the program. They were required to complete two days of testing at the assessment center prior to entering their selected skills training class. All participants in the program were required by the CETA regulations to be bona fide Arlington County residents.

Arlington County is a relatively affluent community located in Northern Virginia across the Potomac River from Washington, D.C. The country comprises an area of twenty-five (25) square miles with a population of over one hundred fifty-three thousand (153,000). The schools are well-known for their educational standards and the expectations are that the majority of all high school graduates will go on to college. Arlington is a wealthy community. Figures recently released by the U.S. Department of Commerce put Arlington's 1976 per capita income above $11,900, the highest of any major Washington area jurisdiction and among the highest in the nation.

In the midst of this plenty, there are individuals who are at or below the poverty level and suffer from an inability to find employment. In a high income area such as Arlington, these individuals are much lower on the socio-economic continuum than, and

contrast sharply with their affluent neighbors. They represent a segment of the population most difficult to reach. About four percent (4%) of the County's residents are classified as economically disadvantaged, and many of them are long-term unemployed. These hard-to-employ individuals often lack reading and writing skills, and occupational skills, as well as socialization skills. Many are also handicapped by health and family problems. In addition, over the past ten years there has been a substantial growth among the Hispanic, Vietnamese, and Korean communities.

The County also has a large refugee population which has added to the unemployment problem. In March, 1982, the Office of Refugee Resettlement estimated that there were nearly 20,000 refugees living in the Commonwealth of Virginia. Almost one-third of these persons were residing in Arlington County. Because these persons have severe language problems, and lack skills which are transferable to the local job market, their unemployment problem has been exacerbated.

The applicants to this program came from this heterogenous population. In an effort to acquire specialized skills with which to find satisfactory employment these unemployed Arlington residents applied for admission to the CETA Skill Center. The center is a multi-occupational agency which provides education and skill training for unemployed and under-employed adults. It is operated by the School Board of Arlington County through its Adult and Career Education division.

All applicants to the program were required to prove their eligibility prior to being accepted into the program. When they were determined to be eligible in accordance with the CETA regulations, they enrolled in the program in the following skill areas:

SKILL AREA	N
Clerical	50
Printing	38
Auto Mechanics	19
Building Trades	30

Design of the Study

The approach taken for this research was by necessity ex post facto in nature. This type of research was selected because the "real world" this study examines does not lend itself readily to experimental design, where both experimental manipulation and random assignment can be made. Therefore an ex post facto inquiry whereby significant inferences about relationships can be made was in order.

Ex post facto experiment, which originated in sociology rather than education, was first introduced and named by Chapin, and later treated extensively by Greenwood and Chapin (Campbell and Stanley, 1963). They used the term "ex post facto experiment" to refer to efforts to simulate experimentation wherein an attempt is made to control independent variables through matching, which Campbell and Stanley say "represents one of the most extended efforts toward quasi-experimental design". However, Kerlinger (1964) has expanded the concept of ex post facto to cover those research situations wherein the researcher attempts to explain events that have already occurred and for which there has been no control over independent variables. As he defines it, "Ex post facto research is systematic empirical inquiry in which the scientist does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulable. Inferences about relationships

among variables are made, without direct intervention, from concomitant variation of independent and dependent variables" (Kerlinger, 1964, p.379).

In this study the researcher started with the observation of the dependent variable, trainee outcome, that is successful and not successful termination. The independent variables were then examined with respect to their possible relationship to the dependent variable. In other words, it is a research design in which the consequence is immediately observable, and the problem is to determine which measurable antecedents, if any, give rise to this consequence.

Measurement of Variables

This section identifies the variables selected for inclusion in this study distributed as follows: (a) Independent or predictor variables; (b) Dependent or criterion variable.

Independent or Predictor Variables.

There were four categories of predictor variable. These were (a) descriptive variables, (b) scores on academic tests, (c) scores on work samples, and (d) scores on a work behavior rating instrument. The first category of descriptive variable included: Age, which was defined as the chronological age of the trainee at the time he/she entered the program; Sex, which was coded as (1) for males, and (2) for females; Ethnic Group, which was coded as (1) white, (2) black, (3) American Indian, (4) Hispanic, and (5) Asian; Education, which was coded as (1) H.S. Student, (2) H.S. Drop Out, (3) H.S. Graduate or Equivalent, and (4) Post-H.S.; and Family Status, which was coded as (1) Single parent, (2) Parent in two-parent family, (3) Other family member, and (4) Non-dependent individual.

The second category of predictor variables was the score the trainee achieved on selected academic tests. These tests included the Test of Adult Basic Education (TABE) and a teacher made clerical test. The TABE is comprised of five separate tests in the basic skills of reading, mathematics, and language. These are (a) Reading Comprehension, which measures the ability to understand main ideas, and make inferences based on information presented in reading passages; (b) Vocabulary, which measures the ability to choose synonyms for words presented in the context of phrases; (c) Arithmetic Comprehension, which measures the ability to add, subtract, multiply and divide whole numbers, fractions, and decimals; (d) Spelling, which measures the ability to recognize misspelled words in groups of words and common spelling errors, silent letters, and vowel substitutions; (e) Capitalization/Punctuation, which measures knowledge of the standard rules of capitalization and the ability to punctuate continuous text material. The teacher-made clerical test was designed to determine the trainee's ability to detect errors in proofreading, to respond to oral dictation and to use other skills required for clerical applications.

The third category of predictor variables was the score the trainee achieved on the JEVS work samples. These work samples required trainees to demonstrate their aptitudes in work-related situations. The specific aptitudes measured were (a) Numerical Aptitude, which measures the ability to perform arithmetic operations quickly and accurately; (b) Spatial Aptitude, which measures the ability to comprehend forms in space and understand relationship of plane and solid objects, or the ability to "visualize" objects of two or three dimensions, or to think visually of geometic forms; (c) Form Perception, which measures the ability to perceive pertinent detail in objects or in pictorial or graphic material, to make visual comparisons and discriminations and see slight differences in shapes and shadings of figures and widths and lengths of lines;

(d) Clerical Perception, which measures the ability to perceive pertinent detail in verbal or tabular material, to observe differences in copy, to proofread words and numbers, and to avoid perceptual errors in arithmetic computation; (e) Finger Dextereity, which measures the ability to move the fingers and manipulate small objects with the fingers rapidly or accurately; and (f) Color Discrimination, which measures the ability to perceive or recognize similarities or differences in colors, or in shares or other values of the same color, to identify a particular color, or to recognize harmonious or contrasting color combinations, or to match colors accurately.

The fourth set of predictor variables involved the score achieved by the trainee on the work behavior rating instrument. The fifteen designated areas of observed behaviors included the following: (a) physical appearance; (b) punctuality; (c) motivation; (d) frustration; (e) concentration; (f) appropriate request for help; (g) concern for work quality; (h) ability to follow verbal instruction; (i) ability to follow written instruction; (j) ability to follow diagramatic instruction; (k) ability to learn task assigned; (l) organization and carry through of work assigned; (m) oral expression; (n) written expression; and (o) language comprehension.

Dependent or Criterion Variable.

The dependent or criterion variable was measured in terms of the trainee's outcome, i.e., termination, from the program. The trainee was considered to have been terminated, either successfully or unsuccessfully, according to any of the following conditions:

A. Successful termination. Any trainee who was employed after training was considered a positive termination. Any trainee who left the program in order to engage in another activity which would increase his or her employability potential, that is

enter an on-the-job training program, enroll full-time in an academic or vocational school, or enter the military, was considered an other positive termination.

B. Unsuccessful termination. Any trainee who terminated for any reason other than employment or improvement of employment potential was considered to be a nonpositive termination.

Instrumentation

Several instruments were used for the purpose of collecting data to provide information necessary to the research questions posed in Chapter One. These instruments were classified into three categories: (a) Academic Tests; (b) Work Sample Tests; (c) A Work Behavior Rating Instrument. Each will be described in detail.

Academic Tests.

The test used to measure academic ability was the Tests for Adult Basic Education (TABE) 1976, Edition. It is one of the newer tools used in manpower programs. The TABE are pencil and paper tests comprised of five separate tests in the basic skills of reading, mathematics, and language. These are (a) Reading Comprehension, which measures the ability to understand main ideas, and make inferences based on information presented in reading passages; (b) Vocabulary, which measures the ability to choose synonyms for words presented in the context of phrases; (c) Arithmetic Comprehension, which measures the ability to add, subtract, multiply and divide whole numbers, fractions, and decimals; (d) Spelling, which measures the ability to recognize misspelled words in groups of words and common spelling errors, silent letters, and vowel substitutions; (e) Capitalization/Punctuation, which measures knowledge of the standard rules of capitalization and the ability to punctuate continuous text material. The tests are not

intended to measure specific knowledge or recall of facts. They are designed for use as a method of providing information about a student's level of achievement in the basic skill. Test items are adapted from the 1970 edition of the California Achievement Tests (CAT) and reflect language and content appropriate for adults. The TABE yields several final scores which are reported as scale scores and grade equivalent scores at reading levels of children in grades 2-9. As stated in the review of the literature, there is no information available on the validity or reliability of the TABE other than the information generated by the California Achievement Test. No adult norms are available and minorities are not mentioned in standardization.

Another test used to measure academic ability was the teacher developed instrument called "clerical test." This test was designed to determine the applicant's ability to detect errors in proofreading, to respond to oral dictation and to use other skills required for clerical application. It is a seven part test designed to indicate strength or weakness in spelling, sentence structure, verb agreement, alphabetizing, vocabulary, proofreading, and name and number comparison. No information as to validation or standardization is available. This test was developed by two classroom clerical instructors in the progam and has only been used at this skill center. A copy of the test is provided in Appendix D.

Work Samples.

The instruments used to measure work related aptitudes were work samples. Work samples are well-defined work activities involving tasks, material, and tools which are similar or identical to those used on an actual job. They are used to assess an individual's vocational aptitude and require the applicant to demonstrate these aptitudes in a work sample task. The work samples used for this study were the Vocational

Interest, Temperament, and Aptitude system (VITAS) developed by the Jewish Employment and Vocational Service (JEVS) of Philadelphia. Eight work samples which focus on six fundamental worker traits were used to determine the extent to which the trainee possessed aptitudes related to particular skills. The specific aptitudes measured were (1) Numerical Aptitude, which measures the ability to perform arithmetic operations quickly and accurately; (2) Spatial Aptitude, which measures the ability to comprehend forms in space and understand relationship of plane and solid objects, or the ability to "visualize" objects of two or three dimensions, or to think visually of geometic forms; (3) Form Perception, which measures the ability to perceive pertinent detail in objects or in pictorial or graphic material, to make visual comparisons and discriminations and see slight differences in shapes and shadings of figures and widths and lengths of lines; (4) Clerical Perception, which measures the ability to perceive pertinent detail in verbal or tabular material, to observe differences in copy, to proofread words and numbers, and to avoid perceptual errors in arithmetic computation; (5) Finger Dextereity, which measures the ability to move the fingers and manipulate small objects with the fingers rapidly or accurately; and (6) Color Discrimination, which measures the ability to perceive or recognize similarities or differences in colors, or in shares or other values of the same color, to identify a particular color, or to recognize harmonious or contrasting color combinations, or to match colors accurately.

The following chart indicates which specific work samples were used for each classroom training program:

	Auto Mechanics	Building Trades	Printing	Clerical
Finger Dexterity				
Nuts, Bolts, Washers	X	X	X	X
Numerical Aptitude				
Calculating		X		X
Nail Sort	X		X	
Color Discrimination				
Collating			X	
Form Perception				
Circuit Board	X	X	X	
Spatial Aptitude				
Pipe Assembly	X	X	X	
Clerical Perception				
Proofreading				X
Verifying Numbers				X

Work samples have two measures of performance. These are total time recorded in minutes, and total errors, which are rated on a three point scale derived from the performance of the norming sample. A three rating corresponds to the performance of the upper third of the norm sample; a two rating indicates that the performance is in the range of the middle third; and a rating of one means that the applicant's performance falls within the range of the lowest third. For example, if an applicant receives a rating of three for time on the Pipe Assembly work sample, it means that he or she completed the task within the range of time used by the upper (i.e., fastest) third of the norm sample.

Work Behavior Rating Instrument.

A work behavior rating instrument was utilized for the purpose of gathering data on the work-related behaviors of participants as they engaged in their assessment tasks. Rating instruments are widely used in rehabilitation settings (Esses, 1975). J. P. Guilford's classic text, "Psychometric Methods," (although published in 1936) is still relevant and covers the subject of rating scales in considerable detail.

A work behavior rating scale is a systematic procedure for recording observations of work and work-related behaviors. According to Guilford (1954) the use of rating scales is based on the assumption that a trained observer is capable of objectivity and precision, and that ratings based on observations can be taken to be accurate judgments about certain characteristics and qualities of the individual being rated.

The instrument used in this study (see sample in Appendix A) was developed by the investigator and the assessment evaluator at the Arlington Vocational Assessment Center. It is based on a similar instrument designed by the JEVS System used with their work samples.

The work behavior rating instrument consists of fifteen designated areas of observed behaviors which are organized into four sections: (a) physical appearance; (b) work characteristics, which includes punctuality, motivation, frustration, concentration, appropriate request for help, and concern for work quality; (c) task comprehension, which includes the ability to follow verbal instructions, the ability to follow written instruction, the ability to follow diagramatic instruction, the ability to learn the task assigned, and the ability to organize and carry through work assigned; (d) verbal ability, which includes oral expression, written expression and language comprehension. The evaluator observed each participant as he or she performed their assessment tasks and rated them on a five point Likert type scale. Each of the fifteen

observed behaviors were scored. A rating of five represented the highest level and a rating of one represented the lowest level. The items were also totaled so that a score of 75 represented the highest attainable score while a score of 15 indicated the lowest level of functioning.

Data Collection

Data pertaining to this study were collected on all predictor variables. These were organized into four categories: (a) descriptive variables, (b) scores on academic tests, (c) scores on work sampling, and (d) scores on a work behavior rating instrument. The method of collection used for each will be discussed separately.

Descriptive Data.

Descriptive data were collected from the cumulative records file maintained for each participant. All the trainees enrolled in the four skills classes were interviewed prior to enrollment by an intake counselor located at the Skill Center. An intake information form, which is part of the state's management information system (MIS), was completed for each trainee and became part of the permanent record maintained on each enrollee. The form contained all the pertinent demographic data of age, sex, ethnic group membership, level of education, and family status. (A sample of the MIS form is found in Appendix B.)

Once eligibility was established, and all the demographic information collected, the student was admitted to the Vocational Assessment Center. A pretesting orientation was given to help reduce anxiety and to acquaint the participants with the procedures which were to be used. Each student spent two days in the assessment center. The first day was devoted to the administration of the academic tests. During the second

day the work sample tasks were completed. Throughout the two days the evaluator was recording information about the participant's behaviors.

Academic Tests

Data relative to academic achievement were gathered via the TABE test and the clerical test. All applicants were administered the TABE the first day they were in the assessment center. If the individual was applying for the clerical program, the clerical test was also administered. All tests were administered by a trained vocational evaluator. The investigator had no control over administration of any of the tests. However, the same general procedures were used for all program applicants.

Work Samples.

Data relative to each trainee's vocational aptitudes were gathered via the VITAS work samples. All work sample tasks were administered by the vocational evaluator on the second day the applicants were in the assessment center. Individuals who were applying for the clerical class were administered work samples which measured finger dexterity, numerical aptitude, and clerical perception. Individuals who were applying for the printing class were administered work samples which measured finger dexterity, numerical aptitude, color discrimination, form perception, and spatial aptitude. Individuals who were applying for the building trades class were administered work samples which measured finger dexterity, numerical aptitude, form perception, and spatial aptitude. Individuals who were applying for the auto mechanics class were administered work samples which measured finger dexerity, numerical aptitude, form perception and spatial aptitude. Time spent on each work sample task was recorded

by the evaluator on the trainee's record sheet. The quality of the output was also scored for errors and completion.

Work Behavior.

Data relative to each trainee's work related behavior were gathered via a work behavior rating instrument. Throughout the period of time the applicants were taking their academic tests and performing their work sample tasks, their behaviors were being monitored and recorded on the work behavior rating instrument. The program's vocational evaluator constantly observed each client's movements, facial expressions and performance. She used a systematic procedure to record all observations of the applicant's behaviors in the four designated areas of physical appearance, work characteristics, task comprehension and verbal ability. (A sample of the Work Behavior Rating Instrument is found in Appendix A).

The training program began on October 1, 1981 and was operated through September 30, 1982. All classes were conducted on an open-entry, open-exit basis with vacancies filled as they occurred. As individual trainees reached their maximum potential based on ability, interest, motivation and need, they were terminated and were aided in job placement at the appropriate level of their achievement. Participants were considered terminated when they became employed or left the program for any other reason.

The eligibility requirement as of October, 1981 was that each trainee be a bonafide Arlington resident, that he or she be economically disadvantaged, and that he or she be either unemployed or under-employed. Participants received an allowance for every hour they attended the program. The basic allowance was $2.20 per hour. Welfare recipients received an incentive of $1.00 an hour.

Records on each trainee also included instructors' bi-weekly progress reports which monitored attendance, progress and achievement. At the completion of each trainee's participation in the program, termination records were compiled which recorded length of time in the program, type of termination, reason for termination, and all other pertinent information required. (A copy of the termination form can be found in Appendix C.)

From this collection of information about the trainee's eligibility, entrance into the program, test scores, progress reports, and final termination records, the necessary data were drawn for evaluation and analysis. Trainee cumulative files which were not complete, insofar as the required test data was concerned, were deleted. Only files containing sufficient data and representing trainees from one of the four skill areas were included. All pertinent data were coded and key punched for analysis.

Data Analysis

Data analysis was addressed in terms of the research questions posed in this study. Each research question will be discussed relative to the specific analysis utilized.

Question 1. What is the relationship between the selected demographic variables of age, sex, ethnic group membership, education, family status, hours of training, hours absent and trainee outcomes? The initial task undertaken was to determine the basic distributional characteristics of each of the selected variables. One way frequency distribution tables were calculated which provided information relative to the means, minimum, and maximum values of each of the variables as well as the range of values. Each of the selected variables are depicted in separate tables with a corresponding narrative summary.

Question 2. What is the relationship between scores on academic tests and trainee outcomes? The second research question dealt with the relationship between scores on academic tests and trainee outcomes. The SPSS procedure ONEWAY was used to test differences among the means. The results of the analysis are reported in tables followed by narrative explanations.

Question 3. What is the relationship between scores on selected work samples and trainee outcomes? The third research question was concerned with the relationship between scores on work samples and trainee outcomes. A one-way analyses of variance, utilizing the SPSS procedure ONEWAY, was computed. The results of the analyses are reported in Chapter 4.

Question 4. What is the relationship between scores on a work behavior rating instrument and trainee outcomes? The fourth research question dealt with the relationship between scores on a work behavior rating instrument and trainee outcomes. The SPSS procedure ONEWAY was used to test differences among the means. The results of the analysis are reported in Chapter 4.

Question 5. The fifth research question addressed by this study was: Does combining the factors studied significantly increase the predictability of trainee outcome? The statistical technique used here was discriminant analysis. The purpose of discriminant analysis is, as the name implies, a technique to discriminate various groups from one another on the basis of sets of measures. It is a multivariate analysis approach that is particularly useful in the behavior sciences. As Kerlinger states, "Multivariate methods mirror the actual complexity of behavioral 'reality'". He points out that behavioral research is being revolutionized by multivariate analysis because it makes it possible for the behavioral scientist to probe deeply and realistically into phenomena. Discriminant analysis is similar to regression analysis both in its purpose

and in the mathematical formulae used. The primary difference between the two techniques is that discriminant analysis is used to predict group membership (in this case, successful and not successful outcomes) while regression analysis is used to predict a particular score along a continuum of known scale and length (such as an IQ).

Discriminant analysis develops one or more discriminant functions using variables which enter into the equation through the use of a regression model. A score is computed for each case and for each discriminant function. The individual score is then compared to the mean score for each group and a probability is computed for each difference. Group membership is predicted for each case in the group to which s/he had the highest probability of belonging. In this study, the single discriminate function was used to assign individuals into two groups on the basis of their scores on two or more measures: Group 1 = Successful (positive plus other positive terminations) and Group 2 = Not Successful (non-positive termination). To distinguish between the groups, a collection of discriminating variables that measure characteristics on which the groups were expected to differ was selected.

As noted earlier, the original intent of this study was to perform a discriminant analysis using the various demographic, scores on a work behavior rating instrument, academic achievement, and work sample variables to predict three levels of training outcome. Early in the study, however, it was decided to combine the two successful outcome groups (positive for employment, and other positive). Initial analyses also indicated that different variables were related to outcomes in each of the specific skill courses. An additional problem was that certain variables were only available in certain courses (Table 23). The original intent to perform a discriminant analysis on half of the cases in the total sample and cross-validating the results using the remaining cases had to be abandoned. Therefore, a separate discriminant analysis was computed for

each of the four skill areas. Due to the small number of enrollees in each skill area and to the missing data on discriminant variables within the courses, it was not possible to reserve cases for cross-validation purposes. The results for the available cases is impressive, however, considering the amount of missing data which had to be used in the classification portion of the analysis.

CHAPTER FOUR

RESULTS AND DISCUSSION OF DATA

The analyses of the data are presented in this chapter. Following an examination of demographic variables, which will provide the reader with a general description of the CETA client, each of the five research questions will be addressed in turn. The first section deals with an examination of demographic variables as they relate to successful or unsuccessful terminations. The next section of the chapter deals with the evaluation of the three specific assessment procedures used, academic tests, work samples, and observations of work related behaviors. The following section focuses on the results of combining all the varibles studied. A final section presents additional information gathered during the analysis of the data by cross tabulating trainee ethnic group membership by sex, age, and skill area. This section was included since certain social attributes of the enrolled student are of particular interest, especially as they might influence the success or failure of various approaches to trainee assessment.

Description of the Trainees

Background information and trainee data were gathered from the intake records of the one hundred thirty-seven (137) participants who had been through the assessment process and had been terminated, either successfully or unsuccessfully, from the program. Initially each of the variables was tabulated for all the students enrolled in the program, regardless of the training area. The data were then analyzed by each of the four skill areas. The descriptive variables were age, sex, ethnic group membership, educational background, hours of training, number of hours absent, entry level earnings, and trainee outcome. These variables had been selected for examination based on the importance

placed on these factors by prior researchers. Each of these variables will be briefly discussed in this section.

Age. For the purpose of statistical analysis the participants, whose ages ranged from 16 to 53 (x=27), were divided into six age classes. Figure 1 graphically illustrates that the largest age groups were the 18-21 age group (26%) and the 22-25 age group (23%). Trainees were divided fairly equally between age groups 26-30 and 31-36 (20% each). There were only 12 participants (8%) who were 41 or older, and only two participants were under 18.

Sex. Of the 137 trainees in the program, the majority, 81, were males, and 56 were females, 59% and 41% respectively. This difference may be attributable to the fact that of the four training programs offered, Printing, Auto Mechanics, Building Trades, and Clerical Occupations, only one, Clerical Occupations, is viewed as traditional for women (see Figure 2).

Ethnic group membership. The largest group represented was Asian (49%), primarily Vietnamese. Blacks (not Hispanic) comprised the second largest group, accounting for 22%, with whites (not Hispanic) accounting for the next largest group, 18%. Hispanics and the one American Indian in the program accounted for the remaining 11%. If the foreign born population (Asians and Hispanics) are combined, then 60% of the trainees were non-native English speakers (see Figure 3).

Education. By far the largest group of trainees (80%) were high school graduates or had an equivalent education. Only 19% of the participants had not received a high school diploma or a GED certificate and were not attending any school. Seventeen percent of the participants had attended a post-secondary vocational technical or academic school. Only 2% of the participants were high school students (see Figure 4).

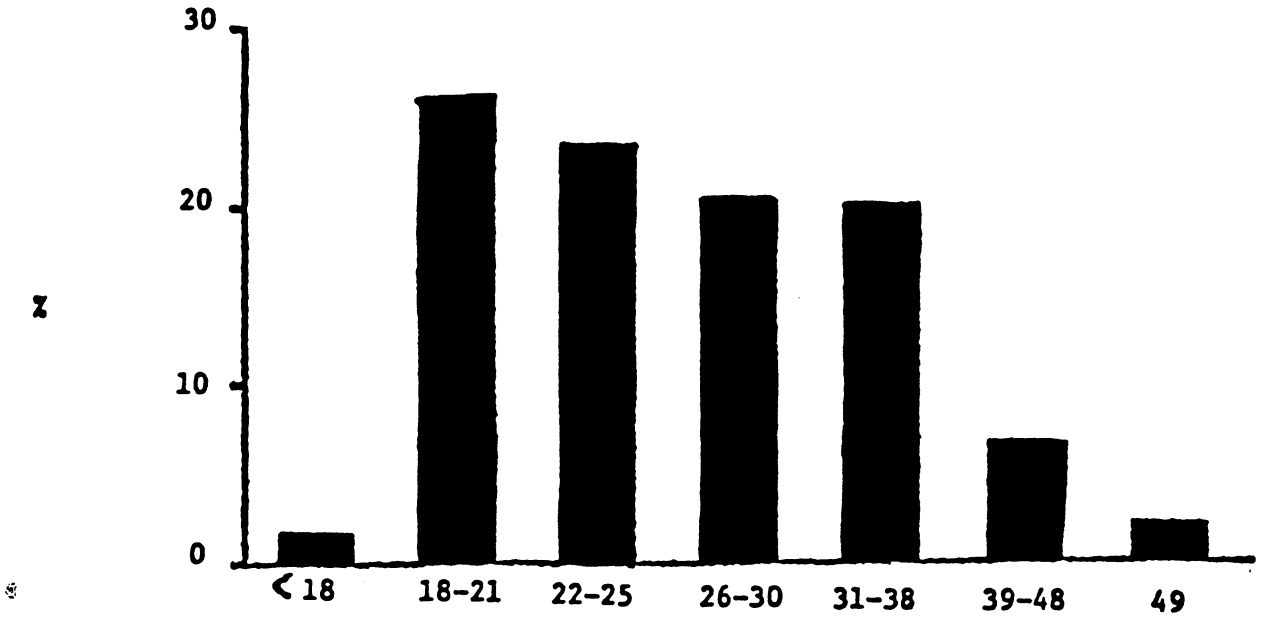

Figure 1. Age of Trainees

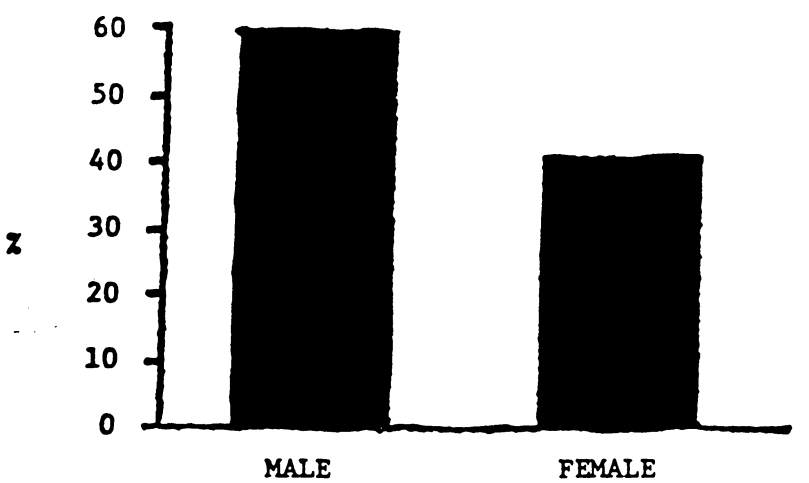

Figure 2. Sex of Trainees

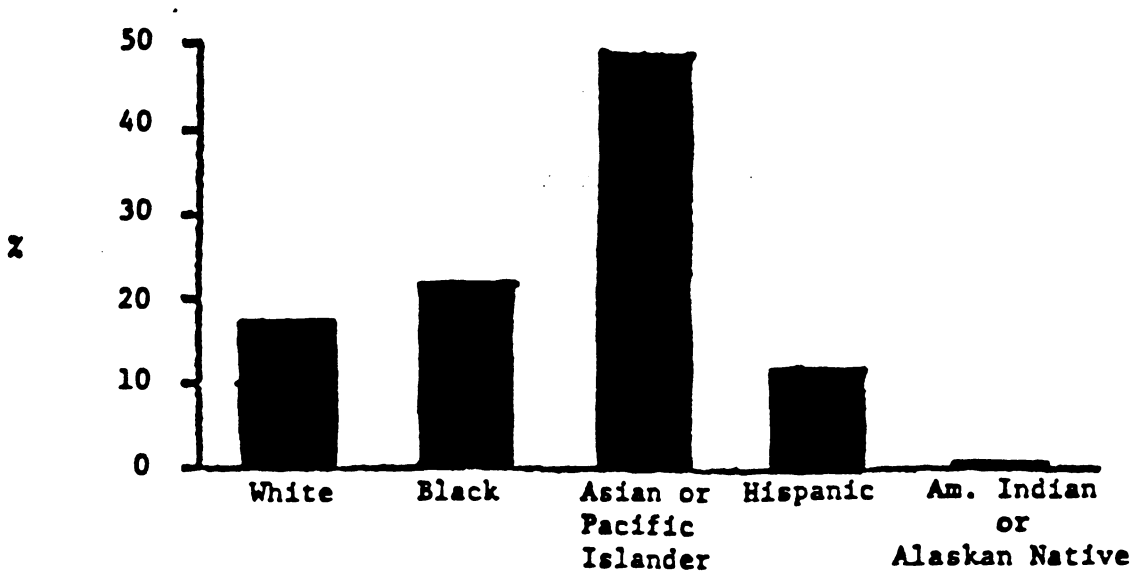

Figure 3, Ethnic Group Membership

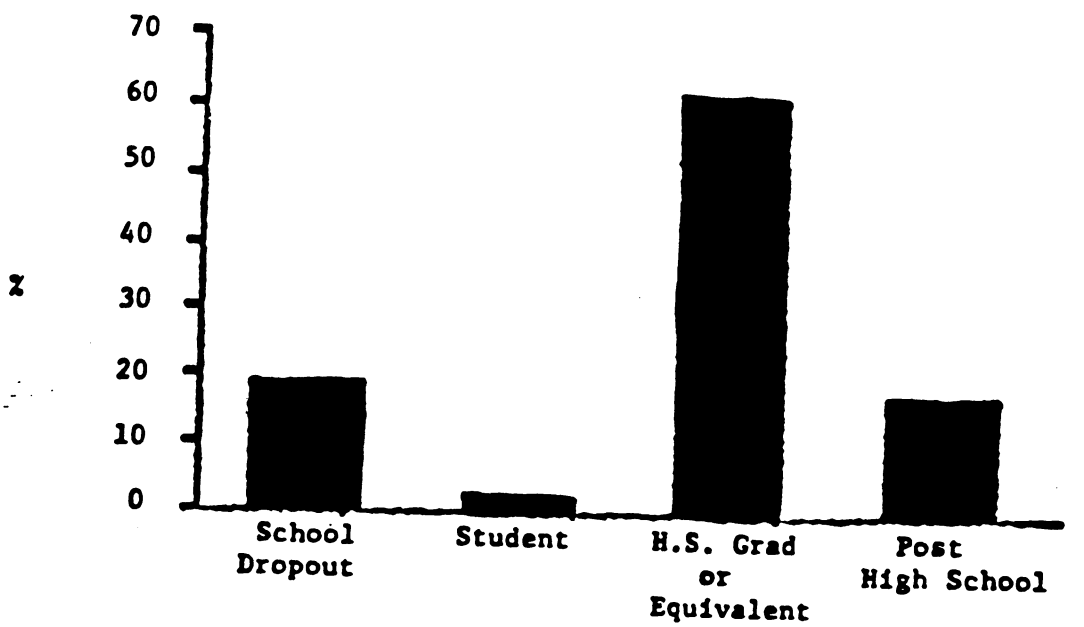

Figure 4. Educational Level of Trainee

Family status. Thirty-nine percent of the program participants (39%) fell into the category of "nondependent individuals" (a family of one). The next largest group was "parents in a two-parent family", comprising 28% of the population. The remainder of the participants fell into the "single parent" and "other family member" categories with 18% and 15%, respectively (see Table 5).

Hours of training. Trainees were required to attend class six hours a day, five days a week, for a total of 30 hours per week. Trainees progressed at their own rate of learning and were terminated when they were ready to find a job. The overall program mean for hours of training was 547, with a range of 7 hours to 1584 hours. The Building Trades class had the lowest mean hours of training, 493, and the widest range of training hours, 1577. The Auto Mechanics class had the highest mean, 659, with the lowest range of training hours, 989. The Printing and Clerical classes had means of 565 and 524, respectively; these means were closest to the overall program mean (see Table 1).

Table 1

Hours of Training

Training Area	N	Mean	Minimum	Maximum	SD
Clerical	50	524	16	1358	331
Printing	38	565	48	1145	267
Auto Mechanics	19	659	231	1220	289
Building Trades	30	493	7	1584	349
Overall	137	547	7	1584	314

Hours absent. The program mean for hours absent was 98 with a range of 0 hours absent to a maximum of 473 hours absent. The clerical class had the highest mean of 125 hours absent as well as the widest range of 473. The Printing class had the lowest mean of 73 hours absent and the lowest range of hours absent, 264 (see Table 2).

Table 2

Hours Absent

Training Area	N	Mean	Minimum	Maximum	SD
Clerical	50	125	0	473	103
Printing	38	73	0	264	70
Auto Mechanics	19	79	8	309	74
Building Trades	30	89	0	426	87
Overall	137	98	0	473	89

Trainee outcomes. Of the 137 individuals who were enrolled in the program, 72, or 53%, were terminated successfully into unsubsidized employment. In addition to those entering employment, another 22% (30) represented other successful outcomes, i.e., they went to an on-the-job-training assignment, entered school, or the Armed Forces or pursued another activity expected to increase their employability. Thus successful outcomes, i.e., postive termination plus other positive terminations, totaled 75% of all persons who left the program. The remaining 25%, who were considered unsuccessful, i.e., non-positive, left for a variety of other reasons (see Table 3).

Table 3

Trainee Outcomes

Type	N	Percent of Terminations
Positive (employment)	72	53
Other Positive	30	22
Non Positive	35	25
Total	137	100

Entry level earnings. Another aspect of training outcomes which is of importance is the hourly wages the students are paid at completion of their training. Table 4 indicates that the mean overall entry level wage was $4.65 with a range of $3.25 to $6.70. Since each training area is so different from the other, starting salaries are indicated by skill area as well. The Clerical class had mean earnings of $4.76 which was closest to the overall program mean while Building Trades had the highest mean earnings of $5.06. The Clerical class had the highest maximum starting wage of $9.95 while the Building Trades class had the lowest entry level wage of $3.25.

Table 4

Entry Level Earnings

Skill Area	Mean	Minimum	Maximum	Range
Clerical	$4.76	$3.50	$9.95	$6.45
Printing	3.89	3.35	5.00	1.65
Auto Mechanics	4.90	3.50	7.96	4.46
Building Trades	5.06	3.25	9.60	6.35
Total Program	4.65	3.25	9.95	6.70

Participant profile. It is recognized that there is no homogeneity in the "disadvantaged" beyond their being generally unemployed and that trainees in CETA programs do not lend themselves to generalized profiles. However, the data generated in this study can provide an accurate picture of the trainee characteristics in the Arlington CETA program. The typical student in the Arlington Skill Center was most likely to be a single, 27-year-old male high school graduate. He attended classes for 547 hours of training and was absent for 97 hours. At the completion of his training he was employed at an hourly rate of $4.67.

However, in order to present a more accurate profile of the Arlington CETA student, it became necessary to examine the demographic variables not only for the total sample, but to look at the composition of the students in each of the four skill areas. Results from this examiniation are shown in Table 5. The data indicates that for the clerical class, the typical student was a 27-year-old black female high school graduate. She was most likely to be a single parent with one or more children. She attended class for a total of 523 hours and had the highest number of hours absent (125). At the completion of her training she was employed at an hourly rate of $4.75. The typical student in the Building Trades class and the Auto Mechanics class most closely resembled the overall average student while the Printing class trainee was more likely to be an older (over 30) Asian male, married with several children. At the completion of his training he was employed at the lowest starting wage of $3.88 per hour.

Table 5

Participant Characteristics and Outcomes

Variable	Clerical N = 50		Printing N = 38		Auto Mechanics N = 19		Building Trades N = 30		Total Program N = 137	
	N	%	N	%	N	%	N	%	N	%
Sex										
Male	5	10	32	84	19	100	25	83	81	59
Female	45	90	6	16	0	0	5	7	56	41
Ethnic Group										
White	7	14	3	8	4	21	10	33	24	17
Black	19	38	7	18	1	5	3	10	30	22
Hispanic	8	16	2	5	5	26	0	0	15	11
Asian	16	32	25	66	9	47	17	57	67	49
Education										
Less than H.S.	7	14	5	13	3	16	11	37	26	19
H.S. Graduate	35	35	17	45	15	79	17	57	84	61
Post H.S.	8	16	13	34	1	5	2	7	24	18
Family Status										
Single Parent	17	34	3	8	0	0	5	17	25	18
Parent in 2 Parent	9	18	18	47	4	21	7	23	38	28
Other Family Member	7	14	5	13	3	16	6	20	21	15
Non-dependent Ind.	17	34	12	32	12	63	12	40	53	39
Training Outcome										
Successful	37	74	27	71	14	74	21	70	99	75
Not Successful	13	26	11	29	5	26	9	30	38	25

	Clerical $\bar{X}$ N = 50	Printing $\bar{X}$ N = 38	Auto Mechanics $\bar{X}$ N = 19	Building Trades $\bar{X}$ N = 30	Total Program $\bar{X}$ N = 137
Age	27	30	27	26	27
Earnings	$4.76	$3.89	$4.90	$5.06	$4.65
Hours of Training	523	565	658	493	547
Hours Absent	125	74	79	89	97

Analysis of Research Questions

The data which were obtained from the cumulative records file maintained for each of the 137 participants were analyzed by utilizing the Statistical Package for the Social Sciences, a computer program designed for the analysis of social science data. In order to examine the basic distributional characteristics of each of the variables in the study, frequency distributions were computed utilizing subprograms condescriptive and frequencies. Initially, subprogram frequencies was run to verify the accuracy of the data and to check that all the data cards were properly coded and punched. Table of frequency distributions and related descriptive statistics were then obtained. Because the next three research questions addressed by this study had to do with an examination of group differences, the statistical test which was used to test mean differences was the one-way analysis of variance.

Research question 1. The first research question examined the relationship between various demographic variables and the successful, not successful training outcome criterion. Specifically, the question posed was, "What is the relationship between the selected demographic variables of age, sex, ethnic group membership, educational level, and training outcomes?" For the purposes of this study, training outcomes were designated as successful and not successful terminations. The data were analyzed to determine differences in the success levels experienced by trainees by age, sex, ethnic group membership, educational level, and skill area. Each of these variables were examined and will be discussed in this section.

Trainee outcome by age. Terminations were tabulated by trainee age and analyzed to see what differences there were in the various age categories. Five age groups were used: 18 through 21, 22 through 25, 26 through 30, 31 through 38, and 39 through 53. Table 6 illustrates relationships that existed between age categories and those

trainees who were successful and those who were not successful. It is apparent that trainees in the age category of 22 through 25 were by far the most successful (88%). Those between the ages of 31 through 38 had the second highest success rate, whereas the lowest success rate was experienced by those trainees who were younger than 21 or those who were older than 38.

Table 6

Trainee Outcome by Age

Age Group	Successful N	Successful %	Unsuccessful N	Unsuccessful %	Total N	Total %
18 thru 21	21	58	15	42	36	100
22 thru 25	28	88	4	12	32	100
26 thru 30	20	71	8	29	28	100
31 thru 38	21	78	6	22	27	100
39 thru 53	7	58	5	42	12	100

Trainee outcome by sex. Examination of outcome tabulated by the sex of the trainee revealed that there are approximately the same proportion of successful students in either sex. Of the 81 males who were enrolled in the program 60 were successful (74%) and 21 (26%) were unsuccessful. Of the 56 women who were enrolled in the program, 39 (70%) were successful and 17 (30%) were not.

Trainee outcome by ethnic group membership. Trainee outcome was also tabulated by ethnic group membership to determine whether there were any differences in success ratio that might be related to membership in a particular ethnic group. For the purposes of this analysis, the one American Indian was not included. As Table 7

indicates, Hispanics and Asians in the program had a success rate of about 80%, considerably higher than those of Whites and Blacks who had a success rate of about 60%.

Table 7

Trainee Outcome by Ethnic Group Membership

Program	Successful N	Successful %	Unsuccessful N	Unsuccessful %	Total N	Total %
White	15	62	9	38	24	100
Black	18	60	12	40	30	100
Hispanic	12	80	3	20	15	100
Asian	53	79	14	21	67	100

Trainee outcome by education. As shown in Table 8, high school drop-outs, and high school graduates had the same percentage of successful trainees (73). A lower success rate of 67% was achieved by those trainees who had been educated beyond the high school level. It appears that educational level does not have much of an impact on successful terminations when the percentage differences between school dropout and post high school status is examined.

Table 8

Trainee Outcome by Education

Education	Successful N	Successful %	Unsuccessful N	Unsuccessful %	Total N	Total %
School Drop Out	19	73	7	27	26	100
High School or Eq.	61	73	23	27	84	100
Post High School	16	67	8	33	24	100

Trainee outcome by skill area. Table 9 illustrates the type of termination for each of the skill areas. It is interesting to note that the combined success rate (positive plus other positive) does not vary greatly from one skill area to the other. The Clerical class and the Auto Mechanics class have a success rate of 74%, Printing 71% and Building Trades 70%. However, when the types of terminations are further examined as to Positive, Other Positive and Non-Positive, there is a substantial difference in the results. The training area with the highest positive result, that is, the program whose trainees either were placed on a job after training, or obtained a job through his or her own job seeking efforts, was the Clerical class with a 66% placement. The Printing class had the lowest positive success rate, i.e., direct job placement of only 37%. However, it did have the highest other postive outcome (34%), i.e., those trainees who were placed in an on-the-job training position or were terminated for another activity which increased employability potential. Thus, the positive rate combined with the other positive outcome rate brought the Printing class overall success rate in line with the other skills training classes. Building Trades had a non-positive success rate of 30%, Printing 29%, Auto Mechanics and Clerical had non-positive results of 26% each.

Table 9

Trainee Outcome by Skill Area

Training Area	Successful N	Successful %	Unsuccessful N	Unsuccessful %	Total N	Total %
Clerical						
Positive	33	66				
Other Postive	4	8				
Combined Successful	37	74	13	26	50	100
Printing						
Positive	14	37				
Other Positive	13	34				
Combined Successful	27	71	11	29	38	100
Building Trades						
Positive	15	50				
Other Positive	6	20				
Combined Successful	21	70	9	30	30	100
Auto Mechanics						
Positive	10	53				
Other Positive	4	21				
Combined Successful	14	74	5	26	19	100

Evaluation of assessment procedures. A major goal of this study was the identification of reliable predictors of student success. Therefore, in order to evaluate

the assessment procedures and to distinguish relevant predictive variables, questions related to the specific assessment procedures used were posed. The assessment procedures in question were academic tests, work samples and work behavior ratings. In this section, each of the these questions will be presented, with details of the procedures used and outcomes described. The statistical procedure used to analyze questions two, three and four was the analysis of variance.

Research question 2. The second research question dealt with the relationship between scores on selected academic tests and student outcomes at the completion of training. Specifically, the research question posed was: What is the relationship between scores on academic tests and trainee outcomes?

One of the newer tests used in manpower programs is the Test for Adult Basic Education (TABE). The TABE tests are comprised of a series of achievement tests in reading, vocabulary and arithmetic. These three tests were administered to all trainees regardless of the skill area they were to be enrolled in. Students entering the Clerical class were given two additional TABE tests. These were tests for capitalization and punctuation and spelling. A teacher-made test, entitled Clerical Test was also administered to all students enrolling in the Clerical class.

Trainee outcomes were designated as successful and not successful. Federal regulations required that the successful category be further classified as (1) Success/Positive, designated for job placement; (2) Success/Other Positive, designated for any other activity which increased employability potential, i.e., military, on-the-job training, higher technical education and; (3) Not Success/Non-Positive, designated for all trainees who terminated the program for any other reason than those identified as success.

Initially, a one-way analyses of variance among the three outcome groups were computed using the academic tests as independent variables. The results of the analysis are shown in Table 10.

While there were no significant differences between the TABE test scores of Group 1, Successful-Positive, and Group 3, Not Successful-Non-Positive, it immediately became apparent that there was something unique about the test scores of Group 2, Successful-Other Positive. Specifically, Group 2 scored higher than both Group 1 and Group 3 on Arithmetic Comprehension and lower than Group 1 and Group 3 on Reading and Vocabulary. This unusual distribution of scores indicated a need to examine the composition of the middle group. Investigation revealed that approximately 75% of this group were non-English speakers who received on-the-job-training (OJT) after termination from the program. The practical importance associated with the preponderance of non-English speakers in the Successful-Other Positive Group will be discussed in Chapter Five.

Table 10

Mean TABE Test Scores

(For Total Sample in Three Outcome Groups)

	Group 1 Positive Scores	N	Group 2 Other Positive Scores	N	Group 3 Non-Positive Scores	N	F	P
Reading Comprehension	7.30	(62)	6.03	(19)	6.88	(32)	2.02	N/S
Vocabulary	6.27	(58)	4.99	(25)	6.28	(33)	2.43	N/S
Arithmetic Comprehension	7.69	(70)	8.15	(25)	7.10	(37)	3.46	$\leq$ .05

For the remainder of the study outcomes were reclassified into two groups only: Successful and Not Successful. This determination was made in light of the fact that OJT's usually resulted in paid employment, i.e., a successful outcome. Thus, Group 1, Successful-Positive, and Group 2, Successful-Other Positive, were hereafter combined and analyzed as a single successful group.

At this point, using the redefined Successful and Not Successful categories as the focal outcome groups, an analysis of variance, utilizing SPSS subprogram Breakdown was computed for each of the three academic tests. The following three Null Hypotheses were posed:

1. There is no statistically significant difference in the means of scores on the Reading Comprehension test for those who succeed and those who do not.

2. There is no statistically significant difference in the mean of scores on the Vocabulary test for those who succeed and those who do not.

3. There is no statistically significant difference in the means of scores on the Arithmetic Comprehension test for those who succeed and those who do not.

Each of these null hypotheses may be expressed as:

$$H_o: \ u_1 = u_2$$

Results of the analysis indicated that Hypotheses 1 and 2 were not rejected. However, Hypothesis 3 was rejected since scores on the Arithmetic Comprehension test was significant at the .05 level (see Table 11).

Table 11

Mean TABE Test Scores

(For Total Sample Reclassified into Two Outcome Groups)

Test	Successful	N	Not Successful	N	F	P
Vocabulary	5.88	(83)	6.28	(33)	0.54	N/S
Reading Comprehension	7.00	(81)	6.88	(32)	0.05	N/S
Arithmetic Comprehension	7.81	(95)	7.10	(37)	5.37	$\leq .05$

Clerical class. Because the trainees in the Clerical class were administered two additional TABE tests, Capitalization/Punctuation and Spelling and the teacher-made Clerical Test, three additional Null Hypotheses were posed:

C1. There is no statistically significant difference in the means of scores on the Spelling test for Clerical students who succeed and those who do not.

C2. There is no statistically significant difference in the means of scores on the Capitalization/Punctuation test for Clerical students who succeed and those who do not.

C3. There is no statistically significant difference in the means of scores on the Clerical Test for Clerical students who succeed and for those who do not.

A oneway analysis of variance was computed. The results of this analysis, shown in Table 12, indicated that hypotheses 1 and 2 were not rejected. However, hypothesis 3 was rejected since the Clerical Test was significant at the .05 level.

Table 12

Mean TABE Test Scores and Clerical Test

(Clerical Class Only)

Test	Successful	N	Not Successful	N	F	P
TABE: Capitalization/ Punctuation	7.87	(20)	7.52	(9)	0.23	N/S
TABE: Spelling	8.22	(21)	8.27	(8)	0.00	N/S
Clerical Test	86.00	(18)	77.91	(11)	5.72	$\leq .05$

TABE test scores by membership in ethnic groups. An analysis of variance was also computed for the three TABE tests by membership in ethnic groups. However, since there was only one American Indian enrolled in the program, for the purposes of this analysis, this subject was dropped. The mean scores in Vocabulary and Reading Comprehension indicated that whites had the highest mean scores with the scores of blacks, Hispanics, and Asians descending in that order. However, as shown in Table 13, Asians and Hispanics scored higher on Arithmetic Comprehension than did whites and blacks.

Table 13

Mean TABE Test Scores By Ethnic Group Membership*

Test	White	N	Black	N	Hispanic	N	Asian	N
Vocabulary	8.45	(20)	7.52	(24)	6.08	(14)	4.45	(57)
Reading Comprehension	8.30	(24)	7.93	(30)	7.06	(15)	6.03	(67)
Arithmetic Comprehension	7.26	(24)	7.04	(30)	7.88	(15)	7.93	(67)

*For this analysis the one American Indian was not included.

TABE test scores by training outcome by skill area. There was considerable inconsistency in the relationship of the various TABE test scores to training outcome in the different training areas. For students pursuing training in the Clerical area, the scores were generally higher for those who were successful than for those who were not. However for those pursuing training in the other trades classes the results were mixed. Mean score data on the individual tests by training area are shown in Table 14. Only Arithmetic Comprehension for the Auto Mechanics class was found to be statistically significant at the .05 level.

Table 14

Mean TABE Scores by Training Outcome by Skill Area

VOCABULARY

	Successful	N	Not Successful	N	F	P
Building Trades	5.02	(19)	5.41	(9)	0.15	N/S
Auto Mechanics	4.25	(11)	5.17	(4)	0.64	N/S
Printing	5.26	(26)	6.22	(10)	0.84	N/S
Clerical	7.75	(25)	7.57	(10)	0.06	N/S

READING COMPREHENSION

	Successful	N	Not Successful	N	F	P
Building Trades	6.35	(21)	5.75	(9)	0.65	N/S
Auto Mechanics	6.51	(14)	6.04	(5)	0.22	N/S
Printing	6.32	(27)	6.94	(11)	0.63	N/S
Clerical	8.03	(37)	7.96	(13)	0.01	N/S

ARITHMETIC COMPREHENSION

	Successful	N	Not Successful	N	F	P
Building Trades	7.75	(21)	6.37	(9)	3.65	N/S
Auto Mechanics	8.14	(14)	6.64	(5)	4.48	$\leq .05$
Printing	7.44	(27)	7.55	(11)	0.02	N/S
Clerical	7.96	(37)	7.43	(13)	1.68	N/S

TABE test scores for Asians only. An analysis of variance was computed for Asians only. As shown in Table 15, the results of this analysis indicated that the Reading Comprehension test was significantly related to training outcome at the .05 level.

Table 15

Mean TABE Test Scores for Asians Only

	Successful	N	Not Successful	N	F	P
Vocabulary	4.51	(45)	4.24	(12)	0.18	N/S
Reading Comprehension	6.04	(40)	4.65	(11)	4.44	$\leq .05$
Arithmetic Comprehension	8.06	(52)	7.50	(14)	2.47	N/S

Research question 3. The next assessment procedure examined in this study was the use of vocational work samples as a prediction of trainee success. The question posed was: What is the relationship between scores on work samples and trainee outcomes?

Various work samples were administered to all incoming trainees as part of their assessment process at their intake into the program. The following chart indicates which specific work samples were used for each of the skills training classes.

Work Sample	Clerical	Building Trades	Printing	Auto Mechanics
Finger Dexterity				
Nuts, Bolts, Washers	X	X	X	X
Numerical Aptitude				
Calculating	X	X		
Nail Sort			X	X
Color Discrimination				
Collating			X	
Form Perception				
Circuit Board		X	X	X
Spatial Aptitude				
Pipe Assembly		X	X	X
Clerical Perception				
Proofreading	X			
Verifying Numbers	X			

As is apparent from the chart, each skill class required various combinations of work samples. Therefore, the analysis of variance statistical procedure was used to determine differences for each skill area. The results of this analysis indicated that work samples were statistically significant in two of the skill areas. In the Auto Mechanics class both Finger Dexterity and Spatial Aptitude were significant at the .01 and .05 probability levels, respectively. In the Building Trades class the Numerical Aptitude Nail Sort work sample proved to be statistically significant at the .05 level.

Research question 4. The final assessment procedure examined in this study was the relationship between observations of work related behaviors and trainee outcome. Specifically, the question posed was: What is the relationship between scores on a work behavior rating instrument and training outcomes?

At intake a work behavior rating instrument was used to gather data on work-related behaviors of participants as they went through their assigned tasks. The instrument consisted of fifteen (15) items (physical appearance, punctuality, motivation, frustration level, concentration, appropriate request for help, concern for work quality, ability to follow verbal instructions, ability to follow written instructions, ability to follow diagramatic instructions, ability to learn task assigned, organization and carry through of work assigned, oral expression, written expression, language comprehension) which were rated on a one to five scale, with five representing the highest and one the lowest.

An analysis of variance was computed for all subjects. Punctuality and motivation proved to be statistically significant ($p \leq .05$). A one way analysis of variance was also computed for each of the four skill areas as well. Only the Building Trades class revealed additional significant results. The significant items for Building Trades were:

Physical appearance	$p \leq .04$
Punctuality	$p \leq .00$
Motivation	$p \leq .03$
Frustration	$p \leq .04$
Concentration	$p \leq .02$
Ability to learn task	$p \leq .05$

Research question 5. Predicting success or failure for students in a CETA training program is a complex problem. While specific assessment procedures and various test results can provide some meaningful information about the possible success or failure of a trainee, this researcher was interested in discovering whether or not combining significant factors would provide added weight to the predictability of trainee outcome. To this end, the fifth research question was: Does combining the factors

studied significantly increase the predictability of trainee outcome? To answer this question, a discriminant function model was constructed and tested against the data collected. Variables used in the discriminant analysis are presented in Table 16. Initially, all the trainees, regardless of the skill area in which they were enrolled, were considered for analysis. However, it had become obvious in the earlier parts of the study that there was considerable differences in the relationships of specific variables to success in each of the four training areas. It could, therefore, be presumed that the accuracy of prediction would vary from class to class. As a result, in addition to performing an analysis for the total program population, each of the four skill areas were individually analyzed. A score was computed for each trainee and for each disciminant function. The individual score was then compared to the mean score for each group and a probability was computed for each difference. Group membership was predicted for each trainee in the group to which s/he had the highest probability of belonging. The discriminate function was used to assign trainees into either the successful or unsuccessful group on the basis of their scores on two or more measures.

For all participants in the program, with no concern for individual training area, 79% of the trainees were correctly classified. A correct classification consisted of accurately placing a trainee in either the successful or unsuccessful termination category. The discrimination function correctly identified ninety-one (92%) of the 99 actual successful trainees. However, fewer of the unsuccessful trainees were correctly classified (45%), only 17 out of the actual 38 non-positive termination were correctly identified.

Table 16

Variables Used in Discriminant Analyses

	Total N=134	Auto N=19	Clerical N=29	Print N=38	B/T N=30
Age	X	X	X	X	X
Sex		X	X	X	X
Education	X	X	X	X	X
Number of Dependents	X	X	X	X	X
Parent	X	X	X	X	X
Black		X	X		X
White		X	X		X
Hispanic		X	X	X	X
Asian		X	X	X	X
Hours Absent	X	X	X	X	X
Finger Dexterity		X		X	X
Spatial Aptitude		X		X	X
Numerical Aptitude					X
Work Samples		X	X	X	X
Arithmetic Comprehension	X	X	X	X	X
Reading Comprehension	X		X	X	X
Clerical Test			X		
Punctuality	X	X	X		X
Physical Appearance		X	X		X
Motivation	X	X	X		X
Follows Verbal Instruction				X	
Frustration	X				X
Concentration					X
Appropriate Request for Help					X
Concern for Work Quality					X
Ability to Learn Task Assigned					X
Behave		X	X	X	X

Clerical class. For the Clerical class 17 (95%) of the 18 actual successful terminations were correctly identified as successful. Of the 11 unsuccessful trainees 10 (91%) were correctly classified as unsuccessful terminations. As shown in Table 17, 93% of all Clerical trainees were correctly classified.

Table 17

Discriminant Analysis

Clerical

N=22

Variable	Standardized Discriminant Coefficient	Minimum F	Significance
Black	1.07312	8.24	0.01
Motivation	-0.98795	7.06	0.01
Hours Absent	1.13417	8.11	0.00
Parent	0.82956	9.63	0.00
Physical Appearance	0.59877	10.36	0.00
Education	0.38837	9.12	0.00

Actual Group	No. of Trainees	No. and % of Trainees Classified As: Successful	Unsuccessful
Group 1 Successful	18	17 94.4%	1 5.6%
Group 2 Non-Successful	11	1 9.1%	10 90.9%

Percent of trainees correctly classified = 93.1%

Discriminant Score = .72 x Education + 1.72 x Parent + 1.23 x Physical Appearance - 1.14 x Motivation + 2.44 x Black + .01 Hours Absent - 6.82.

Building trades class. For the Building Trades class 17 (81%) of the actual 21 successful terminations were correctly identified as successful. Of the 9 unsuccessful terminations, 8 (89%) were correctly classified as unsuccessful. As shown in Table 19, 83% of all Building Trades trainees were correctly classified.

Table 18

Discriminant Analysis

Building Trades

N=30

Variable	Standardized Discriminant Coefficient	Minimum F	Significance
Punctuality	2.81650	20.41	0.00
Asian	2.39789	21.99	0.00
Physical Appearance	-1.20704	20.03	0.00
Hours Absent	-0.97227	14.58	0.00
Age	1.70032	13.17	0.00
Numerical Aptitude	1.07505	12.55	0.00
Arithmetic Comprehension	-1.65058	14.82	0.00
Frustration	-1.13219	14.43	0.00
Number of Dependents	-0.59842	14.59	0.00
Motivation	0.77134	14.19	0.00
Work Sample	0.69368	13.50	0.00

Actual Group	No. of Trainees	No. and % of Trainees Classified Successful	Unsuccessful
Group 1 Successful	21	17 81.0%	4 19.0%
Group 2 Non-Successful	9	1 11.1%	8 88.9%

Percent of trainees correctly classified = 83.3%

Discriminant Score = 0.93 x Arithmetic Comprehension - 1.93 x Frustration + 1.45 x Numerical Aptitude + 1.58 + Age - 0.37 x Number of Dependents + 3.95 x Punctuality - 1.74 x Physical Appearance + 1.77 x Motivation + 5.13 x Asian - 0.16 x Hours Absent + 1.66 x Work Sample - 16.26.

Auto mechanics class. For the Auto Mechanics class 13 (93%) of the actual 14 successful terminations were correctly identified as successful. Of the 5 unsuccessful trainees, all 5 (100%) were correctly identified as unsuccessful. As shown in Table 20, 95% of all Auto Mechanic trainees were correctly classified.

Table 19

Discriminant Analysis

Auto Mechanics

N=19

Variable	Standardized Discriminant Coefficient	Minimum F	Significance
Finger Dexterity	0.92932	15.25	0.00
Hours Absent	-0.81033	11.32	0.00
Parent	3.63328	9.45	0.00
Number of Dependents	2.83203	11.84	0.00
White	-0.95293	11.56	0.00
Education	-0.93010	12.52	0.00

Actual Group	No. of Trainees	No. and % of Trainees Classified Successful	Unsuccessful
Group 1 Successful	14	13 92.9%	1 7.1%
Group 2 Non-Successful	5	0 0.0%	5 100.0%

Percent of trainess correctly classified = 94.7%

Discriminant Score = 2.11 x Finger Dexterity - 1.80 x Education + 8.06 x Parent + 1.45 x Number of Dependents - 2.53 x White - .015 x Hours Absent - 16.16.

Additional Findings

During the course of the research additional factors which further defined the study population were examined. These factors were of interest to the researcher because they provide important information for tracing patterns of social interaction which have a bearing on the type of individuals who enroll in manpower training programs and their subsequent success or failure. This conceptualization of the CETA student is useful because it can result in provocative insights which would otherwise be missed if the research did not go beyond the obvious classifications. For this reason, cross-tabulations of membership in ethnic group by sex, age and skill area were computed. In addition, skill area was cross-tabulated with the trainee's age and sex. Each of the findings will be discussed in this section.

Membership in ethnic group by sex. As shown in Table 21, the ethnic groups represented in this study differed in their enrollment patterns in regards to sex. The table indicates that white and Hispanic men and women enrolled in relatively equal proportions. White and Hispanic men, 54% and 53%, were enrolled as compared to white and Hispanic Women, 46% and 47%, respectively. Black women, on the other hand, were much more likely to enroll then black men, 73% black women as compared to 23% black males. The reverse was true for the Asian group with an enrollment pattern of 76% for males as compared to 24% for females.

Membership in ethnic group by age. Further anlaysis of ethnic group composition by the age of the trainee indicates a disproportionate number of young blacks as compared to that of the other ethnic groups. Figure 5 shows that 53% of the enrolled black participants were between the ages of 18 and 21, whereas whites had 17% in this age category, Hispanics 13%, and Asians 19%. Among the blacks there were no

participants over 38 years of age, whereas among the other ethnic groups, whites had 8%, Hispanics had 13% and Asians had 12% represented in this age group.

Table 20

Membership in Ethnic Group by Sex*

Ethnic Group	Male N	Male %	Female N	Female %	Total N	Total %
White	13	54	11	46	24	100
Black	8	27	22	73	30	100
Hispanic	8	53	7	47	15	100
Asian	51	76	16	24	67	100

* Note: Since there was only one male American Indian in the program, he was not included in this table.

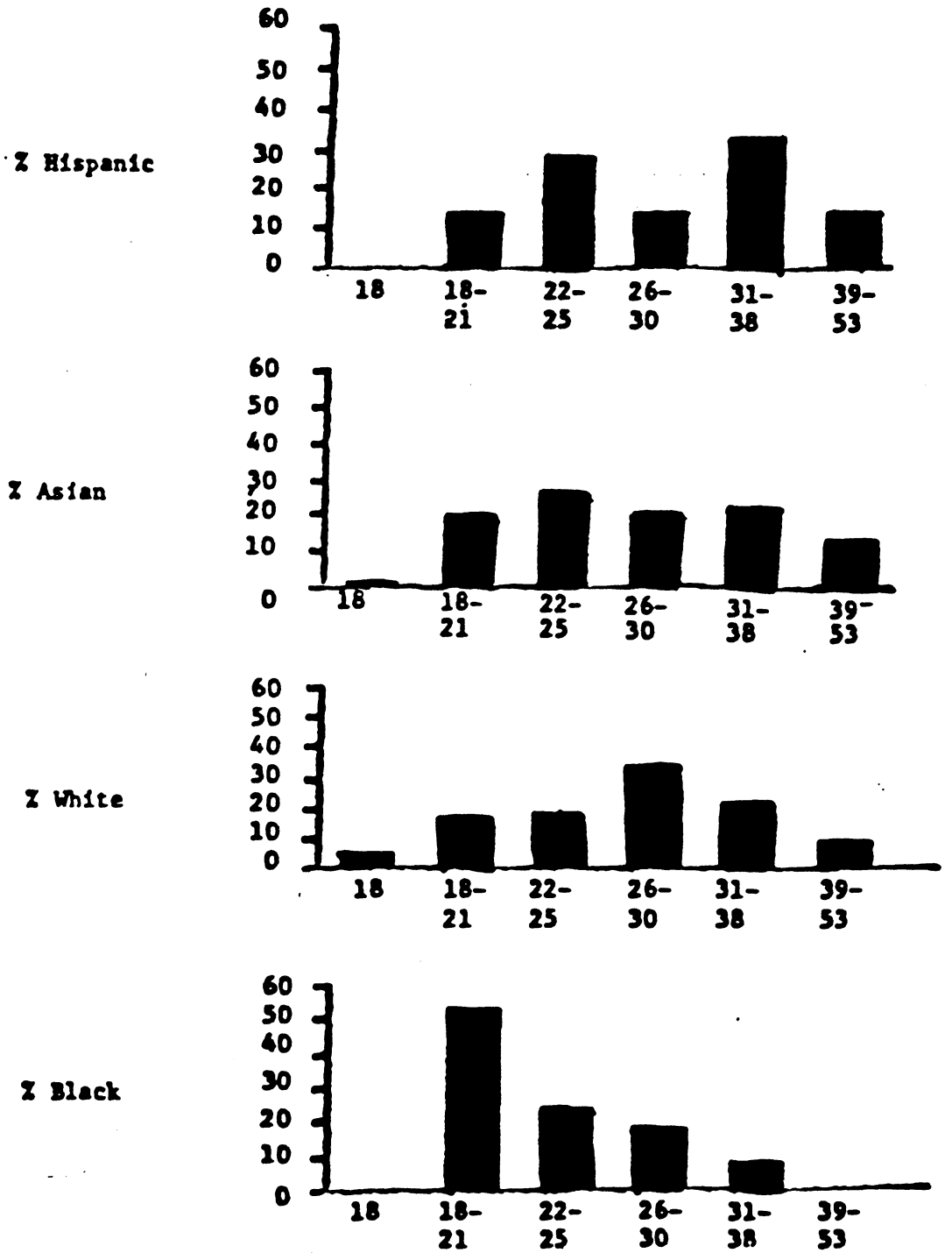

Figure 5. Membership in Ethnic Group by Age of Trainee

Membership in ethnic group by skill area. The composition of the individual skill areas by ethnic group is shown in Table 22. The majority of trainees in the Clerical occupations were black and Asian which comprised 70% of the total population. Whites and Hispanics in roughly equal porportion, 14% and 16%, respectively, completed the class. The Printing class was predominantly Asian comprising 66% of the total with blacks representing about 18% and whites, Hispanics, and the American Indian accounting for 8%, 5% and 3% respectively. The Auto Mechanics class was also largely Asian with 47% of the total. Whites and Hispanics in roughly equal proportion comprised another 47%, but only one black was enrolled in this skill area. In the Building Trades, only three ethnic groups were represented. Asians comprised 57%, whites 33%, and blacks 18%.

Table 21

Membership in Ethnic Group

By Skill Area

Training Area	White N	%	Black N	%	Am.Indian N	%	Hispanic N	%	Asian N	%	Total N	%
Clerical	7	14	19	38	-	-	8	16	16	32	50	100
Printing	3	8	7	18	1	3	2	5	25	66	38	100
Auto Mechanics	4	21	1	5	-	-	5	26	9	47	19	100
Building Trades	10	33	3	10	-	-	-	-	17	57	30	100

Skill area By sex. The distribution of the sexes by skill area reveals a very traditional breakdown of the participants. Table 23 indicates that 90% of all those enrolled in the clerical occupations program were women, while the three trade classes

— Printing, Auto Mechanics, Building Trades — had a male enrollment of 84%, 100%, and 83%, respectively.

Table 22

Skill Area by Sex

Training Area	Male N	Male %	Female N	Female %	Total N	Total %
Clerical	5	10	45	90	50	100
Printing	32	84	6	16	38	100
Auto Mechanics	19	100	0	0	19	100
Building Trades	25	83	5	17	30	100

Skill area by age of trainee. While the mean age of all program participants was 27, examination of each skill area showed that the mean age for Auto Mechanics and Building Trades was slightly less at 26. the Clerical class had a mean age of 27. The Printing class had the highest mean age of 30. In addition to having the highest mean age, the Printing class also had the widest range of age, from 18 through 53. This class also had the largest percentage of participants whose ages were between 31 to 53, 41% as compared to the other ages which ran to about 23%. The Auto Mechanics class was the only one which had participants less than 18 years of age. Figure 6 graphically indicates the lack of any similarity in the class structure as far as age is concerned.

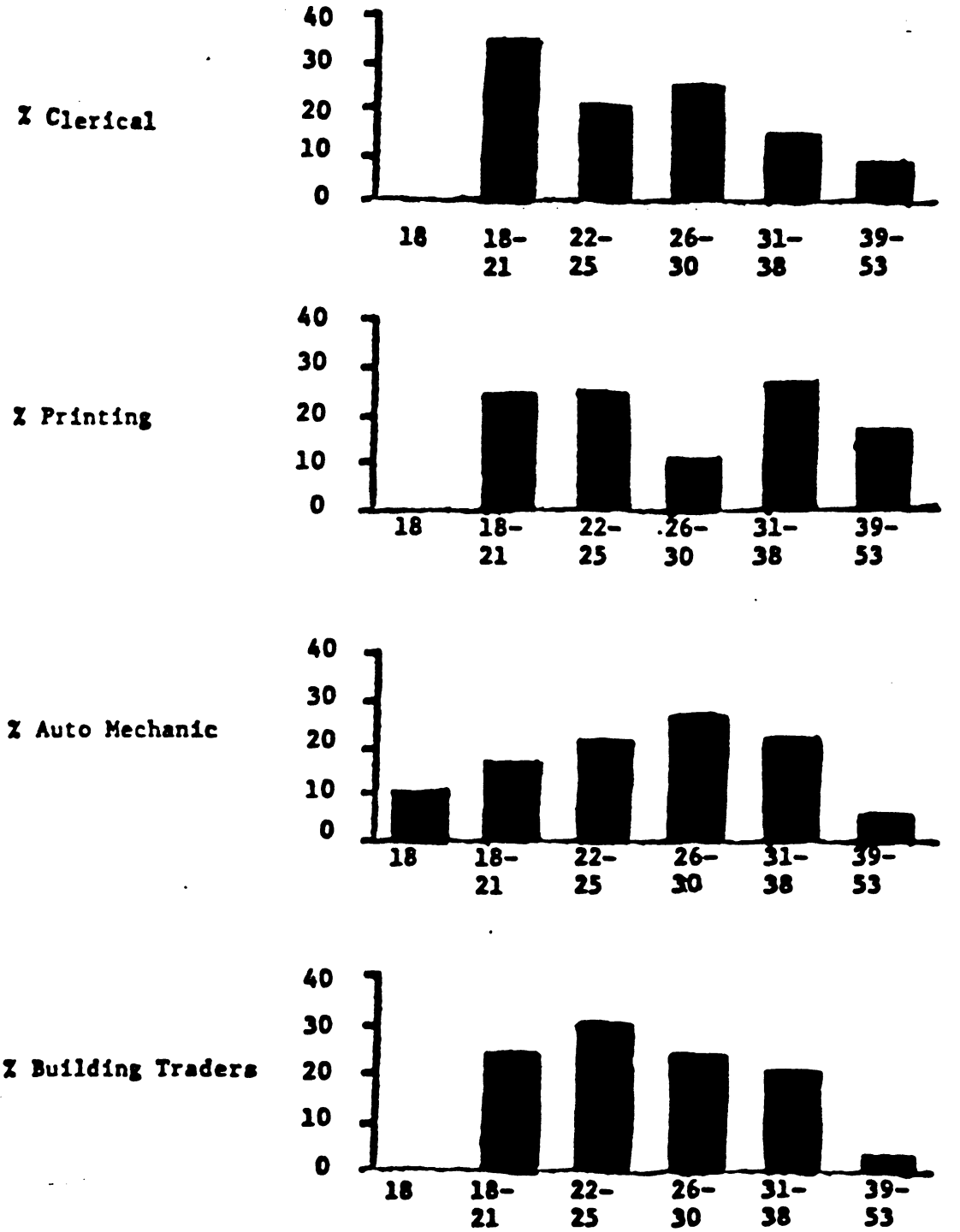

Figure 6. Skill Area by Age of Trainee

CHAPTER FIVE

CONCLUSIONS AND IMPLICATIONS

Chapter Five begins with a brief summary of the research conducted and results achieved. It discusses the training outcomes of students enrolled in four distinct classroom training areas, the variables in the research model, and the way components of the model predicted training outcome. This section is followed by some implications and interpretations which the study raises for employment training programs and concludes by making some general comments and recommendations based on the research findings.

Summary

The overall purpose of this study was to discover if predictive variables could be identified to assist manpower programs with decisions concerning trainee program assignment. The primary problem explored in this study was: What is the relationship between selected trainee characteristics, specific vocational assessment procedures and successful outcomes in a CETA skills training center? The research concentrated on assessment factors believed to be related to successful and unsuccessful training outcomes. These factors included demographic variables of age, sex, ethnic group membership, education and family status, as well as scores on three specific assessment procedures: academic tests, work samples, and a work behavior rating instrument.

A review of the literature disclosed that research on trainee characteristics in manpower programs has been sparse and inconclusive. However, three researchers have attempted sophisticated approaches to discover reliable descriptive variables (Andrews, 1972; Calabro, 1973; Kontz, 1968). These studies were important precursors to this research effort. In addition, a comprehensive search of the literature on vocational assessment procedures for disadvantaged adults revealed that there is virtually no

literature on the exact same type of vocational assessment procedures which this study examined. While the subject was discussed indirectly in some studies, none of them described a similar program or discussed specific details of direct interest.

The present study involved a sample of 137 subjects who had completed a vocational assessment experience, had enrolled in one of four vocational classes, and had been terminated, either successfully or unsuccessfully, from a skills training program at the Northern Virginia CETA Skill Center during fiscal year 1981-82.

The analyses for this study were conducted on two levels. Initially, descriptive data of the independent variables for all trainees were developed, including percentages and means. Correlation matrices were then generated for use in selecting input variables for a discriminant analysis. The Statistical Package for the Social Sciences (SPSS) was used to determine frequency and percentage distribution, means, cross-tabulations, one-way analysis of variance and the discriminant analysis related to the research questions.

The results of the study indicated that the assessment procedures used in the selection of students for placement into the various skill training areas with the expectation that such students would complete training and subsequently get a job, have proved to be more than adequate. For each of the three assessment techniques tested: (1) Academic Tests, (2) Work Samples, and (3) Work Related Behavioral Observations, several significant variables were identified. The most significant academic variables were Arithmetic Comprehension overall, with Reading Comprehension specifically significant for the Asian population. For trainees in the Clerical class, the teacher-made Clerical Test was also significantly correlated with successful outcomes. The Work Samples identified as significantly related to successful outcomes for trainees enrolled in the Auto Mechanics class were those involving finger dexterity and spatial aptitude skills. The results of a numerical aptitude work sample was

significantly related to the successful outcome of trainees in the Building Trades class. For the program overall, two work-related behaviors, punctuality and motivation, proved to be significantly related to successful outcomes. In addition, for trainees enrolled in the Building Trades class, physical appearance, frustration level, concentration and the ability to learn a given task were also identified as significantly related to successful outcome.

Results of the discriminant analysis were astonishingly high in three out of the four skill classes and would appear to demonstrate that statistical relationships can be proven to exist between certain trainee characteristics, assessment procedures and training outcomes. When the discriminant analysis using the various demographic variables, scores on the work behavior rating instrument, academic tests and work samples were performed, the results were impressive. A separate discriminant analysis was computed for each of the skill areas. For the Clerical class the discriminant analysis correctly predicted 17 out of 18 actual successful terminations for an accuracy of 95%. Of those unsuccessful, the prediction was 10 of the actual 11 unsuccessful terminations for an accuracy of 91%. The percentage of trainees correctly classified was 93%. For the Building Trades class the discriminant analysis correctly predicted 17 of the 21 actual successful terminations for an accuracy of 81%. Of those who were unsuccessful, the prediction was 8 of the 9 actual unsuccessful terminations for an accuracy of 89%. The percentage of trainees correctly classified was 83%. For the Auto Mechanics class the discriminant analysis correctly predicted 13 of the 14 actual successful terminations for an accuracy of 93%. Of those who were unsuccessful, the prediction was 5 of the actual 5 unsuccessful terminations, for 100% accuracy. The percentage of trainees correctly classified was 95%. The only skill area which did not produce significant results was the Printing class.

In short, the discriminant analysis yielded predictive accuracies of 81% -100% for successful and unsuccessful terminations in three training areas. Thus it would appear that the specific demographic variable highlighed by the three assessment techniques employed at the Northern Virginia CETA Program are valuable indicators of trainee outcome. The weight of evidence supports the effectiveness of properly chosen and carefully administered assessment procedures as a means of increasing the percentage of successful outcomes in a skills training program. However, while the results of this study are impressive a cautionary note should be sounded. It must be recognized that this research project dealt with limited sample sizes and while a limited study can provide worthwhile information a conservative approach to interpretation should be taken.

Interpretations and Implications

While academic scores, work samples and work behaviors provided strong predictors of trainee outcome, a much sharper picture of trainee outcome was gleaned from the data when client ethnicity, sex and age were taken into account. In this regard, the present study uncovered several interesting outcomes.

1. The foreign born ethnic groups were far more likely to succeed than either American born white or black participants.

2. The number of Asian men enrolled in the program far exceeded the number of Asian women enrolled.

3. The number of black women enrolled in the program far exceeded the number of black men enrolled.

4. The only ethnic group without a single participant over the age of 38 was the black.

Because the success of a program depends not only on who completes a training program but more obviously on who is enrolled in the program the above findings are all the more important if we are to reach a broad base of those people in need of, and eligible for such training. Once a picture of who is participating and succeeding in skill training programs is highlighted, implications for more comprehensive involvement, and more specifically, successful involvement, become apparent. For example, the above findings, which indicated limited involvement across ethnic/sex lines, point to a need to examine the society which fosters such involvement. We might conjecture, with regard to foreign-born ethnic groups tending to succeed in training more often then their native American counterparts, that motivation may be the key as first generation refugees have historically come to this country with a high level of motivation to get a job as soon as possible. Arriving with no money and few immediately transferable skills, these immigrants, almost from the beginning of their arrival in this country, display a passion for whatever education and training is available. The number of Asian men enrolled in the training program far exceeded the number of Asian women. This may be a cultural carry-over from their own countries where the men traditionally are the primary wage earners. This finding sharply contrasts with that of the black population where the number of women participants far exceeded the number of male participants. This disproportionate enrollment between the sexes for blacks may be explained in part by the relative economic and social status associated with the various training programs. Since occupational identity governs a significant part of one's life style, the career one chooses often defines how one lives, where one lives and with whom one lives. Today's office technology is expanding the role of the professional secretary, providing an opportunity to broaden experiences and enhance career growth. Thus clerical training holds great promise for the CETA enrollee, male

and female alike. However, this training program attracts more females since the clerical field is traditionally more female. Meanwhile, the remaining three CETA training programs—building trades, auto mechanics and printing—which prepare the enrollee for traditionally male vocations, may not be viewed as promising as much status attainment as the clerical training. Thus frustrated by what he perceives as a "go-nowhere" job, the black male rejects the narrow band of occupations open to him.

It is also significant that the only ethnic group without a single participant over the age of thirty-eight (38) was the blacks. Perhaps people who have attempted unsuccessfully to become employed over the years eventually lose hope for the future and stop trying.

The educational level of trainees was yet another descriptive variable which provided insight into the success of trainees. Many people intuit that level of education is postively related to successful outcomes. That is, trainees who enter the program with a higher level of education are more likely to succeed than trainees with less education. The research in this instance, however, does not support this assumption. Trainees who had been educated beyond high school, in fact, had a lower success rate than those trainees who had either completed only high school, received a GED certificate, or had dropped out of school altogether.

One possible explanation for this apparent incongruency is that perhaps those students studying beyond the high school level may have chronically delayed making vocational decisions and may still be searching for some specificity in their future direction. Indeed, too often college has been used as a means of prolonging career exploration and deferring decision making. A particular weakness of this group seems to be their embracing unrealistic career goals, and their inability to make firm decisions. For these individuals, therefore, career information, practice in decision making, and

good career counseling may be all that is required rather than expensive and time-consuming occupational training. The high school drop-out, or the poorly prepared high school graduate with serious educational deficiencies, on the other hand, could greatly benefit from a comprehensive skills training program.

For those individuals who truly are in the labor market, whether graduated from high school or dropped out prior to completion, a training program can be a real asset. Unfortunately, too many students have left the high schools to find themselves ill-prepared to function in the working world. They do not have the basic academic skills necessary to succeed in the world of work, much less a specific occupational skill required for the jobs which are available. For these individuals, the CETA training programs seem to be a satisfactory solution to the unemployment problem.

An additional comment is appropriate here as the educational attainment of these subjects is discussed. As noted earlier, the black and white participants were functioning at a mean eighth grade reading level even though 81% of them had completed high school or the equivalent, and 18% of these had even gone on for higher education. Although reading skills only measure one type of educational outcome, it is one that is essential for survival in this society. If we measure education by the quality of students it produces, American education is in trouble. When we compare the arithmetic scores of this group with those of the foreign born populations, we find that the foreign born students outperform the American born. Their mean arithmetic scores, with all their language difficulty, is at the eighth grade level, while the American students are functioning at the seventh grade level. The failure of the American educational program is apparent when the granting of a high school diploma is no longer evidence that students can perform at a twelfth grade level. The need for a skills training program

providing not only specific skill training but the academic remediation necessary to successfully learn a given skill is thus underscored.

In Chapter Four it was pointed out that approximately 75% of the group who fell into the category of Success/Other Positive were non-English speakers, who received on-the-job training (OJT) after termination from the program. The difficulties encountered with the non-English speaking students going directly into a job from training seems to be twofold. The first reason, of course, is the obvious language barrier. Employers fear that communication will be difficult and limited, and that this in turn will limit the productivity of the employee. However, there is a second more subtle and persuasive reason which involves covert racial discrimination. Most employers prefer to hire people who have similar ethnic background to themselves and their present work force and are reluctant to hire the foreign born due to fear of adverse reactions from their other American born employees, or even possibly from their customers. To counteract the tendency of employers to reject the foreign born trainee as a potential employee, a monetary inducement in the form of an on-the-job contract, which reimburses employers almost half of the trainees wage for a set period of time, is often necessary. Employers are receptive to this form of hiring not only because it is economical, but because it provides them with the opportunity to observe the prospective employee's ability to work, as well as his/her ability to adjust to the particular work environment. Experience has indicated that OJT has been a very effective way to introduce the foreign born trainee to employers. Because of their demonstrated skills on the job, the trainees have been able to earn the respect of their employers and supervisors and the OJT experience generally has resulted in full time paid employment.

Although discrimination has lessened somewhat, it still remains a persistent and festering barrier to minority employment in the American economy. If all people who want a job are to be given an equal chance in the work force, many further changes will be required before everyone can find acceptance and a chance for success in the total society.

Suggestions for Future Research

The field of vocational assessment needs and deserves research support which will provide practitioners with information that will more effectively address the particular exigencies of the chronically unemployed. While program improvement is a never-ending task, several important steps can be taken to increase program effectiveness. Perhaps the most important one is to extend the flow of knowledge. Assessment techniques must be researched and improved, and the knowledge that is gained must be widely disseminated. A serious problem in this area has been the failure of many disciplines to share knowledge; e.g., psychologists, educators and manpower specialists rarely exchange information. Each discipline tends to talk only to its members instead of sharing and exchanging information on common research problems.

Another important consideration is the re-examination of old methods in light of current needs. As with any other endeavor in the helping skills area, practitioners involved in skills training must constantly look to the population being addressed for their cues. As needs change, neat procedures must give way to informed and controlled change. New ideas must be generated constantly. In turn, unusual methods must be tested, experimentation undertaken, and improvements sought. Meanwhile, care must be taken to preserve that which is effective; change for the sake of change must be

avoided. In short, the particular marriage of old and new procedures in a given assessment center should mirror as closely as possible that mix of the traditional needs and the new concerns that its clientele exhibit.

While this study does not exhaust the information which may be gleaned from the data available, it does provide a useful base from which subsequent analyses may be generated. In addition two useful studies which would make a valuable contribution to the field are outlined below.

Standards for professional evaluators. Vocational assessment is a highly technical activity which depends upon the skills and knowledge of suitably trained professionals. A qualified, competent evaluator makes the assessment process operate effectively and is the key to its success. No matter how good assessment tools are, in and of themselves, they will yield meaningless data if not interpreted by staff members with appropriate skills. However, the role of the evaluator is a relatively new and rather amorphous specialty. Thus the necessary body of specialized knowledge must be identified and specific preparation prescribed. A study to identify the competencies and knowledge needed by vocational evaluators should be undertaken.

Effects of assessment on the client. Assessment procedures provide clients with valuable information about themselves, their relative strengths and weaknesses. It provides them with evidence for or against an occuptional choice, helps them to clarify their thinking and provides data necessary for informed vocational decision making. Yet the effects of the assessment procedure upon the client have been strangely neglected by most researchers in this field. Further research should be designed to investigate systematically the effects of the assessment process on trainee attitude toward self-esteem, career interest and decision making.

Comments and Conclusions

In light of the background information described in Chapter Two, as well as the research findings presented in Chapter Four, a number of conclusions about the processes, procedures and results of pre-training assessment have been reached. The results of this study can offer certain positive advice to those individuals involved in providing training to disadvantaged adults, which may help them to better understand the structure and outcomes of an assessment process and in turn better equip them to deliver improved services to their clients.

1. A compelling practical fact is that decisions about who should be selected for training based on pre-training assessment procedures can provide useful information about the probability of a student performing successfully in a skills training program.

2. Tests, with all their limitations, are a valuable resource, which can rapidly provide information that is otherwise not readily available.

3. The benefits to be derived from pre-training assessment are dependent upon sensible use and interpretation. Interpretations of test results must vary with the nature of the training applied for, as well as the eventual job aspired to. The literature provides ample examples of tests that have been, at best, irrelevant for the type of information sought, or at the worst, so carelessly interpreted as to be worthless.

4. Test results for people who are considerably different from the norm group, e.g., people who do not have a command of the language in which the test is written, or people from foreign countries with cultural differences that interfere with test performance, should not be evaluated in the standardized way. If consideration is not made for cultural differences, or language barriers, the results will have little or no meaning. It is imperative that separate subgroups be understood and that their

differences be provided for in order to enhance the predictive power of the test instrument.

5. A basic principle underlying the use of academic tests as a selection tool is that rarely, if ever, should they be used alone. Multiple assessment instruments provide a much richer source of necessary information upon which decisions can be made. This point is particularly important in assessing disadvantaged adults.

6. There is a paucity of information on pre-training assessment procedures for culturally and socially disadvantaged adults. Since the majority of training programs for this population are widely dispersed and serve relatively small members at each location, conducting meaningful research is difficult at best and limited historically.

7. No one should be enrolled in a program of instruction that is not expected to improve or enhance his/her performance. Additional failure experienced by the already disadvantaged adult creates negative attitudes or behaviors which increase the possibility of further failure and thus becomes self-perpetuating.

8. A major effort must be made to improve the quality of skill training so that minority groups, especially black males, perceive it as a means of developing a potential for upward mobility rather than for merely filling lower status jobs. It is necessary that education/training facilities and manpower agencies recognize that there are many individuals so alienated from the existing social and labor market institutions that they must be vigorously sought out and convinced to partake in manpower training programs. Specifically, the black male must be encouraged and given the confidence to aspire to a higher level of vocational endeavor. These individuals have often been poorly educated, or narrowly educated, or educated according to standards that seem to bear no relevance to the existing economy. Yet, they too want at least a fraction of the "good life" that seems to be denied them. For these individuals, training

programs can only be taken seriously when it becomes patently evident that such training leads to what society as a whole deems attractive jobs. Too often they become discouraged at expending energy to achieve disappointing results and end up by retreating from the vocational scene into themselves. This is a tragic waste.

In summary, it is essential that manpower training programs open up more substantial occupations in which enrollees, especially black male enrollees, may reasonably expect to launch a new, worthwhile and lasting career. The notion of a career implies a sequence of generally improving work attainments. Merely linking a trainee with a job does not necessarily satisfy the trainees, nor does it satisfy the objective of manpower programs. However, launching an individual on a path of progressive vocational achievement does serve both ends.

Concluding Remarks

In conclusion, the results of this study support the assumption that assessment tests and procedures can differentiate between successful and unsuccessful trainees in various skill training areas. However, assessment procedures must be tailored to fit local circumstances and must focus on the local participant's unique and individual needs. All assessment instruments have their limitations as well as their own special strengths. No single approach and no one assessment technology alone can provide sufficient information that is valid for making final decisions about potential outcomes.

As more knowledge is gained about the characteristics and needs of particular individuals and about the effectiveness of particular assessment instruments or combinations of assessment devices to identify these needs, training program will become an increasingly successful alternative for those who do not succeed in the regular school

system. In many cases, manpower training programs offer a second chance to those who failed in, or were failed by, the educational system.

Recent trends in manpower training programs emphasize, as part of the selection process, the increasing importance of pre-training student assessment, making it axiomatic that program directors and other providers of such services become increasingly knowledgeable about this discipline. The purpose of this study was to contribute to that knowledge.

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APPENDIX A

Work Behavior Rating Instrument

Name: _____

III BEHAVIORAL OBSERVATIONS

Very Strong — Very Weak

5	4	3	2	1

- Physical Appearance
  hygiene, grooming and dress

  Comments:

- Work Characteristics & Attitudes

5	4	3	2	1

  Punctuality
  Motivation
  Frustration, Tolerance
  Concentration
  Appropriate Request for Help
  Concern for Work Quality

  Comments:

- Task Comprehension

5	4	3	2	1

  Follows Verbal Instructions
  Follows Written Instructions
  Follows Diagrammatic Instructions
  Ability to Learn Task Assigned
  Organization & Carry Through of Work Assigned

  Comments:

- Verbal Ability

5	4	3	2	1

  Oral Expression
  Written Expression
  Language Comprehension

  Comments:

Date Attended Seminar: _____

Staff Attendees: _____

RECOMMENDATIONS:

APPENDIX B

PARTICIPANT INTAKE FORM

CARD NUMBER | PRIME SPONSOR

DO NOT KEYPUNCH

PRIME SPONSOR'S USE

I certify that the information provided is true to the best of my knowledge. I am also aware that the information I have provided is subject to review and verification and I may have to provide documents to support this application. I am also aware that I am subject to immediate termination if I am found ineligible after enrollment and may be prosecuted for fraud and/or perjury. I authorize release of this information for verification purposes and understand that it will be used to determine eligibility.

X _____ MO DAY YR

Client's Signature | Date

X _____

Interviewer

Interview Date | 64 MO DAY YR

COMMENTS:

APPENDIX C

PARTICIPANT TERMINATION FORM

[4] CARD NUMBER (1) [ ][ ] PRIME SPONSOR (2 3)

2 SOCIAL SECURITY NUMBER [ ][ ][ ]-[ ][ ]-[ ][ ][ ][ ] (4 5 6 7 8 9 10 11 12)
3 TITLE OF FUNDS [ ][ ] (13 14)
4 LAST NAME
5 FIRST NAME
6 M I
7 STREET ADDRESS
8 CITY OR TOWN
9 STATE
10 ZIP CODE
11 PHONE NUMBER – HOME
12 PHONE NUMBER – WORK
13 TYPE OF TERMINATION [ ] (15) 1: PLACEMENT; 2: TRANSFERRED TO OTHER SUBPARTS; 3: ADDITIONAL POSITIVES; 4: OTHER

14 REASON FOR TERMINATION [ ][ ] (16 17)
01-DIRECT PLACEMENT
02-INDIRECT PLACEMENT – PS
03-INDIRECT PLACEMENT – OTHER
04-ENTERED MILITARY
05-TITLE AND SUBPART TRANSFERS
11-ENTERED SCHOOL
12-ENTERED ANOTHER MANPOWER PROGRAM (NON-CETA FUNDED)
13-COMPLETED UPGRADE TRAINING
14-POSITIVE/OBJECTIVE ACCOMPLISHED
21-LAID OFF
22-HEALTH/PREGNANCY
23-FAMILY CARE
24-TRANSPORTATION PROBLEMS
25-MOVED FROM AREA
26-REFUSED TO CONTINUE
27-ADMINISTRATIVE SEPARATION
28-CANNOT LOCATE
29-EXCEEDED PROGRAM LIMITS
30-EXCEEDED WAGE LIMITS
31-FOUND INELIGIBLE
32-OTHER

15 DATE OF TERMINATION [ ][ ][ ][ ][ ][ ] (18 19 20 21 22 23) MO. DAY YEAR

16 LABOR FORCE STATUS [ ] (24) 1: EMPLOYED; 2: UNDEREMPLOYED; 3: UNEMPLOYED; 4: OTHER; 5: STATUS UNKNOWN
17 ELIGIBLE FOR UNEMPLOYMENT INSURANCE [ ] (25) 1-NO 2-YES
18 RECEIVING WELFARE [ ] (26) 1-NO 2-YES
19 ACADEMIC CREDIT [ ] (27) 1-NO 2-YES
20 RECEIVED GED [ ] (28) 1-NO 2-YES

PLACEMENT INFORMATION

21 TYPE OF PLACEMENT [ ] (29) 1-DIRECT; 2-INDIRECT – PS; 3-INDIRECT – OTHER

22 EMPLOYER'S NAME
23 EMPLOYER'S ADDRESS
24 CITY OR TOWN
25 STATE
26 ZIP CODE
27 PHONE NUMBER
28 SUPERVISOR'S NAME
29 OCCUPATION
30 SECTOR [ ] (30) 1: PUBLIC; 2: PRIVATE
31 SIC CODE [ ][ ][ ][ ] (31 32 33 34)
32 D.O.T. Code [ ][ ][ ][ ][ ][ ][ ][ ] (35 36 37 38 39 40 41 42)
33 STARTING DATE MO DAY YEAR [ ][ ][ ][ ][ ][ ] (43 44 45 46 47 48)
34 STARTING WAGE $ [ ][ ][ ][ ] (49 50 51 52)
35 TRAINING RELATED [ ] (53) 1: NO 2: YES
36 NAME OF PERSON WHO WILL ALWAYS KNOW YOUR LOCATION
37 ADDRESS
38 CITY OR TOWN
39 STATE
40 ZIP CODE
41 PHONE NUMBER & A.C.
42 CONTRACT NUMBER _ _ _ _ _ _ _ _ _ _ _ _

COMMENTS:

43 Major Activity [ ][ ] (54 55)

1A	Classroom Training – Occ Skills	4A	PSE (Regular)	5B	WE Other
1B	Classroom Training – Other	4B	PSE Projects	6	Career Employ. Experience
3A	OJT – Public	4C	PSE Training	7	Transition Services
3B	OJT – Private	5A	WE In School	8	Services

COMPLETED BY: DATE:

PARTICIPANT STATUS CHANGE NOTICE

[3] CARD NUMBER (1) [ ][ ] PRIME SPONSOR (2 3)

a Assignments 1. Enter 2. Leave	7 Title of Funds	8 Activity	9 Delivery Agent	10 Component	11 Date Mo. Day Year	12 Units Assigned Participation	13 Activity Satisfactorily Completed 0-n/a, 1 no 2-yes	14 Occupation of Training or Employment D. O. T. Code	15 Hourly Wage
[1] (15)	(16 17)	(18 19)	(20 21 22 23 24)	(25 26 27 28 29)	(30 31 32 33 34 35)	(36 37 38 39 40)	(41)	(42 43 44 45 46 47 48 49 50)	(51 52 53 54)
[2] (15)	(16 17)	(18 19)	(20 21 22 23 24)	(25 26 27 28 29)	(30 31 32 33 34 35)	(36 37 38 39 40)	(41)	(42 43 44 45 46 47 48 49 50)	(51 52 53 54)
[1] (15)	(16 17)	(18 19)	(20 21 22 23 24)	(25 26 27 28 29)	(30 31 32 33 34 35)	(36 37 38 39 40)	(41)	(42 43 44 45 46 47 48 49 50)	(51 52 53 54)
[2] (15)	(16 17)	(18 19)	(20 21 22 23 24)	(25 26 27 28 29)	(30 31 32 33 34 35)	(36 37 38 39 40)	(41)	(42 43 44 45 46 47 48 49 50)	(51 52 53 54)

APPENDIX D

CLERICAL TEST

NAME: _____ DATE: _____

Part I: Ten words will be dictated to you. Write them in the spaces provided below.

1. _____ 6. _____

2. _____ 7. _____

3. _____ 8. _____

4. _____ 9. _____

5. _____ 10. _____

Part II: Below are ten groups of words. Some of them are in complete sentences; some are not. In the spaces provided, write C if the words form a complete sentence, write I if the words do not form a complete sentence.

_____ 1. Painting a beautiful picture.

_____ 2. Freedom is man's greatest possession.

_____ 3. Answer the phone.

_____ 4. Running quickly across the street.

_____ 5. Where did Mary go?

_____ 6. There were four cars at the corner.

_____ 7. Have you ever seen Niagara Falls?

_____ 8. A car going too fast.

_____ 9. We might have snow at Christmas time.

_____ 10. The one at your office here in the city.

CLERICAL TEST - Page 2 NAME: _____

Part III: Verb Agreement: In the sentence below, underline the verb that should be used to make the sentence correct.

1. All the boys (has, have) learned to play football.
2. Mary and her sisters (likes, like) to sew.
3. There (is, are) a great demand for good typists.
4. That boy (says, say) his name is George Washington.
5. The files (hasn't, haven't) been brought up to date.
6. (Was, Were) that product tested adequately?
7. The money (was, were) divided between him and me.
8. There (seems, seem) to be a difference of opinion on that subject.
9. Mary, as well as several other secretaries, (has, have) to stay late to finish today's correspondence.
10. That little boy (runs, run) very fast.

Part IV: Place the following names in alphabetical order.

Mandel _____

Reisen _____

Grant _____

Adams _____

Fiefer _____

Addams _____

Rubin _____

Masters _____

Collins _____

Adler _____

GENERAL CLERICAL TEST - Page 3 NAME: _____

Part V: Vocabulary: Below are ten sentences which require one of the lettered words to correctly finish the sentence. Underline the word that you think will make the best ending for the sentence.

1. The paper upon which letters are written is called:

   a. invoice b. stationery c. newsprint

2. When you express your ideas about something, you are said to give your:

   a. desire b. definition c. opinion

3. If you do things on time, you are said to be:

   a. punctual b. tardy c. careful

4. If you do a certain thing often, you do it:

   a. seldom b. frequently c. periodically

5. A typist who makes very few mistakes is:

   a. accurate b. lucky c. careless

6. Something that is finished is:

   a. complimentary b. completed c. concrete

7. If you wanted a job, you would fill out an:

   a. application b. affidavit c. interview

8. A person who presides at a meeting is a:

   a. secretary b. chairman c. partner

9. When you ask for a job, you may need to give the names of several people as:

   a. reference b. employees c. salesman

10. If someone tells you something that is hard to believe, you might say, "Why that is:

    a. obvious b. incredible c. meticulous

CLERICAL TEST - Page 4 NAME: _____

Part VI: Below are two letters. The first one is correct. The second has errors. Circle the errors in the second letter by comparing it with the first.

Mrs. Alberta Walker
13 Tudor Drive
Lafayette, Indiana 47904

Dear Mrs. Walker:

Thank you for your inquiry about our new line of Spanish design furniture. I am enclosing a pamphlet that contains illustrations and descriptions of all pieces in the new line.

Prices of our furniture vary somewhat throughout the country. If you contact one of our dealers, he will be happy to answer your questions about prices in your area, as well as any other questions you may have. The stores that handle our furniture in Lafayette are:

The Ellis Furniture Store, 1300 Chauncey Avenue
L & R Furniture, 1237 Montgomery Street

We appreciate your interest in our new furniture, and we hope you will find the enclosed information helpful.

Yours truly,

G. G. Beaumont

* * * * * * * * * *

Mrs. Alverta Walker
13 Tudor Drive
Lafayette, Indiana 47904

Dear Mrs. Walker:

Thank you for your inquiry about our new line of spanish design furniture. I am enclosing a pamphlet that contains illustations and descriptions of all the peices in our new line.

Prizes of our furniture very somewhat throughout the country. If you contact one of our dealers, they will be happy to answer your questions about prices in your area, as well as any other questions you should have. The store that handle our furnituer in Lafayette are

The Ellis Furniture Company,1300 Chancey Avenue
L & R Furniture, 1237 Montgomery Street

We appreciate your interest in our new furniture, and we hope you will find the enclosed information helpfull.

Yours truly,

G. G. Beaumont

CLERICAL TEST - Page 5 NAME: _____

Part VII: Name and number comparison. In each line across the page there are three names or numbers. Compare the three names or numbers and decide which ones are exactly alike. Then circle your answer according to the following directions.

Circle A if ALL THREE names or numbers are exactly ALIKE

Circle B if only the FIRST and SECOND names or numbers are exactly ALIKE

Circle C if only the FIRST and THIRD names or numbers are exactly ALIKE

Circle D if only the SECOND and THIRD names or numbers are exactly ALIKE

Circle E if ALL THREE names or numbers are DIFFERENT

1.	Davis Hazen	David Hozen	David Hazen	A	B	C	D	E
2.	Lois Appel	Lois Appel	Lois Apfel	A	B	C	D	E
3.	June Allen	Jane Allan	Jane Allan	A	B	C	D	E
4.	10235	10235	10235	A	B	C	D	E
5.	32614	32164	32614	A	B	C	D	E

Part VIII: Mathematical computations.

1) $\begin{array}{r} 219 \\ -110 \end{array}$

2) $\begin{array}{r} 41 \\ \times\ 7 \end{array}$

3) Add 5.2 + .96 + 47.0 =

4) 47% of 538 =

5) 306 ÷ 6 =

6) $\frac{1}{2}$ + 1/6 + 1/3 =

7) $\begin{array}{r} 7 \\ -3\ 3/4 \end{array}$

8) $\begin{array}{r} 14 \\ \times\ 2\frac{1}{2} \end{array}$

9) $\begin{array}{r} 6.459 \\ \times\ .38 \end{array}$

10) 8740 ÷ 20 =

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