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The impact of vocational assessment on occupational consistency and employment stability of rehabilitation clients.

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THE IMPACT OF VOCATIONAL ASSESSMENT ON OCCUPATIONAL CONSISTENCY AND EMPLOYMENT STABILITY OF REHABILITATION CLIENTS

A DISSERTATION PRESENTED

BY

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EDUCATION

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DEDICATION

In appreciation of my wife, Elizabeth Dexter Potsubay, whose everlasting support and guidance enhanced completion of the study.

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ABSTRACT

The Impact of Vocational Assessment on
Occupational Consistency and Employment
Stability of Rehabilitation Clients

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The purpose of this study was to examine the effect of a trait-factor vocational assessment method upon the rate and stabilization of job placement among handicapped clients as well as upon the degree of consistency of occupational choice throughout various stages of their vocational rehabilitation.

The assessment model matches the individual and his or her functional capacities with the skill and other personal qualifications needed to perform certain job duties. Jobs are arranged into a Worker Group System. Because each Worker Group has its own qualifications profile, the individual's capacities can be compared in terms of job requirements using a common language.

Subjects consisted of clients at an area office of a state vocational rehabilitation agency. Two groups of 25 clients each were selected randomly so that the groups were alike with respect to such

variables as age, sex, etc. The experimental group received the assessment method as part of normal evaluation procedures. The comparison group received complete services with the exception of the new method.

There were three hypotheses: (1) the experimental group receiving the vocational assessment method will have more clients placed in work than the control, (2) the experimental group will have a greater number of clients who stabilize in work for two months and/or longer, (3) the experimental group will show greater consistency of job choice from plan development to placement.

There was a statistically significant difference at less than the .01 level of confidence between the two groups supporting all three hypotheses. A second test confirmed the third hypothesis at a more complex level.

The results show the impact of the assessment model on job stabilization and placement and encourage widespread use of the method in rehabilitating handicapped individuals.

Suggestions for further research included studies that might bring about improved assessment methodology. Efforts can streamline the process to greater efficiency. Job analysis might improve the components of the method. Finally, research can apply assessment methodologies to other populations to assist in career planning as well as transferring skills to new job areas.

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CHAPTER I

STATEMENT OF NEED

A. Statement of the Problem

The purpose of this study was to examine a theoretical model for appraising handicapped clients' capacities for work. Secondarily, this study investigated the influence the model has on clients' setting realistic vocational goals and attaining successful placement in employment.

The model emanates from what has been called the trait-factor method which originated in part with the efforts of Frank Parsons, a pioneering theoretician and practitioner of the vocational guidance movement at the beginning of the century. Parsons was concerned with people finding their places in work environments. In order to describe the model, historical events which provided the foundation of this approach will be presented in Chapter 11A.

Goals of vocational assessment.

The purpose of vocational appraisal is to learn about client capabilities for functioning at work in order to assist them in making practical vocational choices. The assessment method accomplishes its goal by gathering information on client aptitudes, interests and capacities and relating these to the requirements of job groups in the employment environment.

Rationale.

There is currently a clear mandate for systematic evaluation of clients at the outset of the counseling process with the intention that such appraisal will produce benefits. The increasing desirability to assess handicapped clients' capacities to participate in the job market is shown dramatically by amendments to the vocational rehabilitation process.

An example of this mandate is an additional procedure included in a section on evaluation in the revised Client Services Manual of the Massachusetts Rehabilitation Commission, a state agency for the vocational rehabilitation of handicapped individuals. The procedure recommended is a "thorough" diagnostic study (Cf. Chapter 11C, Definitions of Terms: Eligibility, Diagnostic and Thorough Diagnostic Study) to follow a preliminary diagnosis of eligibility "to determine the nature and scope of services needed by the individual in order to attain a vocational goal" (Massachusetts Rehabilitation Commission, 1978, 7.13). The state's program is part of the federal vocational rehabilitation program administered by the Rehabilitation Services Administration, Department of Education.

Thus, in the most current regulations, the term, "thorough" diagnostic study, is a procedure describing how a client is to be evaluated completely--vocationally as well as medically. Eligibility is usually determined through the use of appropriate medical, psychiatric and psychological diagnostic examinations and is dependent upon "whether the individual has a physical or mental disability which for

such individual constitutes or results in a substantial handicap to employment and whether vocational rehabilitation services may reasonably be expected to benefit the individual in terms of employability or whether an extended evaluation of rehabilitation potential is necessary to make such a determination." (Ibid, 7.11).

"Thorough" diagnostic study, on the other hand, is concerned with appraising capacities that relate to employment. It "shall consist of, but not be limited to, a comprehensive evaluation of pertinent medical, psychological, vocational, educational and other related factors which bear on the individual's handicap to employment and rehabilitation needs. The study shall include an appraisal of the individual's personality, intelligence level, educational achievements, work experience, personal, vocational, and social adjustment, employment opportunities and other pertinent data helpful in determining the nature and scope of services needed. It shall include, as appropriate for each individual, an appraisal of the individual's patterns of work behavior, his ability to acquire occupational skill and his capacity for successful job performance. A simulated or real work situation may be used in order to assess the individual's ability to perform adequately in a work environment." (Ibid, 7.14, 7.15).

Definition of vocational assessment.

The particular recommended method of vocational assessment used in this study is a process by which trained counselors identify capa-

cities for employment of their clients and analyze these client qualifications in comparison with knowledge of the skill requirements of jobs. The assessment method looks at the client across a broad spectrum of criteria: general educational development, specific vocational preparation, aptitudes, interests in work activities, temperaments for work situations, physical demands, and working conditions. These criteria make up a qualifications profile (Cf. Chapter 11C, Definitions of Terms). So, vocational assessment is the appraisal of the client's functional strengths and limitations for work as measured by interview, examination, testing, tryout, and analysis during the counselor's "thorough" diagnostic study of the client.

This comprehensive evaluation process also synthesizes relevant medical, psychological, educational, vocational, social, cultural and economic data.

Various evaluative techniques may be used in order to obtain a complete picture of an individual client. Whether the counselor provides the evaluation or secures it from other sources, some of the following services may be used: psychological tests, work samples, job tryouts, situational assessment (Cf. Chapter 11C, Definitions of Terms), vocational exploration, medical/psychological consultation, vocational/ personal counseling. In doing assessment, it is essential to keep in mind that the process should increase client self-awareness of vocationally and personally relevant assets.

This assessment method is to manpower services what diagnosis

is to health care services. It is the determination of the importance, size or value of the strengths and limitations of an individual which facilitate or interfere with vocational goals and the development of proposals for individualized written rehabilitation programs (Cf. Chapter 11C, Definitions of Terms).

Important distinctions between medical diagnosis and vocational assessment and the relation of each to occupational functioning should be made at this time. The basic system for establishing eligibility and identifying client problems is based on medical or psychiatric diagnoses since diagnostic examinations of this nature establish presence of disability. While these diagnoses relate to functioning in a general manner, they do not relate the functioning to occupational requirements and choices in as precise a way as necessary. Medical diagnoses, for example, fail to take into account the wide variation of functional capacities for jobs that may exist in the condition of persons carrying the same diagnostic label. The vocational assessment model being considered in this study, for example, relates client functioning to job demands in order to help clients establish occupational direction for themselves. Conversely, with the medical diagnostic examination, a quadriplegic would not be compared to someone with severe rheumatoid arthritis yet their capacities for functioning on a particular job might be identical. Many other factors pertinent to the job such as work environment have to be considered if a client is to find work and stabilize in it. Irrational fear and prejudice on the part of employers may make it extremely dif-

ficult for a person with a history of epilepsy, now well under control, to find work. The essential problem which may limit a burn patient could be an unpleasant appearance rather than physical incapacity, especially for occupations such as sales requiring extensive contact with the public. Counselors recognize the key to an individual's vocational rehabilitation may be found when problems such as lack of transportation, poor personal hygiene, habitual tardiness or hostile reaction to supervision are recognized and dealt with. The foregoing represent some of the traits, behaviors, and problems counselors need to assess. Some of these difficulties may only be implied by diagnosis while others, such as transportation, are not covered at all. An additional shortcoming of psychiatric diagnosis is a problem of consistency since labels assigned to a patient may vary from one time to another or with the setting or diagnostician, according to Crewe (Crewe, Athelstan, & Meadows, 1975, pp. 513-514). Then there is the whole problem of defining a person's ability to function after a diagnostic category is presented. The emotional condition, depression, does not interfere per se with ability to work necessarily. It is rather the behaviors associated with the condition, such as motor retardation, withdrawal from social interaction, inability to complete assignments, and the like which, if present, will affect employability (Ibid).

To cope with the problem of defining a person's specific functioning, Sarno, Sarno and Levita have presented a new inventory called the Functional Life Scale (Sarno, Sarno & Levita, 1973). The

areas assessed include cognition, activities of daily living, home and outside activities, and social interaction.

Thus, the vocational assessment model used in this study has been developed into a series of steps that can be a part of a "thorough" diagnostic study process that a counselor does to relate the functioning of her or his client with job demands. Too often the vocational diagnosis or "thorough" study is not completed during the initial evaluation. The medical and/or psychiatric diagnoses are secured, and these general medical labels describing physical/mental conditions such as low back syndrome, borderline personality, etc. may be taken to summarize the client's problem as it relates to performing a job. Analysis may stop after eligibility is determined. But medical diagnoses are actually only clues and beginnings to defining work capacities. To find answers to these clues, an experienced counselor may use the recommended vocational assessment model to discover a client's true capacities to do work. In this process she or he relates the client's residual functional capacities, or capabilities to perform various functions on a job, with the requirements of the job itself.

B. THE MODEL

The following information describes the vocational assessment model used in this study. The method provides a forum for discussion about occupational options by the client with her or his counselor. Six volumes of interrelated literature, for example, are developed

into a taxonomy of occupational information as shown in Procedure below. With these materials as resources for the method, client and counselor have a framework within which to talk. First of all, the system arranges over 20,000 jobs found in the fourth edition of the Dictionary of Occupational Titles, hereafter cited as D.O.T., into 66 Worker Groups (Cf. Definitions). The method promotes discussion on jobs and related areas of work by conceptualizing the world of work into clusters or Worker Groups (Cf. Definitions). If a desired area of work is not practical for the client, he or she can select a related job within a Worker Group since each Worker Group contains a Qualifications Profile (Cf. Definitions) applicable to all the jobs within it. Several clusters or Worker Groups make up a larger Interest or Career Area (Cf. Definitions) so that clients in using the system with their counselors can identify potential areas of work by crossmatching their own qualifications profiles with the profiles in various Interest or Career Areas.

The process begins with drawing up a qualifications profile of the client on a Functional Capacities System Summary (Cf. Appendix C): her or his interests, aptitudes, vocational and educational background, temperament and functional capacities and speculating about possible job goals by analyzing the qualifications profiles of various occupations. Finally, through reviewing employment market conditions in Occupational Outlook Handbook, and local labor market surveys, practical job goals are outlined for the client. Thus, assessment is a step-by-step procedure. The Work Assessment process

is as follows:

1. Aptitudes and Interests (Cf. Chapter 11C, Definitions of Terms). This is the core of the work appraisal system. It takes aptitude to perform a job well. Various jobs require different aptitudes. One is likely to do best in jobs for which one has both aptitude and interest.
2. History and Functional Analysis. A client's educational, work, and family history is very important biography in order to know how that client will assimilate in various work environments. Her or his functional capacities (Cf. Chapter 11C, Definitions of Terms) need to be compared with the capacities requirements of jobs.
3. Vocational and Career Exploration. The assessment process hopefully opens the door to many possibilities for employment for clients and to the final choices they have to make after careful exploration.
4. Employment Outlook Survey. National and local labor markets are surveyed, using guides such as the Ten Year Outlook for Selected Occupations, Occupational Outlook Handbook (1972) as well as other employment survey systems. Adjustments to choices may be made by client and counselor, depending on labor market trends.
5. Work Goal Choice. After the client and his capacities have been reviewed in relation to the capacities requirements of key jobs and employment trends considered, the client is in

a position to make a career choice.

(1) Procedure. A sequence of steps is generally needed in completing a vocational assessment using the Functional Capacities System as method. Resources needed in addition to the forms presented in exhibits are:

Dictionary of Occupational Titles, 4th Edition (D.O.T.), Washington: U.S. Government Printing Office, 1977.

Worker Trait Group Guide (WTG Guide), Bloomington, Ill.: McKnight Publishing Company, 1978.

Career Information Guide (CIS Guide), Bloomington, Ill.: McKnight Publishing Company, 1978.

Guide for Occupational Exploration, Washington, DC: United States Government Printing Office, 1979.

Manual for the U.S.E.S. General Aptitude Test Battery, Section II: Occupational Aptitude Pattern Structure. Washington, DC: United States Government Printing Office, 1979.

Occupational Outlook Handbook, Washington, DC: United States Government Printing Office, 1972.

The sequence is as follows:

1. General Aptitude Test Battery (GATB) and Interest Checklist (I.C.L.). The GATB and I.C.L. are administered to the client. In order for the client to take the GATB, several factors need to be considered. First, clients need to be prepared by their counselors for what to expect before they take the 2¼ hour test at a local U.S.E.S office. Counselors can ready their clients by explaining the

chart seen in Appendix A which describes the nine aptitudes the test taps and the kinds of test questions involved with each test section. Clients should be advised that there is no passing or failing the test; rather, it is designed to see what their aptitudes are. The test is written at the sixth grade reading level. For clients of limited educational background who the counselor feels may have difficulty in taking the test, the Wide Range Scale can be quickly administered as a screening device in the counselor's office (see Appendix B). Those who score 3-8 on Part 1-Vocabulary and 6-8 on Part 2-Arithmetic have sufficient literacy skills to take the GATB. Each client's scores are presented on Test Reporting Form (see Appendix C). If a client's aptitudes exceed the "cutting scores" for an Occupational Aptitude Pattern (O.A.P) (Cf. Definitions), the H or "high" for that O.A.P. number is circled on the Test Report Form. M stands for "maybe". For each O.A.P., there are three critical aptitudes. If an individual is at or exceeds the minimum standard or "cutting scores" of these aptitudes, she or he is predicted to have the possibility of success by being able to handle the aptitudes required on the job.

O.A.P.s on the Test Report Form are clustered into 12 Interest or Career Areas (Cf. Definitions) which conform to the same Interest or Career Areas in the Worker Trait Group Guide, i.e.: Artistic, Scientific, Plants and Animals, etc. The Guide lists Worker Groups under each of these career areas.

A counselor may "designate" a job title under an OAP into its proper Worker Group by using the following procedures. She or he

looks up the OAP number in the Manual for the USES Aptitude Text Battery, Section II: Occupational Aptitude Pattern Structure and finds a job title worthy of client consideration in the group of titles under that OAP. Then the counselor looks for that job title in Appendix D: Alphabetic Arrangement of Occupations starting on page 336 of the Guide for Occupational Exploration and finds its Worker Group (see Appendix E).

The Guide was designed to assist applicants in vocational information and choice. In the format and presentation of vocational information, particular attention was paid to the needs of entry-level workers. The Guide is organized around a new classification scheme that is said to provide an entry-level classification of occupations. The volume makes extensive use of information akin to that contained in the worker traits, although it does not use the identical items or the actual ratings themselves (Miller, Treiman, Cain, & Roos, 1980, p. 29).

Having found Workers Groups in Appendix D for the various job titles being considered, the counselor may review various characteristics of the job in its description in the D.O.T. and peruse the needed Qualifications Profile for the job in the Worker Trait Group Guide. The latter volume is the book currently in use for assisting counselors in learning the qualifications needed in various Worker Groups. The Interest Checklist (I.C.L..) also relates to Worker Groups. Every three interest items on the survey contain marginal references to Worker Groups (see Appendix F). The Strong Campbell

Interest Inventory (S.C.I.I.) of the Strong Vocational Interest Bank (S.V.I.B.) may also be used in place of the I.C.L as an inventory of client vocational interest if so desired. S.C.I.I. is usually employed with college-bound clients while an alternative version, the Career Assessment Inventory (C.A.I.), is for clients interested in shorter term training for career entry. Both forms, S.C.I.I. and C.A.I., relate client vocational interests to Holland's six occupational themes (Holland, 1959-1976). Therefore, use of this instrument can integrate job titles with Interest or Career Areas of Worker Groups and Holland themes through use of such counseling aids as Test Reporting Form (Appendix C), Guide for Occupational Exploration, and Worker Trait Group Guide (Campbell, 1974).

2. History and Functional Analysis Profile. Client's educational, social, family, and work history as well as his functional capacities are critical to the assessment process. The counselor should record information about functional capacities by checking off degree of limitation of compensation and commenting narratively on the Functional Assessment Profile Grid (see Appendix G). Material for these criteria may come from observation and from the job requirements sections of books such as the Worker Trait Group Guide and Guide for Occupational Exploration.

3. Functional Capacities System Summary. Following the instructions, use the Master Comparison Chart of the Worker Requirement Group to arrive at Worker Groups the client has aptitudes for (see Appendix H). If the client's Qualifications Profile is compatible with that of a

Worker Groups, draw a circle around the corresponding Worker Group numbers. Then using the Interest Checklist (Appendix F), place check marks next to those Workers Groups for which the client shows interest. Mark crosses next to those Worker Groups for which the client has both aptitude and interest and which are both circled and checked. Make a list of those Workers Groups next to which crosses have been placed.

The selection of Worker Groups with crosses is only a guideline and a suggested technique the counselor may use when other necessary conditions concerning the client's capacities for and choice of work are met. While having both aptitude and interest for a job can typically lead to success in employment, this suggestion should not take precedence over the counselor's analysis of each client's needs. A client, for example, might have few aptitudes. At the same time, the client may have interests in areas in which he or she shows relatively low aptitude. In such a situation the counselor may choose those Worker Groups for which the client has aptitude only. The system of using crosses next to Workers Groups to signify areas of both aptitude and interest would not have much utility in this client's situation. The overriding principle about the vocational assessment method is that the technique should be used as a flexible tool to analyze client functioning and job demands with the best interests of the client always in mind.

Assuming the method is valid for the client situation at hand, make a list of those Worker Groups next to which crosses are placed.

Now, using the Worker Trait Group Guide, select four job titles from the Worker Groups. Try to choose job titles that summarize broad spectrum areas of careers for the client. Put these as four work choice areas on the Functional Capacities System Summary (see Appendix I).

In this way, the client and his qualifications profile has been linked to jobs for which he has both aptitude and interest, by comparing the client's capacities for work with the requirements of targeted Worker Groups and bringing the two together by means of this unique coding system.

4. Do System. Now the client and his aptitudes, interest, capacities and behaviors are compared in depth with all the requirements and environmental conditions of the four jobs under consideration using the Functional Capacities System Summary (see Appendix I). Notice the criteria used in the comparisons include hygiene factors such as supervision, motivators like mobility, challenge, etc. in order that as many components of the total dynamics of the occupational condition at hand are analyzed as completely as possible. Counselors may use narrative comments to describe how the client meets these criteria as well as for the requirements of the four jobs. Or they may mark either + or -, designating whether or not the clients possess the behaviors or characteristics. Case record information of prior vocational history and observation of client by counselor during interviews are good sources of material as well as use of the Worker Trait Group Guide, Occupational Outlook Handbook,

Guide for Occupational Exploration, and other volumes.

5. With the client matched to key job areas, counselors should review the employment market for the jobs under consideration counselors can assist. The clients in needed planning and exploration of career alternatives because of information in labor market trend materials. Occupational Outlook Handbook and the Ten-Year Outlook for Selected Occupations are good examples of the excellent sources of information on employment prospects and considerations available on virtually all major occupations (see Appendix J and K).

6. Once the final occupational goal choices are made, client and counselor can use a vocational assessment worksheet in order to outline potential trainers and employer prospects for future placement (see Appendix L).

Thus, this method of vocational assessment compares the client and her or his qualifications profile with the qualifications profiles of occupational Worker Groups. With a great deal of information being gathered, the counselor looks at the client in relation to the world of work in a very complete way along a specific set of criteria. By comparing the client's interests in work activities as well as temperaments for occupational situations to the qualifications requirements of jobs, the counselor examines his client in relation to some of the personality and energy level requirements of jobs. In this way, he is linking client to job in terms of its total requirements and is maximizing the chances of a client's successful placement on a job.

Problem significance.

The vocational assessment model tested in this study will have an impact because the need to appraise physically and mentally impaired citizens' capacities to participate in the employment marketplace in a systematic and effective manner will increase, researchers predict. Garvin (1981), for example, cites the need for improved vocational counseling and programmatic thrusts for cost effective planning and economy of action in recent years only underscore the need for a valid vocational assessment model that can be used to help bring about the successful vocational rehabilitation of handicapped clients. In order to reach the major goals of getting disabled and handicapped clients into appropriate work situations, rehabilitation professionals agree that effective vocational guidance and counseling must be provided and must be the core of the vocational rehabilitation program around which all other services revolve if counselors are to meet the demands of budget conscious programming in the 1980s. In view of this major goal, experts also agree that adequate vocational assessment services must be provided since these methods will permit the selection, by the client, of an appropriate vocational objective based upon facts rather than assumptions. A valid assessment method will permit the counselor and client to determine what specific services are needed to prepare the client for job placement and successful work adjustment. The assessment process allows the counselor to provide and document substantial vocational guidance and counseling services (Ibid).

While it is widely acknowledged that the vocational potential of physically and mentally impaired persons should be evaluated in an organized manner, there are differences of opinion among professional evaluators as to what approach, or approaches, are the most meritorious. As presented in Chapter 11A, four general approaches to evaluation are: 1) mental testing; 2) job analysis; 3) work sampling; and 4) situational assessment and job tryouts (Steiner, 1970).

Each approach has its own assets, at the same time, distinct disadvantages. Work samples, for example, are sometimes considered to have an advantage over mental testing in evaluating potential work performance because of its close simulation of an actual job task, such as wiring an electronic circuit board. Yet the work sample does not include the total environment of the job and the variation in environment varies from one job site to another so the use of work samples can compromise realistic assessment. Work sampling, moreover, is less sensitive to education differences than is mental testing.

What becomes apparent is that a valid vocational assessment model basically supplies a superstructure of the work environment as it uses the various evaluation approaches mentioned in order to measure a person in terms of a job setting. The purpose of the model is to compare the person's abilities and needs with the total requirements of the work environment as it uses an evaluation approach, or a combination of them, in order to supply significant performance data. As previously presented in this chapter, the model incorporates the criteria of the work requirements in a qualifications profile that

includes education, preparation, interests, temperaments, aptitudes, physical capacities, work setting.

One may gain further insight into the significance of the model by examining the Minnesota Theory of Work Adjustment which highlights the importance of the correspondence between the individual and the job. The correspondence between the individual and the job depends essentially on the match between the abilities of the individual and the ability requirements of the job, and between the needs of the individual and the reinforcer system of the job. These two aspects of correspondence contribute to the levels of satisfactoriness (based primarily on the abilities-ability requirements match), and of satisfaction (based primarily on the needs-reinforcer system match)(McCormick, 1979, 223).

As the Minnesota Theory of Work Adjustment advocates, the vocational assessment model in this study aims to help the individual correspond to the job environment through the use of matching the individual's qualifications with Worker Group requirements along the same criteria. In the career counseling relationship, the client is making a life decision and her or his counselor is assisting in this process. Every disabled individual desiring vocational rehabilitation services faces the task of selecting an appropriate vocational goal. To help the client generate several appropriate vocational goal alternatives, the counselor must facilitate client exploration of both self and the world of work.

Every job in our economy requires the individual to perform

certain physical activities, work in certain environmental conditions, have specific preparation and/or experience, possess specific aptitudes and interests, and be able to adapt to specific work situations. If the individual does not possess the necessary capabilities, it is very unlikely that the person will be able to perform and/or adjust to the job in an adequate manner. Therefore, the tools used in this process should allow for as much client participation as possible in order to permit the client to see her or his functional potential in such important areas as: physical activity and working environment capabilities, vocational aptitudes, and her or his ability to adapt to specific work situations.

A counselor should assist a client in locating vocational alternatives that are in line with present functional capabilities and limitations. The counselor should also enable the client to see all possible vocational alternatives so that she or he can select an appropriate vocational objective, the main task of preparing the Individualized Written Rehabilitation Program (IWRP). The professional needs to help the client understand the need for specific diagnostic evaluations in order to determine functional limitations and capabilities as they relate to work and the need for specific corrective and/or preparatory services. Evaluation methods that are available, such as the vocational assessment model used for goal selection and selective placement (Cf. Definitions of Terms) in this study, should provide the client with enough information and data to make all the important decisions with regard to her or his vocational

rehabilitation program (Garvin, 1981, P. 206). In another recent study, for example, Rubin and Roessler state that the accuracy of client perceptions for decision-making is a function of the sufficiency of the objective data possessed by the client. The two researchers note when such data are either inaccurate, insufficient, or inappropriately weighted, the individual's perceptions and concomitant vocational choice decisions are less likely to be compatible with reality factors (Rubin, 1979).

Functioning and demands match. Furthermore, the researchers hypothesize that the counselor's skill at facilitating such client exploration will be greatly dependent on 1) the degree to which the counselor accurately understands the client's existing and potential vocational limitations, capacities, skills, and interests and 2) the counselor's knowledge of the demand characteristics and available reinforcers of accessible jobs. In the Rubin and Roessler study the researchers use the Crux model, similar to the Minnesota Theory of Work Adjustment, to show the relationship between client functioning and potential job demands and between client interests and job rewards. Using this assessment model counselors acquire a thorough understanding of the client during the initial evaluation phase, the researchers emphasize, in order to help the client "fit" into the world of work. In general then, this model also compares person with work requirements.

Another perspective. In addition, study concerning vocational assessment methodology is significant to the field of counseling

psychology in general, particularly vocational rehabilitation counseling, in assisting clients in the area of career development. Today, there is a greater need for vocational assessment because of the current major shifts in thinking that have taken place in the counseling psychology and vocational guidance movement in the past two or three decades. Specifically, the development of a career is now considered to be a lifelong process involving potentially many changes and requiring the client to have extensive input as far as career information is concerned in order to make sensible career decisions.

In summary, the findings of this study should contribute to a better understanding of how to assess the functional and personal capacities as well as environmental dynamics that contribute to an individual's securing and stabilizing in employment in the world of work. The results and conclusion will also add to the growing body of knowledge in several related areas: vocational assessment and career development, occupational and industrial psychology.

In particular, the study's findings should stimulate further research in order to improve the validity of the D.O.T., the need for which will be demonstrated in Chapter 11A. The ongoing usefulness of the D.O.T. for vocational counseling in several public and private sectors is clear. State vocational rehabilitation programs, for example, use the D.O.T. and other sources of occupational information in much the same way as does the Veterans Administration Rehabilitation Program. As mentioned previously in this chapter, determinations of eligibility for vocational rehabilitation are based

on two findings: that individuals have mental or physical disabilities that are substantial handicaps to their employability and that vocational rehabilitation services can be expected to improve their future employability. The first determination is made by a physician and/or psychologist; the latter is made by a vocational rehabilitation counselor. In the course of determining whether vocational rehabilitation program services would increase the employability of a handicapped individual, counselors make substantial use of worker trait and worker function information from the D.O.T., especially that related to physical demands and general educational development (GED) estimated (Cf. Definitions: Worker Trait, Worker Function, and Qualifications Profile). In assisting an individual to develop employment objectives, the D.O.T. is relied on as an important counseling tool (Miller, Treiman, Cain, & Roos, 1980, p. 71).

Those involved in public disability compensation and/or rehabilitation programs argue that there is no source of sufficiently detailed occupational information other than the D.O.T. for making determinations concerning the existence of suitable alternative occupations or for the development of employment objectives. Other agencies active in the field such as the Railroad Retirement Board and administrators of state workers' compensation programs, for example, use the D.O.T. in much the same ways as have been discussed. These materials are also used by the private disability insurance industry and by private industrial and business organizations involved in rehabilitation work. The rehabilitation services branch of Goodwill

Industries, for example, reports that it makes frequent use of the D.O.T. and other occupational information in the course of evaluating candidates for rehabilitation. Goodwill Industries has a 2-6 week evaluation program during which counselors assess in a sheltered workshop evaluation (Cf. Definitions: Vocational Evaluation) the interests, potential, and skills of those referred to them for rehabilitation and training. During the vocational exploration process the D.O.T. is used in much the same way as the Veterans Administration and vocational rehabilitation counselors use it, especially the worker trait information. Furthermore, one evaluator at Goodwill Industries indicated that the D.O.T. served an additional purpose: the job descriptions are often found useful in helping clients to accept the reality that they can no longer perform the same functions or do the same work they were capable of before becoming disabled (Ibid).

Another major use of the D.O.T. is by vocational educators. In the fields of vocational and occupational education, substantial use is made of occupational information, including the D.O.T. and other products of the U.S.E.S. occupational analysis program. Broadly speaking, occupational information is used by vocational educators in program planning, counseling, and curriculum development and occasionally for record-keeping purposes (Ibid, p. 72).

The D.O.T. is also used by sociologists, psychologists, and economists in a broad range of research activities. The D.O.T. code of a job title is frequently used to describe the socioeconomic distribution of subject samples and to match experimental groups with

control groups on occupational class and skill level. The worker traits and worker functions scales have been used in many capacities, most notably in describing the distribution of job characteristics across various sectors of the labor force and in examining shifts in labor force composition. Economists often turn to these scales when studying the determinants of wages, and psychologists use this information in studying the relationship between occupational characteristics and psychological functioning as well as effects on performance. In addition, the D.O.T. has been a valuable resource in the more applied areas of vocational psychology and counseling (Ibid, p. 92).

Thus, the D.O.T. has wide usage among counselors, psychologists, and other professionals particularly as a resource tool for vocational assessment methodologies aimed at assisting the placement of individuals in employment. As discussed in Chapter 11A, research on the D.O.T. is needed in several areas: 1) job analysis; 2) worker trait and worker function scales; 3) labor markets and 4) cross-occupational linkages that indicate possible transferability of skills or experience. As far as this latter need for research is concerned, the transferability of skills between occupations should be the primary basis for research on new classification systems whose purpose is job-worker matching. Classifications that are truly ideal for placement must make use of a variety of approaches. Further research on developing classifications for job-worker matching is particularly necessary along two lines. First, the use of mobility data

to indicate the transferability of skills and to locate plausible job-worker matches should be investigated further. Second, methods for assessing worker characteristics, such as skills, aptitudes, and interests, and indicators of the adequacy of matches, such as satisfaction, performance, and persistence, should be investigated.

This study will address the second need specifically by evaluating the effects of an assessment method in matching individuals with work requirements. Further, research on the effect of a method to match worker with job will contribute not only to establishing a valid assessment approach but also to the first need, investigation of ways for finding data to locate job-worker matches.

What is being suggested is the use of data on naturally occurring patterns of labor mobility to evaluate, refine, and develop new occupational classifications. Mobility-based methods may provide a flexible methodology for evaluating and developing classification systems for use in placement. They have the unique advantage of using the actual histories of workers in the labor force as guides for defining what are appropriate (and inappropriate) matches to make for individuals with a given occupational background. This method avoids ad hoc judgments and permits greater flexibility than previous centralized, once-a-decade exercises in occupational grouping when updating of the D.O.T. has been done. First, a reliable set of occupational definitions is necessary to provide a data base for mobility studies. Job analyses, then, must continue to be the basic building materials of classification systems, as well as vocational counseling

approaches. This particular study is relevant to such research since the assessment method is a vocational counseling approach. Considerations such as patterns of discrimination in hiring and promotion that now exist (or previously existed) in the labor market dictate that any mobility-based approach to describing the similarity of occupations should be supplemented by other methods that do not depend on the past functioning in the labor market (Ibid, 1980, pp. 206-212).

In conclusion, vocational assessment methodology and its tools, the D.O.T. and other materials, have broad applicability to the evaluation of the individual for work and to general labor force and economic conditions. Specifically, this study will contribute to the existing research on the topic of vocational assessment because description of and experimentation with an assessment model offers both a new method of evaluation and a test of that model's effectiveness and hence validity. If the model is shown to be effective, use of the assessment method can save money on services that might have been spent inappropriately in training or physical and/or mental restoration aimed at maximizing potential and minimizing handicaps for vocational goals that were not feasible in actuality. The use of a model aimed at saving total vocational rehabilitation program monies is particularly timely in the current decade of cost efficiency when federal programs are either being continued at level or reduced funding, or, in some instances, discontinued.

The emerging art and science of vocational assessment methodology has the potential to make a significant contribution not only to

vocational rehabilitation programming with handicapped but also to the profession of counseling psychology in general. The necessity for a career assessment approach for non-handicapped individuals contemplating mid-life career changes, for example, is also readily apparent. As it describes the particular experiment in question, this study also has the capacity to foster research efforts on the general topic area of industrial and occupational psychology. The stimulation of this research may help to guide people effectively in making occupational choices, in securing employment and in gaining stability and maximizing satisfaction in jobs as well as assisting other persons to transfer to or retrain for new jobs at virtually any point in the lifetime of their working careers.

CHAPTER II

REVIEW OF THE LITERATURE

A. History of a Theoretical Approach

One of the side effects of industrialization and political democracy has been the development of mass efforts to evaluate and predict work behavior. The early rise of mass education and a powerful tradition of individualism brought about keen interest in measurement of individual difference in ability and aptitude. In the United States, for example, where everyone, theoretically at least, had equal opportunity and anyone could aspire to any social or economic position, it became an accepted belief that the only reason for differential mobility was differential ability (Neff, 1968, p. 169). Borow (1964, p. 48) attributes the slow evolution of the vocational guidance movement to the following four conditions: "economic (e.g., the rise of industrialism and the growing division of labor); social (e.g., urbanization, child labor, immigration, and transmigration); ideological (e.g., a restless spirit of freedom and a spreading belief in the improvability of man and his status); and scientific (e.g., the emergence of the human sciences--psycho-physiology of Fechner, Helmholtz, and Wundt, and the mental testing of Cattell, Binet and others" (Weinrach, 1979, p. 59).

The development of methods to assess people's work potential to

enhance optimum placement in employment traces its beginnings back to the early theoreticians in counseling psychology--Frank Parsons, Edmund G. Williamson, and others. The systematic study of work potential spans a period of approximately 65 years, from World War I to the present. This period divides itself rather neatly into the two decades between World War I and World War II and the decades since World War II. A significant continuation of this concept, for example, was the development of the Worker Trait Group arrangement in the D.O.T., Volume 2, Third Edition, 1965.

Four main approaches to work evaluation have been developed in this period: 1) mental testing, 2) job analysis, 3) work-samples and 4) situational assessment (Neff, 1968, p. 169).

From the outset, counseling psychology has been concerned with matching people to jobs, or what has been called "person environment-fit," later to be termed "transaction" (Ivey, 1980, pp. 3-6). In the first decade of this century, for example, Frank Parsons, in Choosing a Vocation (1909), advanced three important procedures to help in making decisions about occupational choices. First, the counselor would guide the client to analyze and assess himself, not only in terms of his aptitudes, but also in having him gain an overall understanding of himself. Second, the client would study occupations themselves in order to gain an insight into their demands, rewards, and overall character. Finally, through counseling, the individual would compare his own insight into himself with occupational characteristics and demands (Morano, 1974, pp. 606-611).

As one of the principal theoreticians of the trait-and-factor approach, Edmund G. Williamson played a significant role during the 1930's through the 1960's in generating ideas that further developed the "person-environment fit" concept. Essentially theorizing the individual must evaluate herself or himself in relationship to the world in which she or he was to function, Williamson said, "The task of the Trait and Factor type of counseling is to aid the individual in successive approximations of self-understanding and self-management by means of helping him to assess his assets and liabilities in relation to the requirements of progressively changing life goals and his vocational career" (Williamson, 1972, p. 198).

Central to this counselor-centered directive approach is the assumption that personality, interest patterns, and psychomotor traits correlate with certain work behavior and that objective tests can be used to identify these characteristics. Consequently, identification of distinguishing features of successful workers is information which is useful in helping individuals choose careers (Ibid, p. 182). Most importantly, as the specifics of kinds of work situations are clarified, a client finds his place or "fit." The client has made a realistic choice by virtue of careful self-assessment as well as evaluation of the work environment.

In support of the research problem, it will be a task of this part of the chapter to show how the trait-and-factor approach evolved into a method that compares the individual client with traits of groups of workers (Cf. Definitions of Terms: Worker Group) and the

corresponding factors required in their employment settings. The trait-and-factor approach provides the framework for the assessment process used as the intervention in this study and reported in this document. Frank Parsons paved the way for his development of the trait-and-factor approach and an organized vocational guidance service at Breadwinners' Institute, a settlement house in Boston where he initiated systematic vocational counseling in this country. As Director of the Vocation Bureau in Boston in 1908, he urged vocational guidance "should become part of the public school system in every community, with experts trained as carefully in the art of vocational guidance as men are trained today for medicine or the law" (Borow, 1965, p. 49).

Parsons had a keen interest in collecting and disseminating occupational information. Mental testing gained a foothold in guidance as the trait-and-factor method developed in this century. Together occupational information and mental testing became primary tools for this counseling approach. Finding just what tests served the purposes for assisting clients find employment suitable to their capacities, however, has been a problem that has perplexed psychologists for some time.

In terms of the first main techniques of work evaluation, mental testing uses the psychometric approach, a method of psychological testing which aims at locating and measuring stable underlying traits (Cf. Definitions of Terms: Psychometric Approach). Certain psychometric tests may serve the counseling psychologist reasonably well if what is needed is a mass screening device which will enable her or him

to select for certain kinds of employment those persons who possess a necessary minimum of certain abilities. The psychometric test is still the most widely used instrument of industrial selection and appraisal (Cronbach, 1965). The first successful group test of intelligence was the Army Group Examination Alpha (Buros, 1961), which was developed for use in the American armed forces in World War I in order to assist in the screening of soldiers for the armed forces as well as to place and assign servicemen to various job and technological assignments. An outstanding example of the massive use of industrial testing is afforded by the development of the General Aptitude Test Battery (hereafter cited as GATB) by the Bureau of Employment Security of the United States Department of Labor (hereafter cited as U.S.E.S. for United States Employment Service) (Dvorak, 1947). Although not released to the public, the GATB is in very general use in various state employment agencies. Including mind and body as well as strictly "mental" tests, this instrument measures nine major aptitudes: intelligence, verbal, numerical, spatial, form and clerical perception, motor coordination, finger and manual dexterity.

The most highly developed "mental" tests used in the industrial setting, however, have problems with reliability despite their apparently valid, task-specific qualities, according to Neff's research (Neff, 1968, pp. 173-175). There are several reasons for the discrepancy, he claims. While tasks in an aptitude test may be very similar to tasks in jobs under consideration, other variables from the

environment enter into the picture as one moves from test situation to workplace. In the study of behavior, for example, there is some support for Neff's theoretical positions described below. There is considerable evidence that human behavior is situation specific, changing as we move from classroom to coffee shop or from work to home. Hence, it is no surprise that predicting the likelihood of dangerous behavior in real world situations based on the threatened behavior of patients in mental institutions have turned out to have poor validity. For one thing, there is little opportunity to find out whether patients judged to be dangerous would, in fact, have been dangerous if released. Further, the only hard evidence for a prediction of dangerousness is the patient's past record of detected violence, which may be very unrepresentative (Bootzin & Acocella, 1980, pp. 556-558).

In a similar vein Neff presents three reasons why differences in performance exist between the test situation and the workplace. First, researchers have made the basic and dangerous assumption that the standardization sample of a test would be representative in certain crucial ways of both the present and future labor force. Neff cites the controversy, for instance, over the use of standard vocational tests to qualify black workers for entry into skilled trades and training programs, where the bulk of these tests were standardized on samples of white workers who had initially higher levels of education and work experience. Thus, in a changing labor force the future job applicants may have very different kinds of education and work experience from those which typified the standardization sample.

Secondly, truly objective criteria of work performance are not easy to find. Where reliance is placed on the ratings of foremen and supervisors, a major source of subjective error is introduced at the outset, Neff claims. Thirdly, there are certain crucial differences between the nature and demands of the test situation and the actual work situation. In the test situation, Neff says attention, concentration, and motivation may be maximized and brought under continuous control. In the work situation, however, these factors vary and are under limited control. Such variables as "test anxiety" and "test wiseness" are far from identical with those that make for good work performance in the actual work situation.

Conversely, other researchers, such as Overs, suggest that psychometric tests in their application of work evaluation of handicapped clients are both valid and reliable, as tests should be. In reviewing the research on predictive devices, Overs says the evidence suggests that standardized tests of manual dexterity predict as well as, or better than, job sample tasks and may be administered in a much shorter time at a great saving in client and staff time (Overs, 1970, p. 20).

While the main research effort in the work evaluation area has been to seek scientific support for the use of predictive devices such as job sample tasks, psychological tests, and evaluator ratings of clients, it has frequently been difficult to find sufficient evidence that any given job sample task predicts well. One problem has been that contingent factors such as level of employment in the community

have a greater impact on attaining the criterion (usually placement (Cf. Definitions: Vocational Rehabilitation Services, e.g. Selective Placement)) than does the ability measured by the job sample. In an Institute for Crippled and Disabled Study (1967) of the Tower system, for example, it was found among 1,306 subjects in seven facilities that "individuals with lower performance scores are more likely to work in job areas which are more closely related to their area of training." Clients who score better on the aptitude measure are, because of contingent factors, more apt to be in some other work field than that for which they were tested.

A major weakness in the research has been the tendency to treat factors in the economic and work environment as contingent factors when, in fact, they may be dominant. The level of employment in a community may be more predictive than any characteristic of the individual client. Another major weakness has been to concentrate on evaluation of manual dexterity when fewer clients become employed in assembly-type occupations than in service, low level clerical, and unskilled occupations where manual dexterity is not a major consideration.

The use of mental tests, specifically intelligence tests, in the prediction of employment success, however, is generally supported by research, Overs maintains. The high correlation between the Wechsler Adult Intelligence Scale (WAIS), performance subtests, and job sample tasks suggests, for example, that some of the measurements we are attempting with job sample tasks may be more economically done

with this better standardized instrument. Cromwell (1960) found correlations ranging from .42 through .63 between either some or all performance subtests of the WAIS and five job samples (Overs, 1970, p. 19).

By the same token, mental tests do not offer as long a period of observation for the clinical evaluation of the client. When working with handicapped client populations, for example, special norms must be developed for each disability group as most clients will score low on the original published standardization norms. Manual dexterity seems to be a necessary ability but is not the only requirement for assembly and related types of industrial occupations. It must also be accompanied by travel mobility (measured by Activities of Daily Living ((ADL)) scales) and good work habits (measured by supervisor ratings). In order to relate predictive devices to fields of work, for example, this study specifically proposes a comprehensive method that uses any of the variety of appraisal approaches being considered here to compare the worker with work requirements. The method incorporates worker trait analysis in the current D.O.T. as well as pertinent contingency factors in the economic and work environment.

Nevertheless, because of the contingency factors cited above and the limitations shown in any one appraisal approach, Neff advises other techniques of work evaluation may be needed where the problem is one of individual prediction or where the population of interest clearly differs from the standardization sample. He says psychometric tests may be inappropriate when the problem is to assess the work

potential of an ex-mental patient with long-term hospitalization, a borderline mental retardate with no work history, a socially and culturally disadvantaged school drop-out, or a member of a deprived ethnic group (Neff, 1968, p. 175).

As if responding to this need for a variety of methods in vocational appraisal, a second major approach--the techniques of job analysis--arose during the same period as mental testing and originated within industry. Job analysis focuses primarily on description of the work to be performed and only secondarily on characteristics of the worker. The movement got its start with such men as Frederick W. Taylor and Frank B. Gilbreth, whose approach was to analyze a given kind of work into a series of time-motion units.

The movement rapidly expanded from analysis of repetitive manual labor to similar studies of more complex kinds of work. Currently, job analysts select individual jobs for analysis and do so through observation and interviewing supervisors. Analysts prepare a job analysis schedule, for each job, recording the tasks entailed, machines, tools or work aids used, the working conditions, and a variety of other information (Miller, Treiman, Cain, & Roos, 1980, p. 9). The most elaborate and far-reaching set of such job descriptions is found in the D.O.T. produced by the United States Department of Labor on the basis of long and fruitful collaboration with industry (Neff, 1978, pp. 171-175).

Prior to the publication of the first edition of the D.O.T., each local U.S.E.S. office developed its own information about occupa-

tions (United States Department of Labor, 1965 a:IX). There was no uniform language for the exchange of occupational information on job functions among staff or offices nationwide. Work on the D.O.T. began in order to remedy this situation. Subsequent revisions were undertaken to reflect changes in the occupational composition of the work force (e.g., the addition of new occupations reflecting changes in the technologies of production), to improve the accessibility of information contained in it and to facilitate job matching (Miller, Treiman, Cain & Roos, 1980, p. 2).

As it was developed from editions one through four, the D.O.T. is now a dictionary providing definitions of occupations, a classification system, and a source of data on occupational characteristics known as worker traits (or a classification of components indicating the nature of work requirements) as well as worker functions (or what the worker does with data, people, and things in relating to a set of tasks) (Cf. Definitions of Terms) (Ibid, p. 5). Data on occupational characteristics are used by counselors as aids in exploring vocational options in the job placement process.

The first edition of the D.O.T. was published in 1939 (United States Department of Labor, 1939). Prepared by the Job Analysis and Information Section of the U.S.E.S., the D.O.T. titled, coded, and defined more than 18,000 American occupations, and it soon became a basic reference book for vocational counselors and personnel workers in educational, industrial, social service, hospital and military settings (Borow, 1965, p. 56).

A system showing the traits of groups of workers had evolved by the publication of the third edition of the D.O.T. in 1965. Estimates of Worker Trait Requirements for 4,000 jobs, developed by U.S.E.S., was published by the Superintendent of Documents. This reference manual, based upon the broadest and most detailed functional occupational classification scheme thus far to be applied to American job data, found wide use in the public employment offices and rehabilitation counseling agencies. Research in the U.S.E.S. on Worker Trait Requirements set the stage for the adoption of a functional job classification system in the third edition of the D.O.T. (Borow, 1965, p. 61).

By arranging various job requirements in Worker Trait Groups, now termed Worker Groups, the third edition was able to specify each trait group in a specific qualifications profile that included general educational development, specific vocational preparation, aptitudes, interests in work activities, temperaments for work situations, physical demands, environmental conditions (Ibid, pp. 297-304).

The continuation of research on the D.O.T. brought further improvements in relating people to occupational environments. When the fourth edition was issued in 1977, several new innovations had taken place. Expanded job definitions include new, more detailed occupational information. Unique nine digit code numbers are assigned to each occupational definition with the last three digits designed to relate to computer identification. These and other changes in the new edition are designed to establish a broader occupational base for such

purposes as classifying job applications and job orders, making referrals, assessing worker transferability into related jobs, or relocating workers displaced by technological change (United States Department of Labor, 1977, p. xiv).

In evaluating the worker function and worker trait ratings made in job analyses for the fourth edition of the D.O.T., however, many are of dubious validity as a comprehensive source of occupational information. The descriptions of these variables may not capture completely the important variability on the job content of today's economy such as a hygiene factor of opportunity for social interaction and a motivator like autonomy. Second, the measurement of these variables is, on the whole, not highly reliable. A staff study of ratings found the reliability to be moderate on the average and very poor with respect to certain variables. Third, the 46 occupational characteristics appear to be highly redundant. A factor analysis of these variables revealed that six factors account for 95 percent of the common variance-factors measuring substantive complexity, motor skills, physical demands, management activity, interpersonal skills, and undesirable working conditions. More complete, on-site job analyses might locate additional occupational characteristics and hence variety in factors and variability in job content differentiating one job from another. The assessment model used in this study, for example, attempts to take many of these contemporary job content factors into account (Cf. Appendix I).

Deficiencies in the worker function and worker trait data have

come about because of the nonrepresentative distribution of establishments visited and the fact that most of the occupational descriptions are based on two or fewer job analyses as well as the very uneven distribution of numbers of occupations identified within the major occupational categories. About 16 percent of the occupational descriptions included in the fourth edition of the D.O.T. were prepared without the benefit of a job analysis schedule. Three-fourths of the job analysis schedules used do not meet standards. Despite the weaknesses of this edition these data remain the single most comprehensive set of occupational information available anywhere. The validity and comprehensiveness of the D.O.T.'s occupational information, moreover, are the cumulative results of the job analyses and construction of the worker trait group system that took place during the production of Volumes I through III (Miller, Treiman, Cain & Roos, 1980, pp. 9-12).

The current state of the art concerning occupational information and including vocational assessment is reflected in both the advanced development and in the many weak points of the current D.O.T. There is a continuing need for the kind of information provided by the D.O.T. but that substantial improvements are also necessary in the procedures and products of the occupational information contained in this volume. Several recommendations for improvement and needed research are as follows:

1. The U.S.E.S. occupational analysis program should concentrate on the fundamental activity of job analysis and

on research and development strategies for improving procedures, monitoring changes in job content, and in identifying new occupations.

2. The worker trait and worker function scales should be reviewed and where it is appropriate, replaced with carefully developed multiple-item scales that measure conceptually central aspects of occupational content.
3. The program should investigate cross-occupational linkages that indicate possible transferability of skills or experience.
4. Basic research should be undertaken on the operation of labor markets to improve understanding of the processes by which workers acquire jobs (Ibid, pp. 13-15).

In addition to the job analysis approach discussed above, there are two other methods of assessing work potential worthy of mention. These are work-sample method and situational assessment. The systematic use of the structured work-sample to appraise work potential is largely a post-World War II phenomenon. This technique constitutes an effort to capitalize on the virtues of both psychometric testing and job analysis, while trying to avoid the limitations of both. Ideally, a work-sample is 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. An example is the construction of an electronic circuit board, a task or sample of work performed by an electronics bench

assembler. Since graduates of training programs are not automatically placed and/or stabilized in employment, the supervisor using work-samples as predictors of success on a job has no way of knowing if failures in employment are due to the inadequacies of his appraisal system, to employer biases, or to a host of other uncontrolled factors related to the employment situation.

The situational approach to work evaluation is the newest method, originating in the middle 1950s. Like the work-sample approach, it is based on an effort to simulate actual working conditions. Whereas the orientation of the work-sample is toward the assessment of specific work skills, the situational method is geared toward work behavior in general or what Krantz (1971) terms critical vocational behaviors. It focuses on what can be called the general work personality: the meaning of work to the individual, the manner in which he relates to important other persons on the job, his attitudes to supervisors, peers and subordinates, the roles he finds it congenial to play. The situational approach tends to be indifferent to particular work skills or specific occupational interests, which give rise both to its main strength and its chief weakness (Neff, 1968, pp. 177-180). It is most difficult to replicate from the standpoint of reliability and industrial reality. Furthermore, an analysis of critical variables is most difficult, leaving the evaluator many times with only hunches and untested hypotheses (Steiner, 1970).

In tracing the history of the problem, this part of the chapter is concerned with a theory on vocational counseling that has isolated

worker traits and has set the stage for a contemporary model for vocational assessment that is used in this study. What has been termed the trait-and-factor approach began with men like Parsons, was developed by Williamson and others, and concerned itself with helping people "fit" into employment environments. The theory grew to a more sophisticated, practical level when it constructed a way of grouping people along common worker traits. A group of jobs, for example, became defined by requiring a common qualifications profile of worker traits.

B. Review of the Literature

The literature on vocational assessment, guidance objectives, and job placement is extensive. The Vocational Rehabilitation Institute of the University of Wisconsin-Stout at Menomonie, Wisconsin 54751 produced an annotated bibliography on Work Evaluation and Adjustment that includes 1,296 annotations from the years 1947 through 1977, 151 entries in the 1978 supplement, and 140 in 1979 for a total of 1,587 (Vocational Rehabilitation Institute, 1977-1979). Computer search at the University of Massachusetts library netted a total of 136 research articles. From these sources of vocational assessment literature that included pertinent career development texts as well as research articles, over 225 references were selected. These references, spanning nearly 100 years from 1883 to 1982, have particular relevance to this study of the effect of vocational assessment on job placement.

Further review of the literature has also revealed a dearth of studies on the effectiveness and outcomes of vocational evaluation processes. In a chapter on vocational intervention outcomes, Spokane and Oliver (Osipow & Walsh, 1982) conclude that the outcome status of the average client receiving any type of vocational intervention exceeded that of 80 percent of the untreated controls. As a second finding, the outcome status of the average client receiving some form of supportive group, structured workshop, or class vocational intervention as treatment exceeded that of 87 percent of the untreated control. As for a third conclusion, the outcome status of the average client receiving individual vocational interventions exceeded that of 81 percent of untreated controls.

Several varieties of individual treatments of differing intensity and duration were classified as individual interventions. These included such procedures as test interpretation (Atanasoff & Slaney, 1980; Catron, 1966; Cooper, 1976; Flake, Roach, & Stenning, 1975, Matulef, Warman & Brock, 1965; Meir & Shiran, 1979), individual career counseling (Babcock & Kaufman, 1976; Hanson & Sander, 1973, Hoyt, 1955; Krivatsy & Magoon, 1976; Maola & Kane, 1976; Pool, 1976; Smith & Evans, 1973), reinforcement and/or model reinforcement counseling (Borman, 1972; Krumboltz & Shroeder, 1965, Oliver, 1974; Ryan & Krumboltz, 1964; Samaan & Parker, 1973), and decision-training (Evans & Cody, 1969). These studies employed a wide variety of outcome measures on which clients showed gains.

In short, vocational interventions have generally been found

to have beneficial effects. Efforts to measure the effectiveness of work assessment in accomplishing its goals have also been the subject of a number of research studies. In studying the effect of work adjustment on a person's attitude toward employment, Brewer, Miller & Ray (1975) found participants of vocational evaluation programs scored significantly higher than control subjects on subsequent administrations of three forms of the Employment Readiness Scale (E.R.S.). Hallenbeck and Campbell (1975) studied the predictive validity of work evaluators concerning the vocational potential of clients, finding that 70.5 percent of the evaluators' predictions were on target. The rate of correct predictions was comparable with Miller's (1958) study of 74 percent. Handelsman and Wurtz (1971) also found a positive relationship between evaluator recommendations and subsequent adjustment in 29 clients the majority of whom were classified as retarded. Rosenberg and Usdane (1963) studied 534 handicapped individuals evaluated by the Tower System. Of those recommended for job placement, 70 percent were successfully employed for at least three months.

Roe reports that many studies have examined trainability but few deal with job proficiency following the training period (Roe, 1956). After analyzing 127 studies, Brown and Ghiselli concluded that there was no certainty that a test which would predict a worker's ability to learn to perform a task would also predict how well he would perform following training (Brown & Ghiselli, 1952).

Followup studies of occupational success and proficiency among active workers are difficult to find since proficiency in work

following the training period appears to be an area which researchers have tended to avoid.

The findings of this study will contribute to a better understanding of the effects of a vocational assessment model on clients' setting practical employment goals, entering appropriate training programs, and finally, placement in work. Specifically, it compared the use of a vocational assessment method that incorporates analysis of individual client qualifications with worker groups in a thorough diagnostic study process to those clients who are only examined for eligibility and not assessed with the model. The study then measured the effects of both approaches on rehabilitation outcomes.

C. Definitions of Terms

In order that the reader understand the processes and goals of the study more clearly, some of the important terms and concepts to be considered are defined as follows:

1. Accommodation. Society has the obligation make accommodations for the limitations of handicapped persons, i.e., handicapped persons should have equal access to buildings, educational programs, and employment. With regard to employment, the key concept is that of "reasonable accommodation" to the known physical or mental limitations of an otherwise qualified handicapped applicant or employee (Hull, 1979, pp. 19-20). The term, "reasonable accommodation," is clarified by Sections 503 and 504 of the Rehabilitation Act of 1973 (Public Law 93-112, 93rd Congress, H.R.

8070, September 26, 1973). These sections prohibit discrimination against any qualified handicapped person the basis of his or her handicap. Employers having government contracts of more than $2,500 (503) and federally funded programs (504) are required to take affirmative action to employ and advance qualified handicapped individuals. Reasonable accommodation must be made by the employer to remedy the limitations which any qualified handicapped employee has unless the accommodation does impose an undue hardship upon the employer. The term, "undue," is to be argued and settled in the courts. With respect to employment practices, employers must not use screening tests which eliminate handicapped persons unless no better test exists and the test is clearly job related. Most pre-employment inquiries about a handicap are prohibited unless it clearly relates to job performance and functions. In terms of education, a free appropriate public education must be provided any handicapped child. A recipient of federal funding shall place a handicapped person on the regular educational environment unless it is demonstrated that education of the person with the use of supplementary aids and services cannot be achieved satisfactorily. Housing generally accepted as the standard of housing for all students must be accessible and at the same cost as for other students. With respect to accessibility, all new facilities are required to be constructed so as to be readily accessible to and usable by handicapped persons. Every existing facility need not be made physically accessible, but all recipients must insure that programs conducted in those facilities are made accessible, such as

with doorways wide enough to accommodate wheelchairs, sufficient ramping, etc. While flexibility is allowed in choosing methods that in fact make programs in existing facilities accessible, structural changes must be undertaken if no other means of assuring program accessibility is available.

2. Aptitudes. The word, aptitude, refers to capacity for learning and natural ability. In referring to aptitudes and aptitude tests, a psychologist is concerned with the ability or the ability test that is used specifically for the purpose of predicting success or failure in some specific training or line of work. Thus, aptitudes are the capacities or abilities required of a worker to facilitate the learning of job tasks, e.g., intelligence and motor coordination. Aptitudes represent one of the components of a qualifications profile which make up the worker traits or requirements made on the worker. (See also Qualifications Profile and Worker Traits) (United States Department of Labor, 1972, p. 8).

3. Career Development. This term refers to the lifelong process of developing work values, crystallizing a vocational identity, learning about opportunities, and trying out plans in part-time, recreational, and full-time work situations. Development involves increasingly effective investigation, choice, and evaluation of occupational possibilities (Tolbert, 1974, p. 25).

4. Career Education. The concept of career education is to infuse the general education process with various forms of exposure to the meaning of work and service (Wirtz, 1975, p. 33). Career educa-

tion tries, through the regular school curriculum, to provide school students with motivation to the world of work, orientation to the many job opportunities available, and exploration of occupations consistent with individual interests and abilities (Tolbert, 1974, p. 16). Essentially an instructional strategy, career education is aimed at improving educational outcomes by relating teaching and learning activities to the concept of career development (Jesser, 1976, p. 20; see definition). Thus, the successful career education program combines the efforts of home and school to prepare young people for successful entry into an occupation and career.

5. Communication. Communication refers to an exchange of information in a verbal, non-verbal, or written message. In the context of vocational rehabilitation of handicapped individuals, communication means the client's capacity to give and receive information (Massachusetts Rehabilitation Commission, 1977).

6. Compensation. Within the context of the Functional Analysis Profile, compensation is defined as any means used by the client to lessen the degree of limitation imposed by the disability. Compensation includes: 1) developing client skills to reduce limiting effects of the disability (sign language, mobility-training, finding helping people, self-discipline, assertiveness); 2) obtaining necessary assistive devices or treatment (prothesis, wheelchair, physical therapy, occupational therapy); 3) adapting the environment to the client (TTY, ramp, personal care assistance, halfway houses, selective placement) (Massachusetts Rehabilitation Commission, 1977).

7. Diagnostic Study. A counselor provides a diagnostic study including diagnostic examinations to determine if an individual has a physical or mental disability which constitutes or results in a substantial handicap to employment and whether vocational rehabilitation services may reasonably be expected to benefit the applicant in terms of employability.

8. Element. This is the smallest step into which it is practicable to sub-divide any work activity without analyzing separate motions, movements, and mental processes involved (U.S. Department of Labor, 1972, p. 3) (See also Task, Position, Job, Occupation).

9. Eligibility. When used in relation to an individual's qualification for vocational rehabilitation services, it refers to a certification that 1) a physical or mental disability is present, 2) a substantial handicap to employment exists, and 3) vocational rehabilitation services may reasonably be expected to improve the individual's functional independence (Massachusetts Rehabilitation Commission, 1978, 7).

10. Employability (or Employment Potential). This term refers to the skills, attitudes, and work behaviors that are necessary to obtain a job and perform satisfactorily (Bolton, 1981, p. 40). A detailed operational definition of employability is provided by the 339 behaviors assessed by The Vocational Behavior Checklist (Walls, Zane, & Werner, 1978), which covers seven areas of employment-related competence: pre-vocational skills, job seeking skills, interview skills, job-related skills, work performance skills, on-the-job social

skills, union-financial-security skills (Cf. Definitions).

11. Energy Reserves. Adequacy of energy and stamina; ability to channel energy to activities of daily living and work (Massachusetts Rehabilitation Commission, 1977).

12. Environmental Conditions. In a qualifications profile, these are the physical surroundings and circumstances in which a job is performed to which a worker must adapt, e.g., extreme cold or heat (Miller, Treiman, Cain, & Roos, 1980, p. 29).

13. Functional Capacities. These refer to a client's performance capabilities in relation to the employment environment particularly in areas such as mobility, communication, self-care, self-direction, work tolerance and work skills.

14. Functional Independence. The capacity to take care of one's own affairs to the extent that physical, mental, or emotional conditions permit and to the extent that economic conditions permit. Such a goal is satisfied if an individual with a severe physical or psychological handicap is enabled to remain in the community with or without work through physical or psychological rehabilitation plus essential supportive services to complement that element of functional capacity which cannot be restored by medical science.

15. Gainful Occupation. This includes employment in the competitive labor market; practice of a professional farm or family work (including work for which payment is in kind rather than cash), sheltered employment, and home industries or other homebound work (Task Forces 1-7, 1975, p. 49).

16. Handicapped Individual. The individual has a physical or mental disability which constitutes or results in a substantial handicap to employment. The disabled individual has a handicapping condition, in other words, if her or his disability results in substantial functional loss in relation to securing or maintaining employment such as limited work tolerance, impaired mobility, few interpersonal skills, reduced mental or physical capacities, etc. (Massachusetts Rehabilitation Commission, 1978, pp. 7-11 (a,b)).

17 Individual Case Record. The folder includes all information obtained about the client; referral information such as social and work history, medical information, program plans and goals, services to be provided, notations and reports, closure information.

18. The Individualized Written Rehabilitation Program (I.W.R.P.). It is intended to formalize the case planning and management practice of setting forth goals and objectives and the means and time frames for their achievement. An I.W.R.P. is initiated for each eligible handicapped client and is developed jointly by counselor and client. It places primary emphasis on the determination, specification, and achievement of a vocational goal. The plan states the vocational rehabilitation services to be provided in order to achieve intermediate rehabilitation objectives and long range vocational goals. These services may include evaluation, counseling and guidance, physical and mental restoration, training, and selective placement and follow up. Finally, the program breaks out financial responsibilities of the client, vocational rehabilitation agency, and

others for the services to be delivered in achieving the vocational objective. Client, counselor, and supervisor review and sign the program (Massachusetts Rehabilitation Commission, 1978, p. 11).

19. Interests. In a qualifications profile, these are the interests, tastes, and preferences for certain kinds of activities that are entailed in job performance, e.g., a preference for activities involving business contact with people (Miller, Treiman, Cain, & Roos, 1980, p. 29).

20. Interest or Career Areas. All occupations in the world of work have been organized by the United States Department of Labor into twelve broad areas based upon the interests of workers. The occupations have further been organized into 66 different Worker Groups (see definition).

The interest areas contain from two to twelve worker groups each. These areas correspond to the interest factors which were identified from the research and development activities in interest measurement conducted by the Division of Testing in the U.S.E.S. The interest factors represent the broad interest requirements of occupations as well as the vocational interests of individuals. Both the factors and the areas are identified by a two-digit code, for example: 01--An interest in creative expression of feelings or ideas. Interest areas are subdivided into Worker Groups. Area 01., artistic, includes groups 01.01, literary arts through 01.08, modeling. Each Worker Group contains a cluster of job titles all having the same qualifications profile (United States Department of Labor, 1979, p. 1).

21. Interpersonal Relationships. Capacity to establish and maintain sufficiently positive personal, family, and community relationship (Massachusetts Rehabilitation Commission, 1977).

22. Interview Skills. These are the behaviors involved in preparing to be interviewed and in presenting a favorable and accurate impression of one's self in a job interview. Such skills include knowing what to expect, how to respond, and how to gain additional information from a prospective employer. Interview skill training includes practice in scheduling an interview, dressing appropriately, locating the place of the interview, responding to the questions that employer-interviewers usually ask, being able to represent any skills or handicaps in an honest but positive way, gaining information from the interviewer, creating an overall favorable impression, and following up on the interview. Most clients have some of these skills but are not totally competent in putting all of the necessary components together (Walls, Werner, & Zane, 1979, p. 113).

23. Job. A group of positions which are identical with respect to their major or significant tasks and sufficiently alike to justify their being covered by a single analysis. There may be one or many persons employed in the same job (U.S. Department of Labor, 1972, p. 3) (See also Element, Task, Positions, Occupation).

24. Job Analysis. This involves the systematic study of an occupation in terms of what the worker does in relation to data, people and things, the methodology and techniques employed, the machines, tools, equipment, and the work aids used, the materials, products,

subject matter, or services which result, and the traits required of the worker. Job analysis focuses primarily on description of the work to be performed and is an objective description of actual job operations stated in terms of man-capacities. The major investigators in this field have been researchers of the Occupational Analysis Program of the United States Department of Labor with industrial engineers, efficiency experts, and industrial managers. These specialists pooled their resources to define jobs and produce the D.O.T.

25. Job Clusters. (Work Families, Job Families, Worker Groups). These are related occupations grouped on the basis of similar job requirements, such as specific duties of the job, materials, and equipment used, and skill, knowledge, and worker characteristics required. See also Worker Group.

26. Job-Related Skills. These refer to the skills that each worker must have to "get around," locate particular areas, conform to rules, and adapt to the physical characteristics of the work setting. Obviously, if an individual is to hold a job, he/she must be able to get from home to the job and get from the job to home. The place of work must be entered and exited appropriately. Arrival times, break times, and lunch times must be respected. The worker must be able to get to the eating place(s) and bathroom(s) and must know how to use them appropriately. Also, she or he must be able to go from the work station to the fire exit, first aid room, and the supervisor's office. Signs and rules should be understood and obeyed. While such job-related skills are not a part of the production or work process, they

are necessary adjunct behaviors, without which satisfactory performance and production are improbable (Walls, Werner, & Zane, 1979, p. 133).

27. Job-Seeking Skills. The skills involved here refer to those behaviors involved in locating and applying for employment, such as interpreting ads, matching skills to jobs, completing applications, preparing a resume, etc. (Walls, Werner, & Zane, 1979, p. 93).

28. Job Title. Job title or occupational base title is always in upper-case boldface letters in the fourth edition of the D.O.T. It is the most common type of title found in the D.O.T., and is the title by which the occupation is known in the majority of establishments in which it is found. Occupational definitions under job titles are the result of comprehensive studies of how similar jobs are performed in establishments all over the nation and are composites of data collected from diverse sources (United States Department of Labor, 1977, PPXV, xviii).

29. Job Tryout. (or On-the-job Evaluation). This is a trial period on a job, usually in the competitive labor market and typically of two to six weeks duration, during which the client's progress is monitored by the employer and counselor. This technique is probably the most meaningful to the client. However, it has the same lack of standardization and replicability as situational and sheltered workship tryout methods. Perhaps the most critical problem would be the employer's willingness to accept, much less "treat," the marginal rehabilitation client (Steiner, 1970).

30. Mobility. Capacity to move from place to place. Hull (1979, pp. 19-20) says handicapped people have the right to physical mobility in the community, including access to public buildings and transportation. This actually means the right to participate in the social life of the community, to enjoy the benefits of society, and to contribute to the needs of society.

31. Object Manipulation. Physical ability of the client to use upper extremities to obtain, manage, and use tangible objects (Massachusetts Rehabilitation Commission, 1977).

32. Occupation. This term refers to the "collective description of individual jobs performed, with minor variations, in many establishments" (United States Department of Labor, 1977, pp. b:xv). (See also Element, Task, Position, Job).

33. Occupational Aptitude Pattern. Each occupational aptitude pattern consists of the three most significant aptitudes for a group of related jobs. The "cutting scores" on these three aptitudes for each occupational pattern are those scores established as minimum for the family or group of occupations having similar aptitude requirements. General Aptitude Test Battery norms are established for specific occupations. In the assessment process used in this study, these norms are used as guidelines in considering key aptitudes combinations required for various job groups. The norms structure includes various of the 9 aptitudes measured by the GATB, which were isolated on the basis of factor analysis studies involving 59 different tests and 9 experimental groups totaling 2,156 individuals

(United States Department of Labor, 1979, p. 359).

34. On-the-Job Social Skills. These include being friendly to others, following accepted communication procedures, being able to deal constructively with criticism, refraining from socially destructive or annoying behaviors, talking, answering, and touching others appropriately, etc. (Walls, Werner, & Zane, 1979, p. 183).

35. Physical Demands. In a qualifications profile, these are the physical requirements made of a worker in carrying out job tasks, e.g., strength of stooping (Miller, Treiman, Cain, & Roos, 1980, p. 29). "Seeing" (becoming aware of something through the sense of sight) is a physical demand required by many occupations. It is also a physical capacity (the sense of sight) possessed by most people. A worker must have physical capacities at least in an amount equal to the physical demands required by the occupation. Types of physical demands include No. 1: lifting, carrying, pushing and/or pulling. Type No. 1 may be divided into the following levels of work requirements: sedentary, light, medium, heavy, and very heavy work. Type No. 2 is climbing and/or balancing while 3 is stooping, kneeling, crouching, and/or crawling. Type No. 4 is reaching, handling, fingering, and/or feeling. Type No. 5 is talking and/or hearing. Type No. 6 is seeing (Appalachia Educational Laboratory, Inc., Worker Trait Group Guide, 1978, pp. 416-418).

36. Position. This is a collection of tasks constituting the total work assignment of a single worker. There are as many positions as there are workers in the country (U.S. Department of Labor, 1972,

p. 3). (See also, Element, Task, Job, Occupation).

37. Problem-Solving. Capacity to cope adaptively with environmental, interpersonal, vocational, financial, or health-related stresses (Massachusetts Rehabilitation Commission, 1977).

38. Pre-Vocational Skills. These include knowledge about the need for work, what a job is, and the trainee's own vocational interests and potential. Also included are generally applicable skills such as folding, sorting, functional reading and math, and the like (Walls, Werner, & Zane, 1979, p. 21).

39. Psychological Test. An objective and standardized method of a sample of behavior. Any method used for measuring an individual's mental characteristics, such as memory, intelligence, emotionality, or speed or reaction.

40. Psychometric Approach. A method of psychological testing which aims at locating and measuring stable underlying traits (Bootzin & Acocella, 1980, Glossary xi).

41. Qualifications Profile. The profile is the analysis of the individual along critical vocational criteria and behaviors that include general educational development, specific vocational preparation, interests in work activities, temperaments for work situations, physical functioning, working conditions needed, and aptitudes. Aptitudinal requirements in Worker Groups have particular Occupational Aptitude Patterns (Cf. Definitions).

42. Self-Care. Capacity to perform tasks in caring for self and living environment and ability to manage one's health and safety

needs (Massachusetts Rehabilitation Commission, 1977).

43. Self-Direction. Initiative, goal-oriented behavior; ability to perceive logical steps necessary to reach goals and to follow through on actions to obtain desired goal (Massachusetts Rehabilitation Commission, 1977).

44. Situational Assessment. Here the similarity to the real work world is increased by evaluating the client in a work situation such as a typing pool or bench assembly area. This is a clinical assessment method utilizing systematic observational techniques in established or created environments, and is usually performed in a sheltered workshop situation (see definition). Situational assessment includes but is not limited to: evaluation in a vocational training setting, job tryout, on-the-job evaluation, production work evaluation, simulated job station, work samples. It is valuable in determining work behavior as opposed to the skills orientation of the work sample (see definition) (Steiner, 1970).

45. Sheltered Workshop. This type of facility provides transitional and/or long-term employment in a controlled and protected working environment for those who are unable to compete or to function in the open job market due to their handicaps.

46. Task. This is one or more elements and is one of the distinct activities that constitute logical and necessary steps in the performance of work by the worker. A task is created whenever human effort, physical or mental, is exerted to accomplish a specific purpose (U.S. Department of Labor, 1972, p. 3). Task element statements

in a D.O.T. job title definition indicate the specific tasks the worker performs to accomplish the overall job purpose described in the lead statement. The sentences in the definition under Cloth Printer beginning with "turns handwheel. . .," "turns screws. . .," "sharpens doctor. . .," "aligns doctor. . .," "dips color. . .," etc. are all task element statements. They indicate how the worker actually carries out his or her duties (U.S. Department of Labor, 1977, pp. xvi-xx) (see also Element, Position, Job, Occupation).

47. Task Analysis. This technique includes task inventories and position analysis questionnaires. Similar in many respects to traditional job analysis, task analysis aims to describe occupations in terms of the types of job tasks that are performed. In the example above under the job title, cloth printer, the task analyst examines the duties in the following task element statement: turns handwheel to set pressure on printing rollers, according to specifications. Task analysis differs from job analysis in both the explicitness of its attempt to assess the similarity of occupations and its method of measurement. It has been extensively used by the military services and to a lesser extent by other government agencies such as the Public Health Service. By using data rating the extent to which various jobs involve a common set of tasks, it is possible to apply clustering and scaling procedures to construct a simplified description of the similarity of these jobs. The resultant description may be used to construct a classification of jobs in which similarity is taken to mean similarity in task content. The procedure could provide an

alternative perspective to the mobility approach to the similarity of occupations (See also Job Analysis) (Miller, Treiman, Cain, & Roos, 1980, pp. 210-211).

48. Temperaments. In a qualifications profile these are the personal traits useful to a worker in adjusting to a variety of work situations of his or her job. The types of work situations include performing duties which change frequently, performing routine tasks, planning and directing an entire activity, dealing with people, influencing people's opinions, attitudes, and judgments, working under pressure, making decisions using personal judgment, making decisions using standards that can be measured or checked, interpreting and expressing feelings, ideas, or facts, and working within precise limits or standards of accuracy (Ibid, p. 29, Cf. Appendix I).

49. Thorough Diagnostic Study. A counselor may provide a client with a "thorough" diagnostic study. The study should consist of a comprehensive evaluation of pertinent medical, psychological, vocational, educational and other related factors which bear on the individual's handicap to employment and rehabilitation needs. It may include an appraisal of the individual's personality, intelligence level, educational achievements, work experience, personal, vocational and social adjustment, employment opportunities. It may look at his pattern of work behavior, his ability to acquire occupational skill and his capacity for successful job performance. A simulated or real work situation may be used in order to assess the individual's ability to perform adequately in a work environment (Massachusetts

Rehabilitation Commission, 1978, 7:13-7.15).

50. Time Management. Capacity to assess one's needs and manage time efficiently in order to meet those needs. It is a criterion in functional assessment profile used as part of the vocational assessment method. See Appendix G (Massachusetts Rehabilitation Commission, 1977).

51. Training Time. In the qualifications profile, the "amount of general educational development (G.E.D.) and specific vocational preparation (S.V.P.) required of a worker to acquire the knowledge and abilities necessary for average performance in a particular job-worker situation" (United States Department of Labor, 1972:8). G.E.D. includes aspects of formal and informal education that contribute to the worker's reasoning development, the ability to follow instructions, and the use of language and mathematical skills. S.V.P. includes training acquired in a "school, work, military, institutional, or avocational environment" (United States Department of Labor, 1972:8) but excludes schooling without specific vocational content. S.V.P. levels one through nine express the amounts of time required to prepare for an occupation. S.V.P. 1 is short demonstration only and 9 is over 10 years.

52. Union-Financial-Security Skills. These are concerned with economic considerations, such as company policy, withholding and payroll deductions, obtaining pay, overtime, union functions, insurance and benefits, budgeting, etc (Walls, Werner, & Zane, 1979, p. 203).

53. Vocational Evaluation. The concept of vocational evaluation differs somewhat from vocational assessment in that evaluation refers to an appraisal of a "hands-on" vocational or work experience for the client. It is a specialized form of clinical assessment characterized by the use of real or simulated work tasks and activities in a situation which approximates some of the demands of work environments and requires a period of days or weeks of close observation and judgment. Vocational evaluation, like assessment, incorporates medical, psychological, social, vocational, educational, cultural and economic data in the attainment of its goals. It is a comprehensive process using work as the focal point for assessment and exploration, the purpose of which is to assist individuals in vocational development. Vocational assessment may incorporate evaluation, which is usually done at a sheltered workshop or other worksite. Generally though, vocational assessment is the counselor's diagnostic appraisal through the use of tests and other information, including evaluation, while evaluation refers to observation in a work environment, often a sheltered workshop.

Vocational evaluation differs from situational assessment because the former generally incorporates psychological testing during evaluation in a sheltered workshop whereas the latter recreates the worksite.

54. Vocational Rehabilitation Services. These are offered by or through a vocational rehabilitation counselor in a state office of vocational rehabilitation for eligible handicapped clients in order

that the clients may maximize their potential and secure employment. The vocational rehabilitation process includes a sequence of services individualized for each client. These services may include:

- Medical evaluation, psychological and aptitude testing to determine client capabilities.

- Individual counseling and guidance with a counselor who can evaluate client interests, abilities and needs to help her or him choose and attain a suitable vocational goal.

- Physical Restoration services which can involve hospital care and therapy to help a client adjust to a handicap as well as prosthetic devices and aids such as artificial limbs and wheelchairs to modify a client's disability.

- Mental restoration is usually in the form of short-term therapy with a psychologist to help a client minimize an emotional disability in order to achieve an employment objective. Skill training or education for special knowledge needed to reach a vocational goal. These services may be provided through a school, college, workshop or on-the-job training program.

- Selective placement and follow up means placing a client on a job that is within his functional capacities and following his progress along for at least a two month period to see that employer and employee are satisfied. Placement may be in the competitive labor market, self-employment, sheltered employment Commission, 1978, 11.05).

55. Work. This term, as applied to the Functional Assessment profiles used in the vocational assessment method (see Appendix G) refers to level of work skills; ability to establish appropriate work habits; ability to establish relationships with co-workers and supervisors and to plan for and accommodate health and safety needs on the job (Massachusasetts Rehabilitation Commission, 1977).

56. Worker Functions. All job-worker situations (or the functioning of the worker in relationship to a specific set of tasks) involve to some degree a relationship on the part of the worker to data, people, and things. These relationships are expressed by 24 worker functions arranged in hierarchies according to level; the lower the identifying number, the higher the level, e.g., synthesizing, 1-coordinating, and 3-analyzing. . .data, etc. (U.S. Department of Labor, 1972, pp. 4-5).

57. Worker Group, formerly Worker Trait Group. This term refers to 66 different groups of workers, each group having similar traits or occupational qualifications profiles. D.O.T. taxonomy, jobs are grouped according to some combination of required general educational development, specific vocational preparation, aptitudes, interests, temperaments and physical demands. Each group contains (1) narrative information identifying traits and abilities required of the worker and (2) a listing of occupations which require these factors in common (United States Department of Labor, 1965, p. xviii).

Worker Groups then are clusters of jobs that can be explored by those who have similar qualifications profiles. Within each group,the jobs are of the same general type of work and require the same adaptabilities and capabilities of the worker. Each group has its unique four-digit code and title, for example: 01.01 Literary Arts. The number of groups in each area varies from 2 in Area 12 to 12 in Area 5. The descriptions of and qualifications profiles for each Worker Group are found in Worker Trait Group Guide. See also Interest or

Career Areas, Job Clusters, and Worker Trait (United States Department of Labor, 1979, p. 1).

58. Work Performance Skills. These include such behaviors as setting up the work station, starting work on time, following instructions and models, sorting and using materials, using and caring for tools, working safely, seeking help, etc. (Walls, Werner, & Zane, 1979, p. 153).

59. Work Sample. Work sampling techniques combine the job analysis and mental testing methods. Basically, the work sample is a specimen of a job task presented to an individual for completion as evidence of what a component of an employment situation may be like. A task in assembling and wiring a circuit board, for example, would be a work sample for the job of electronics bench assembler. Work samples are difficult to select since one cannot expect to include all types of work in his work sample repertory (Steiner, 1970).

60. Worker Traits. The requirement made on the worker in terms of aptitudes, general educational development, vocational preparation, physical demands, and personal traits are expressed by worker traits. These are reflected in the following components of a qualifications profile: training time, aptitudes, temperaments, interest, physical demands, and environmental conditions.

The third edition of the D.O.T. created a classification system known as the Worker Trait Arrangement based both on the nature of the work performed and the demands of such work activities upon the workers (United States Department of Labor, 1977, pp. xiii-xiv). Data

relating to these job facets provide a sharper focus on the types of work involved and the nature of the individual worker. They are extremely helpful in counseling, job development, training, and other activities directed toward maximum manpower utilization, especially for less than fully qualified persons (United States Department of Labor, 1972, p. 8).

C H A P T E R I I I

METHODOLOGY

A. Research Questions

A model of vocational assessment has been presented in Chapter 1. This method is a relatively complex and refined system using the theoretical underpinnings of the trait-and-factor approach. Since placement in employment is the main goal of the vocational rehabilitation process, a model to assess clients for work is useful to accomplishing program objectives. Therefore, as has been discussed, the major focus of this study is to examine the method when used with a handicapped client population in an attempt to determine if this variable were related to successful placement in employment.

A key component of the definition of vocational assessment is its emphasis on setting practical vocational goals. Career mature people, for example, are seen as those who can select goals for themselves which are consistent with their own capabilities (Crites, 1973) and who are goal-directed (Bohn, 1966). Part of the problem of handicapped clients is having enough self-knowledge of their functional capacities in order to select rational occupational goals. As presented previously, the state-federal vocational rehabilitation program mandates the establishment of vocational goals in order to assist clients in planning for employment (Cf. Definitions of Terms:

Individualized Written Rehabilitation Program ((I.W.R.P.)). Rubin and Roessler point out the importance of clients having a satisfactory amount of objective data in order that they enhance their own self-perceptions for vocational decision-making (Rubin, 1979, Cf. Chapter 1). The research literature is rife with studies on the importance to psychologists and educators of goals, goal-setting and goal-directed behavior (Gardner & Warren, 1978, p. 104).

It is at this point, with a facet of the study on the importance of selecting practical vocational goals, that career development theory logically intertwines with that part of social learning theory that is concerned with occupational goal-setting and level of aspiration.

If one were to look at that aspect in social bases of behavior for a moment, exploration of such social learning theories as Rotter's is particularly pertinent to the study of setting vocational goals. He writes, "The occurrence of a behavior of a person is determined not only by the nature or the importance of the goals or reinforcements but also by the person's anticipation or expectancy that these goals will occur" (Rotter, 1954, p. 102). The behavior "depends upon whether or not the person perceives a causal relationship between his own behavior and the reward" (Rotter, 1966, p. 1).

The sense of powerlessness is apt to affect behavior significantly. People who believe that they are powerless have been found to be less resistant to influence attempts, to place less value on skill than on luck, to lack commitment to social change movements,

to fail to seek and to obtain useful information about their situation, and to influence other people ineffectively (Lefcourt, 1966; Rotter, 1966; Seeman, 1959, Bar-Tal & Saxe, 1978, pp. 284-285).

In short, one's behavior is affected by the "degree to which an individual . . . accepts responsibility for the outcomes of his or her own behavior. A person who believes that what happens to him is a result of his own behavior is said to have an "internal locus of control". Conversely, a person who believes that what happens to him is a matter of "luck", "chance", or the whims of "powerful others" is said to have an external locus of control (Gardner & Warren, 1978, p. 89). The model for vocational assessment is designed to help clients appraise their own work capacities in relation to job requirements while fortifying self-concept and internal locus of control.

Therefore, people who have a heightened expectancy of reinforcement because of goal-setting can be expected to place themselves and perform better in work than persons not setting goals. Further, people who believe they control what happens to them is their doing (internal) will be more likely to place themselves and perform better in employment than those people who do not see the connection between the rewards they receive and their own behavior (external).

With respect to career development theory, Eli Ginzberg's amending of his earlier "Theory of Occupational Choice" is particularly relevant to issues of vocational planning and social behavior. His revised statement is that people are not as bound by earlier vocational decisions as they had been in the past and that,

contrary to his earlier position, career choices are not irreversible. In other words, the goal-setting and decision-making process extends throughout people's working lives. Although a career decision was once made, the responsibility and/or the opportunity for new ones has not necessarily been reduced or eliminated. The newer theory only gives further importance to the need for adequate occupational information as a component of vocational assessment methodology so that clients may set goals and make decisions at various stages of their working lives (Tolbert, 1974, p. 39).

In summary, one can deduce from examining vocational assessment methodology as part of social learning theory as well as career development theory that there should be a logical relationship between an assessment methodology that provides handicapped clients with vocational decision-making information and goal setting and placement in training and employment.

There are a number of studies concerned with goal setting, locus of control, and career maturity (Gardner, 1974b, Kurtz, 1978; Gardner & Warren, 1978, Gable, 1973, Ifenwanta, 1978, Thomas, 1974, and Wilton, 1978). While many studies have been concerned with setting goals and locus of control, etc. few current studies have been concerned with assessment methodology, goal setting, and placement.

This study will investigate the use of a method of vocational assessment and its effect on placement of handicapped clients in employment and the relationship of setting vocational goals in rehabilitation plans to training and employment outcomes. The study will be

concerned with the following questions:

1. What effect does use of the vocational assessment method presented in this study have on client placement in training and employment as well as adjustment to the job?
2. What is the effect of the assessment method in setting vocational goals that lead to training and placement? In other words, are clients assessed with the method found to have greater consistency of Worker Groups among plan (I.W.R.P.) goals, training objectives, and employment outcomes? The stability of goal choice for all subjects in the study may be measured by investigating the similarity of Worker Groups of client vocational objectives at various stages of the rehabilitation process: plan development, training, and employment. The consistency of goal to outcome in the experimental group may then be compared to the control group.

Specific hypotheses.

This study investigates if vocational assessment that incorporates clinical psychological testing and evaluation has a beneficial effect for handicapped clients in their outcomes and goals of the vocational counseling and rehabilitation process: placement in employment and stabilization in the working role. A sixty day period is a suitable span of days for stabilization to occur since this time frame allows adjustment to take place during the critical initial

period of the individual on the job.

Employment is defined as (1) competitive, where remuneration is at least minimum wage for work in business and industry, or (2) sheltered, which usually pays less than minimum wage for work performed in a sheltered workshop. The job of homemaker will also be considered a viable vocational goal if the rehabilitation services minimize the handicap to the extent that the individual can then perform homemaking duties such as cooking and cleaning. The homemaker goal is particularly viable if the role indirectly contributes to family income generation by allowing other family members to work in business and industry.

Hypothesis 1. Rehabilitation clients randomly assigned to the vocational assessment treatment group will have a significantly higher percentage of clients who attain employment as compared to those randomly assigned to the control group not receiving the treatment method. This hypothesis will be tested against the null hypothesis that the experimental group is no better in terms of percentage of clients who attain employment than the control (comparison) group.

Hypothesis 2. There will be a significant difference between the experimental and comparison groups in the number of clients who stabilize in employment as measured by client maintenance of job for at least a sixty day period. This hypothesis will be tested against the null hypothesis that there is no significant difference in job stabilization between the experimental and comparison group.

Hypothesis 3. The experimental group will show greater consistency of occupational choice than the comparison group as measured by the number of clients who change their vocational objectives from the time of plan development to placement in work or unsuccessful closure. This hypothesis will be tested against the null hypothesis of no significant difference between the two groups. The consistency will be determined by examining the Worker Groups of vocational goal selections, training objectives, and employment outcomes at various stages of the vocational rehabilitation process.

B. Experimental Setting

The site of this investigation is a local area office of a state vocational rehabilitation agency which provides vocational rehabilitation services to those clients who have disabilities which represent handicaps to employment.

Located in a building along the main street of a city, the local office is accessible to its clients with adequate parking. The office has nine rehabilitation counselors, three administrators and secretarial and fiscal administration support staff that presently service about 900 clients.

This site was selected for the following reasons: (1) an area office provides direct vocational rehabilitation services to clients so that an experimental treatment could be evaluated in this setting, (2) the agency was willing to cooperate in this study as the program is interested in ascertaining whether a vocational assessment model

will assist in the placement of clients in work.

The vocational rehabilitation agency has a central administrative office and several regional administrative offices throughout the state as well as 30 area offices in municipalities that provide vocational rehabilitation services to state residents who are eligible clients. A total statewide professional staff of about 430 administrators and counselors who generally have master's level degrees in counseling provide vocational rehabilitation programming for approximately 35,000 applicants and clients annually. The state's share of funding is 20 percent which promotes a federal reimbursement of 80 percent for a total annual state budget of over $25 million for vocational rehabilitation programming.

C. Subjects

The subjects for this experiment consisted of 50 clients involved in vocational rehabilitation programming in an area office of The Vocational Rehabilitation Agency. Two groups of 25 clients, each of whom was randomly assigned, were used in the study. One group was the experimental group and the other group was the control group. Clients were of working age, that is from age 16 to 65 plus. Other client criteria such as sex, type of impairment, degree of work history, educational and family background was relatively evenly spread across the group populations because of the random selection of subjects.

D. Procedure for Protection of Human Subjects

In order to arrive at the goal of the vocational rehabilitation process which is successful placement in employment, clients receive vocational rehabilitation services including evaluation, counseling and guidance, physical and/or mental restoration, training, and selective placement and follow-up as described in Chapter 11C, Definitions of Terms.

Therefore, all agency clients, including those of the area office in this experiment, have the opportunity to participate in vocational rehabilitation programming and will not be excluded because of assignment to the comparison group. In summary, all 50 clients in the study will receive normal vocational rehabilitation services. The experimental group received a treatment which is a new methodology being introduced in addition to evaluation of eligibility in the regular vocational rehabilitation program.

E. Treatments

The vocational assessment model was the major treatment of this investigation (Treatment 1) and is further described below. The experimental group received the vocational assessment method, as previously described in Chapter I, in their vocational rehabilitation programs with their counselors. The control group was evaluated for eligibility and given a thorough diagnostic study by interview technique or means other than the assessment method and received normal

vocational rehabilitation services as planned by client and counselor. Thus, the particular experimental treatment method discussed was lacking for these control group clients. As shown on the chart on a following page, the specific measures the experimental group will receive include General Aptitude Test Battery (GATB), Interest Check List (I.C.L.). These aptitudinal and interest measures are incorporated in the vocational assessment method previously described that involves a comparison evaluation of the Qualifications Profile of the client with the worker requirements of occupations being considered. Instructions and overview of GATB, administered at local U.S.E.S. offices, are shown in the Appendix A. The I.C.L. is completed by client in office or home with simple instructions to follow (Appendix F).

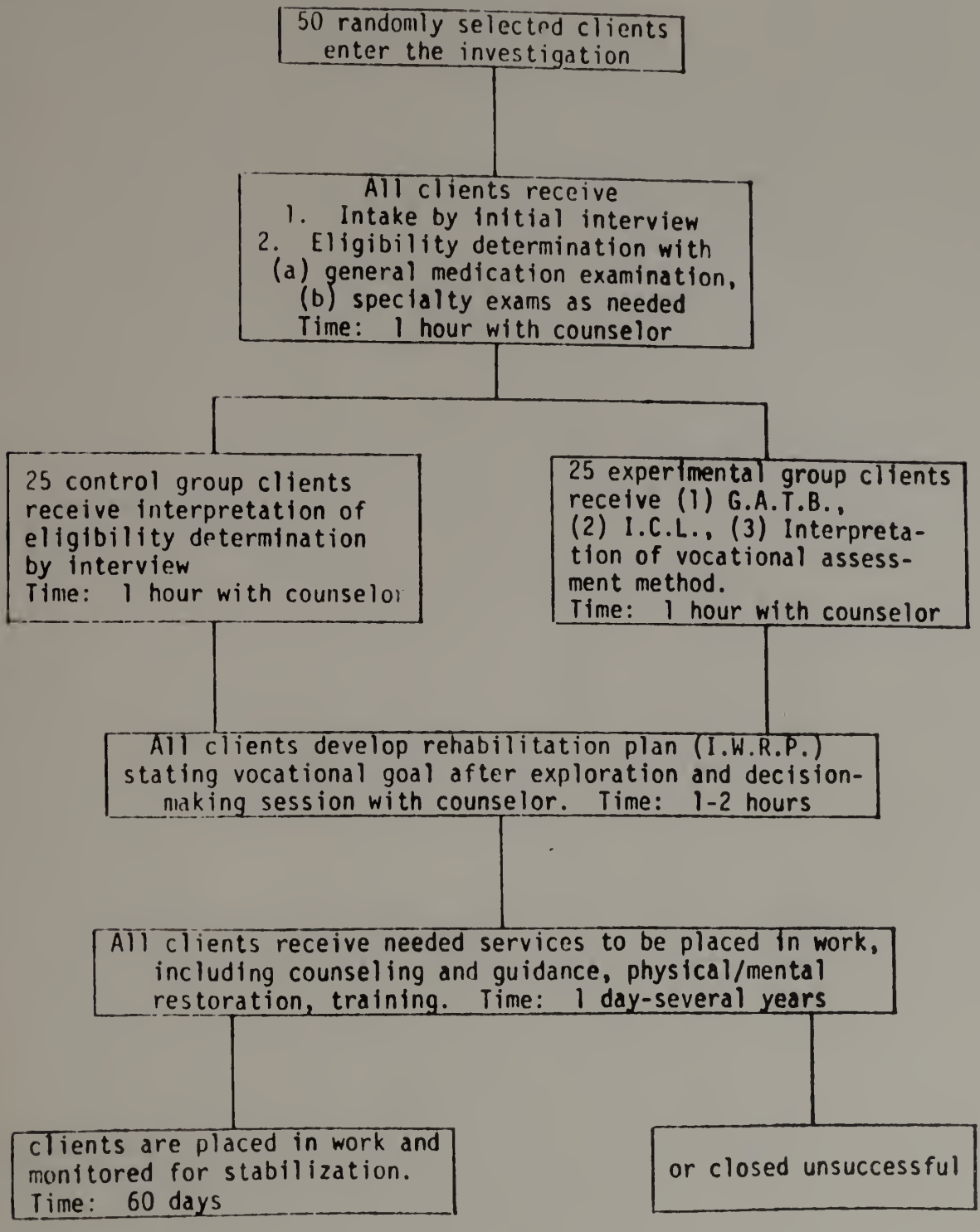
F. Measurements

The following instruments will be used in the vocational assessment process. In the first step of the assessment procedure, the counselor uses a suitable measure of aptitudinal, intellectual, or achievement functioning as well as an interest inventory. General Aptitude Test Battery (G.A.T.B.) is the usual measurement device while Wechsler Adult Intelligence Scale (W.A.I.S.-R) or Wechsler Intelligence Scale for Children (W.I.S.C.-R) is a highly respected test of intellectual functioning.

The G.A.T.B.

The G.A.T.B. was standardized from a sample of 4,000 cases

DIAGRAM OF THE EVALUATION PROCESS FOR EXPERIMENTAL AND CONTROL GROUPS



representative of the 1940 working population in the United States in terms of age, sex, educational, occupational, and geographical distribution. The norming group was 18-54 years old with median age 30.4. Educational range was 6th grade through graduate school with median education 10.9. Of the 4,000 individuals, half were female, half male, 5 percent were black with the overall reading level of sixth grade plus.

By testing many groups of employees, applicants, and trainees in different kinds of jobs, score patterns were subsequently established, showing the critical aptitudes and minimum standard scores (Cf. Occupational Aptitude Patterns: Definitions of Terms) required for each occupation. An individual's standard score profile can thus be matched with all those occupations whose cutoff scores she or he reaches or exceeds, and these occupations can be considered in counseling her or him (Anastasi, 1968, p. 344).

Despite the brevity of individual tests, reliabilities of the factor scores are generally satisfactory. Both equivalent-form and retest correlations cluster in the .80's and low .90's, although the reliabilities on the motor tests tend to be somewhat lower.

Most of the validity data were obtained by concurrent validation with groups of employed workers. Such a procedure may be questioned because of the effect of job training and experience on test performance and because of the lack of comparability with an applicant population. For use in counseling young people and other persons inexperienced in a particular type of work, predictive vali-

dity of scores obtained prior to job training and experience is more appropriate. In 1958, the U.S.E.S. began a 7-year longitudinal study of approximately 36,000 high school students for this purpose (Droege, 1966). In general, the correlation of Occupational Aptitude Patterns on the G.A.T.B. with occupational success is .58.

The W.A.I.S.

The W.A.I.S. standardization sample was chosen with exceptional care to insure its representativeness. The principal normative sample consisted of 1,700 cases, including an equal number of men and women distributed over seven age levels between 16 and 64 years. Subjects were selected so as to match as closely as possible the proportions in the 1950 United States census with regard to part of the country, urban-rural residence, race (white versus non-white), occupational level, and education.

For each of the eleven subtests, as well as for Verbal, Performance, and Full Scale IQ's, reliability coefficients were computed within the 18-19, 24-34, and 45-54 year samples. Full Scale IQ's yielded reliability coefficients of .97 in all three age samples. Verbal IQ's had identical reliabilities of .96 in the three groups, and Performance IQ's had reliabilities of .93 and .94.

The W.A.I.S. manual itself contains no validity data, but several aspects of validity are covered in a subsequent book by Wechsler (1958). He argues that the psychological functions tapped by each of the 11 subtests fit the definition of intelligence, that simi-

lar tests have been successfully employed in previously developed intelligence scales, and that such tests have proved their worth in clinical experience (Anastasi, 1968, pp. 276-279).

Interest inventories.

The U.S.E.S. Interest Check List (Cf. Appendix F), Strong Campbell Interest Inventory (S.C.I.I.), and its companion, Career Assessment Inventory (C.A.I.), are suitable interest inventories to be administered in vocational assessment.

The Interest Check List was developed by the California Employment Development Department, Test Research Field Center, Los Angeles, California. This is one project in the Federal-State cooperative test research program of U.S.E.S. The Check List and other materials are useful to vocational rehabilitation agencies, employment service interviewers, counselors in high schools, and other organizations involved in psychological services, training and employment (Division of Testing, Employment and Training Administration, 1982).

The Interest Check List was designed over 25 years ago as an aid to vocational counseling by helping counselees to become more aware of occupational fields that exist and to identify their occupational interest as a basis for occupational exploration. The 1967 edition of the Check List contained 173 work-related activity statements which were keyed to the Worker Trait Group and Occupational Group Arrangement of Volume 11 of the third edition of the D.O.T. Despite the

wealth of information contained in it, Volume 11 was not used to any great extent because it was difficult to use. Research was continued to find a more adaptable aid for counseling and this research led to development of the Guide for Occupational Exploration which contained an occupational structure consisting of 12 Interest Areas, 66 Worker Groups and 348 Subgroups (United States Department of Labor, 1979). The Interest Areas contain from two to 12 Worker Groups each (Cf. Definitions of Terms, e.g., Interest or Career Areas, Worker Group).

Items were constructed to make the Check List as valid as possible. Initially, researchers intended that each of the 66 Worker Groups would be represented in the Check List by three items of work activity statements. The large range of occupations within four of the Worker Groups, however, could not be represented adequately by only three items. Thus, Check List developers decided that Worker Groups 05.03, 05.02, 06.02, and 06.04 should be represented by six items each, resulting in a total of 210 items as opposed to 173 for the 1967 version of the Interest Check List.

After all items had been constructed, a review and refinement process took place. The refinement process used input and suggestions from many test research personnel in an attempt to make each item as understandable to the counselee as possible and predictive of the individual's true vocational interests (Ibid).

The Strong inventories have been subjected to a continuing program of research that has yielded extensive information about its reliability and validity. Test-retest correlation coefficients of .55

to .90 for men and .56 to .68 for women were found. With regard to validity, there is considerable evidence that many individuals tend to enter and to remain in occupations in which they receive high S.C.I.I. scores.

The S.C.I.I. has forms for males and females who are college bound, while the C.A.I. is for clients interested in shorter term training for career entry. The general reference group for the men's form of S.C.I.I. consisted of men in a wide variety of professional and business occupations that college graduates usually enter (Ibid, pp. 468-473).

G.A.T.B. and Interest Check List are the usual measures used to complete Step 1 of the assessment. In compiling material for comparison of client qualifications profile with work requirements, counselors may use a variety of psychological tests, depending on the nature of the disability and/or vocational problem. The Wide Range Achievement Test (W.R.A.T.), for example, provides a gross estimate of where a client stands with respect to educational achievement in reading, spelling, and arithmetic. W.R.A.T. gives the counselor an estimate of the grade level at which a client is functioning in each of these areas.

In addition to assessing aptitudes, intellectual functioning, interests and achievement, projective tests such as the Rorschach, Thematic Apperception Test (T.A.T.) may be used to appraise personality. Instruments such as the Bender-Gestalt, Graham-Kendall Memory-For-Designs-Test, Wechsler Memory Scale may be used to test

clients for brain dysfunction or organicity. Documentation on standardization, validity, and reliability exists for these measures. Data on projectives, however, are inadequate. Unstructured tests such as the Rorschach, for example, have been researched extensively on the subjective nature of the scoring which may be affected as much by age, intelligence and amount of education as well as the personality variables. These findings raise issues on its normative data, validity, and reliability (Ibid, pp. 303-307, 493-502).

In vocational evaluation in sheltered workshops a wide variety of hands-on evaluation measures are used. These include the McCarron-Dial Evaluation System (MDS) to assess verbal-cognitive, sensory and motor skills; Purdue Pegboard for manual dexterity; Porteus Maze Test for planning capacity; Hester, which is an aptitude battery similar to GATB; Valpar and Singer Evaluation Systems, which assess aptitudes for specific vocations with work samples, as well as other tests and situational assessments of functioning.

G. Comparison Group

The comparison group was comprised of twenty-five (25) clients assigned at random who received the normal services of the vocational rehabilitation program yet were not given the experimental treatment (Treatment 1), the vocational assessment method.

H. Dependent Variables

There are two dependent variables. The first is numbers of participants placed and stabilized in employment. The numbers of subjects in this category are tabulated for each group. The second dependent variable, consistency of vocational goal selection and employment outcomes, was determined by investigating job titles at various points in the rehabilitation process for all study subjects. Consistency was evaluated by examining the job title and its Worker Group at the time of plan development, later in training, and finally in employment. Consistency of Worker Groups among the experimental subjects was then compared with control subjects and tested for significance.

I. Experimental Design

This study used as a basic model for its experimental approach a Design 1: Experimental Group-Control Group: Randomized Subjects (Kerlinger, 1973, p. 331). From the sample of 50 clients selected at random from populations of handicapped clients of Massachusetts Rehabilitation Commission, two groups of 25 clients each were formed. One group was the experimental group (X_e) and the other was the control group (X_c). The treatment (X) was vocational assessment, the independent variable. Dependent variables were the numbers of clients placed and consistency of goal selection and employment outcomes of both groups. The design configuration for this study is as follows:

Let X = treatment (vocational assessment)

X Y (Experimental Group)

R

$\sim$X Y (Control Group)

The R placed before the paradigm indicates that subjects have been randomly assigned to the experimental group (top line) and the control group (bottom line). The design was chosen since it has the best built-in theoretical control of any design so that claims of internal validity are well satisfied. Theoretically, all possible independent variables are controlled. Practically, this may not be so. If enough subjects are included in the experiment to give the principle of randomization a chance to operate, then powerful control is operating (Ibid). Also, since the effects of an experimental method on process and outcomes of vocational rehabilitation are being determined, this design seemed most suitable since it measures the effects of the independent variable on the two groups being compared.

J. Statistical Analysis

The hypothesis to be tested can be stated as follows for each measure:

H_o: $U_e - U_c = 0$ H_a: $U_e - U_c \neq 0$

where U = rehabilitated clients placed in employment, clients who maintain their employment for 60 days, or clients whose vocational goals and employment outcomes are consistent as described. The null hypothesis, $H_o : U_e - U_c = 0$, states there is no difference between experimental and control groups. The alternative hypothesis, $H_a : U_e - U_c \neq 0$, represented by hypotheses, 1, 2, and 3, states there is a difference between the two groups. The level of confidence was set at .05.

Differences between the groups were assessed by using chi square. Chi square was the appropriate statistical measure to use since variables in the study were represented by discrete data.

K. Procedure and Projected Schedule

Random assignment of subjects to the treatment and the control group were made.

Vocational rehabilitation clients of a local office of Massachusetts Rehabilitation Commission constituted the population and had an equal possibility of being chosen for the groups.

April 1981	Met with appropriate staff at area and administrative offices of Massachusetts Rehabilitation Commission and secured permission to conduct the study.
September 1982	Made arrangements for and began selection of the experimental

	and control groups from the populations.
October 1982	Began analysis of effect of assessment on the experimental and control groups.
March 1983	Concluded analysis of effect of assessment on the two groups.
Ongoing:	Comprehensive review of vocational assessment and other pertinent literature.

L. Limitations

The focus of the study is on the effect vocational assessment has on rehabilitation goals such as employment. All of the persons in this study were handicapped clients of a vocational rehabilitation agency. The generalizability of the study as such will be limited to similar populations of vocational rehabilitation clients of working age from 16 to 65 plus. Vocational assessment can, of course, be applied to other client groups but it is limited in this instance to vocational rehabilitation clients where employment is the specific goal of the process.

As far as internal validity is concerned, clients' stabilization in employment may be affected by variables other than vocational assessment. These factors were controlled to the extent possible by the fact that both experimental and control groups received the iden-

tical services such as counseling and guidance, physical restoration, training, and placement with the exception that one group received the assessment method and the other did not. Further, there was random selection of subjects.

It was assumed that there were no extreme differences in ability or personality in the groups being evaluated. It was also assumed that the behavior of the professionals in each of the treatment groups did not differ except in those areas that distinguished between treatments.

C H A P T E R I V

RESULTS

A. Introduction

The study sought to determine the impact of a vocational assessment methodology on job placement and occupational consistency among handicapped clients. An analysis of the statistics will give specific information on the placement rate and stabilization of the clients in employment of both the experimental and control groups as well as a comparison of occupational consistency within the groups. Finally, this chapter analyzes the effect of the assessment method on the number of vocationally rehabilitated clients and the continuity of goal choice from time of goal selection to attainment for the two groups.

The population in the study included 50 handicapped clients involved in vocational rehabilitation programming with the Massachusetts Rehabilitation Commission. Clients had been randomly selected to either experimental or control groups of 25 clients in each group. All clients were of working age, that is from 16 to 65 or more. Age ranged from 17 to 57 across groups. The most frequent age was 27 in the experimental group (1) and 26 as well as 19 in the control group (2). The average age was 34.56 in Group 1 and 32 in

Group 2. Thus, the modal age in both groups was the late twenties and the mean age early thirties (Cf. Table 6). There were comparable numbers of males and females in each group. There were 14 males and 11 females in Group 1 and 13 males and 12 females in Group 2. So, males numbered over half of each group with females comprising nearly half of each sample (Cf. Table 7). Clients were handicapped either by physical disability, mental illness, or, in a few instances, by both mental and physical disability. There were 17 physically disabled clients in Group 1 and 16 in Group 2. There were six mentally disabled clients in Group 1 and eight in Group 2. In Group 1 there were two clients who each had both a physical and mental disability while there was one client in the mixed disability condition in Group 2. Therefore, the number of people in each of these three disability categories was comparable across groups (Cf. Table 8).

There had been random selection of experimental and control group subjects twice. This process of randomly choosing treatment and control groups from randomized populations was used in order that the groups each began the study at a particular point in time. The process also allowed use of double randomization, thereby contributing to the control of all independent variables. First, referred clients were randomly selected for experimental and control group populations. During the evaluation phase, the treatment group was given the vocational assessment method described in Chapter I and Appendix. As a

comparison, the control group was given the evaluation of eligibility that is normally given in vocational rehabilitation programming. Refer to Appendix N, for initial stages of the rehabilitation process such as referral, application, evaluation, plan development. The Time in Status chart shows the stages or statuses of the vocational rehabilitation process and the time period allowed in each status. Of the experimental and control group populations randomly selected, there was a final random selection to two groups of 25 clients each in October 1982. In this way, both the treatment and control groups were randomly chosen to two equally-sized groups that began the study on the same date. The experimental group of 25 clients had been or was being evaluated with the method and the 25 control groups received normal program evaluation.

The vocational assessments on the treatment group were performed and/or supervised by the author of this document. In his capacity as supervisor in vocational rehabilitation, he randomly selected clients in the treatment group for assessments he completed, reviewing the evaluations of two counselors he trained in the use of the method. The control group clients were randomly selected from the caseloads of counselors during normal eligibility evaluation under supervision but not using the assessment method.

Refer to Appendix M for data on client duration in and progress through the rehabilitation process. As examination of Appendix M reveals, clients in both experimental and control groups were in the

rehabilitation process for comparable periods of time. The experimental group, for example, did not have longer average time in process than the control group but was, in fact, in process a shorter time. The average time in rehabilitation for the treatment group was 1.5 years, while it was 2.4 years for the control group. Actually, the average time in process may be more similar across groups than would appear at face value. On the one hand, the vocational assessment intervention itself may have moved the experimental group faster toward vocational rehabilitation and case closure. Conversely, one client in the control group who was in process and unusually long time--10 years, 4 months, for example, can make the control group average higher. The period of time both groups of clients were in rehabilitation was the same because the years clients were in process coincided between groups.

The study tested three hypotheses to examine the effect of a vocational assessment method on job placement as stabilization as well as consistency of occupational choice.

B. Analysis of Data from Treatment

The numbers of employed or vocationally rehabilitated clients in both groups are shown in Table 1. These are clients placed as well as stabilized in employment for a two month period. A measure of consistency of vocational choice throughout the process is also disclosed in Table 1 through the term, Match. Match refers to con-

sistency of Career Area of Worker Group for vocational goal in Plan (I.W.R.P.) and Career Area of Worker Group for job title at closure. In Group 1 there were 19 clients who became employed and whose Career Area at plan development matches that of job title at closure. They represent 76 percent of the sample. There are six clients who were not employed. In Group 2 there were eight clients who became employed and whose Career Areas were alike at plan development and closure. They represent 32 percent of that group.

Table 1

Number of Clients Placed, Stabilized, and Matched by Group

Experimental Group (1)		
Category	Number	Percentage
Placed, stabilized, and matched	19	76.0
Not placed, stabilized, and matched	6	24.0
Total	25	100.0
Control Group (2)		
Category	Number	Percentage
Placed, stabilized, and matched	8	32.0
Not placed, stabilized, and matched	17	68.0
Total	25	100.0

These data suggest support and potential for confirmation of all three hypotheses. The data support the first hypothesis which

concerned job placement. Placement refers to a client acquiring a job by virtue of his or her vocational handicap being reduced or removed through the provision of such vocational rehabilitation services as counseling and guidance, physical and/or mental restoration and training. It may include a counselor assisting a client in finding a job through job seeking skills and employment development work (Cf. Vocational Rehabilitation Services, e.g., Selective Placement, Chapter IIC, Definitions of Terms). The first hypothesis said the assessment method should positively affect the rate of placement on the experimental group in comparison with the control group.

Hypothesis 1

> Rehabilitation clients randomly assigned to the vocational assessment treatment group will have a significantly higher percentage of clients who attain employment as compared to those randomly assigned to the control group.

The numbers of clients placed in employment in each group suggest that the first hypothesis was confirmed. Seventy six percent of the treatment group were placed in work culminating their vocational rehabilitation programs as opposed to 32 percent of the control group. Its significance is shown in Table 2 when the numbers in the groups are compared using a statistical test. Refer again to Appendix M to examine data for both groups on client progress through the rehabilitation process to eventual placement in work or other closure status.

Table 2

Number and Percent of Clients Who Were in Job Placement, Stabilization, and Occupational Consistency by Group

Count	Placement, Stabilization, and Match		
Column Percentage	Yes 1.	No 2.	Row Total
Group			
Experimental 1	19 70.4	6 26.1	25 50.0
Control 2	8 29.6	17 73.9	25 50.0
Column Total	27 54.0	23 46.0	50 100.0

chi square = 9.74, df = 1; P < .01

Hypothesis 2

There will be a significant difference between the experimental and comparison groups in the number of clients who stabilize in employment as measured by client maintenance of job for at least a sixty day period.

The data also suggest support for the second hypothesis which concerned clients' rate of stabilization in employment for a two month period. The second hypothesis stipulated the treatment will positively affect stabilization as shown by comparison of numbers of clients stabilized between groups. In order for a client to be successfully closed as vocationally rehabilitated, he or she must have maintained employment for at least a sixty day period from the first

day on the job. As inspection of Appendix M, will reveal, the same number of clients placed in each group is also closed successfully rehabilitated--19 in the treatment group and eight in the control. This means for clients who are vocationally rehabilitated, each had to stabilize in employment for the two month adjustment period. Therefore, the number of clients in each group who adjusted to work is the same as the number who entered work. So, the number stabilized in employment is equal to the number of clients placed in jobs for both groups. The numbers of clients stabilized on the job in each group suggest that the second hypothesis will also be confirmed since again 76 percent of the treatment group were stabilized as opposed to 32 percent of the control group. Refer to Table 2 for its significance when the numbers in the groups are compared using chi square as a statistical test.

Hypothesis 3

> The experimental group will show greater consistency of occupational choice than the comparison group as measured by the number of clients who change their vocational objectives from the time of plan development to placement in work or unsuccessful closure.

Finally, the data also suggest potential for confirmation of the third hypothesis which centered on the degree of client consistency of occupational choice throughout the vocational rehabilitation process. The third hypothesis stated the assessment method will significantly affect consistency of occupational choice.

As mentioned previously, every rehabilitation client is faced

with setting a vocational goal in the Individualized Written Rehabilitation Program (I.W.R.P). at plan development stage or status 12. Refer again to Appendix N, for the Time in Status chart. In describing each of the various stages or statuses of the rehabilitation process, the chart outlines two statuses, 12 and 26, that are critical as far as consistency is concerned. Status 12 is plan development stage while status 26 is closed rehabilitated after two month's satisfactory stabilization or adjustment to employment.

The vocational goal at status 12 is expressed as a job title each of which has a D.O.T. Code (e.g., Child Care Worker, D.O.T. Code 335.674-010). Each job title is part of a Worker Group (10.03.03-Child and Adult Care) and a Career Area (10.-Humanitarian) (Cf. Appendix D). Consistency of choice or match, then, refers to the similarity of job title and accompanying Worker Group and Career Area at plan development Status (12) with the job title, etc. at other stages of the vocational rehabilitation process (18,26). Consistency or match would occur if the job title, etc. of the vocational goal at plan development status (12) was similar to the job title at closure status (26). There would be consistency of occupational choice if the client chose to be a Child Care Worker in formulating a vocational rehabilitation program at Status 12 and was later employed and closed rehabilitated as a Child Care Worker. This consistency of choice at two stages of the rehabilitation process (Statuses 12 and 26, Cf. Appendix N) is shown and discussed as "Match" in Tables 1 and 2.

Further, there would be an even greater degree of consistency of occupational choice if the client chose to be a Child Care Worker (Status 12), later trained to be one (18) and finally was closed rehabilitated in that employment capacity (26). Consistency of choice at these three stages of the rehabilitation process is shown and discussed in Tables 3 through 5.

Occupational consistency is first shown and discussed in Table 1 and 2 in terms of two stages of the Rehabilitation Process (Statuses 12 and 26). Consistency is seen as the similarity of vocational goal selection at plan development stage (12) with job title at closure (26). Interestingly enough, the numbers of clients in both groups whose vocational goals match their job titles is equal to the numbers of clients placed and stabilized. So, all study subjects in both groups clients who found jobs and adjusted to their work were also consistent in terms of setting goals that eventually led to similar work. Thus, the numbers of clients who exhibit consistency of occupational choice in each group suggest that the third hypothesis will be confirmed because again 76 percent of the treatment group show consistency as opposed to 32 percent in the control group. When the numbers in the groups are compared using chi square, its significance is less than the .01 level of confidence as shown in Table 2.

From the results of the statistical test for significance presented in Table 2, one can review the effect of the vocational assessment method on the experimental group in comparison with the

control group which did not receive the treatment method. The test has implications for all three hypotheses in that the test compares between groups the number of clients employed, number stabilized in employment, and the consistency or match from goal in plan to job at closure. The measure evaluates stabilization in employment since an individual must remain on his or her job for at least a sixty day period to be closed rehabilitated. Two months is also the period set as a standard for having stabilized on a particular job. By the fact that plan goals and closure Career Areas match for employed persons in both groups, the statistical procedure also examines the third hypothesis, that of occupational consistency in the vocational rehabilitation process. Consistency is further examined by accounting for match among plan goal, training objective and job at closure in another test that is presented later.

In Table 2, there are figures showing the number of clients in each group who are placed, stabilized, and matched. Numbers of clients meeting this criteria are shown in the "yes" column. In experimental group 1, there are 19 of 25 clients in the "yes" column. Further, 70.4 percent of Group 1 are in the "yes" category. This figure, the column percentage, means that 70.4 percent of the study subjects placed, stabilized, and matched are in Group 1. Only eight of 25 clients in Group 2 are placed, stabilized, and matched. The column percentage of "yes" category in that instance is 29.6. Thus, the number and percentage of clients in Group 1 who receive the

assessment method and who are placed, stabilized, and matched are high.

The relationship is high between those who are evaluated with the method and those who find and adjust to jobs and are consistent in their choice of work. Apparently all other independent variables (discussed in C.) are controlled through randomization of subjects. Chi square is 9.74 with one degree of freedom. This figure is highly significant at less than the .01 level of confidence. Analysis of these data seem to support all three hypotheses: rehabilitation clients randomly assigned to the vocational assessment treatment group will have a significantly higher percentage of clients who attain and adjust to employment and are consistent in work choice as compared to these randomly assigned to the control group.

In terms of the first hypothesis, the test measured the significance of the numbers of clients who secured employment between groups. The positive result seems to sustain the contention that a particular methodology for evaluating a person for work appears to influence whether or not that person secures employment.

The data also appear to validate the second hypothesis: there will be a significant difference between the experimental and comparison groups in the number of clients who stabilize in employment as measured by client maintenance of job for at least a sixty day period. The statistical test surveys significance of the number of clients who stabilize in employment between groups. So, the test also appears to confirm the assertion that the work evaluation model has an effect on

the number of clients who manage to hold their placement in employment for a two month period thus accomplishing stabilization in their working roles.

Finally, the chi square measure appears to maintain the third hypothesis: the experimental group will show greater consistency of occupational choice than the comparison group as measured by the number of clients who change their vocational objectives from the time of plan development to placement in work. The statistical measure also tests the significance of the number of clients between groups who match in Career Area of Worker Group for vocational goal in plan (I.W.R.P.) and Career Area of Worker Group for job title at closure. Thus, the results also seem to support the idea that the treatment significantly improves upon the degree of consistency in occupational choice for each client participating in the vocational rehabilitation process.

In order to confirm the third hypothesis more completely, a second chi square test was performed. This statistical test examined the consistency of occupational choice throughout the latter service stages of the vocational rehabilitation process: Plan Development (Status 12), Training (18), and Placement (26). Therefore, in measuring consistency at three stages from goal setting through closure, the test confirmed conclusively that the vocational assessment method had a significant effect on consistency of occupational choice among rehabilitation clients.

As a first step in this additional test, it is important to know if training was involved in the vocational rehabilitation programs of the clients in both groups. The number of clients who entered training for employment in both groups are shown in Table 3. These figures are contrasted with the number of clients in each group who did not enter training. In the experimental group, thirteen clients or 52 percent entered training to prepare for the job market. A comparable number and percentage from the control group were trained for work, especially in considering the number of clients in this group who were unable to complete plans establishing vocational direction for one reason or another. In this group, ten clients or 40 percent entered training.

Table 3

Number of Clients Who Trained in Both Groups

Experimental Group (1)		
Category	Number	Percentage
Training	13	52.0
No training	12	48.0
Total	25	100.0
Control Group (2)		
Category	Number	Percentage
Training	10	40.0
No training	15	60.0
Total	25	100.0

Occupational consistency of clients in Career Areas throughout the latter portion of the vocational rehabilitation process are compared between groups in Table 4. Client Career Areas represent corresponding Worker Groups of job titles for the vocational goal at plan development, occupational objective during training, and job title at closure. Consistency is represented by the term, M.G.T.C. M.G.T.C. is occupational consistency or match (M.) of Career Area of Worker Group for vocational goal (G.), training (T.) objective, and closure (C.) job title. The number of clients in both groups whose Career Areas match in all three phases of the process are presented in Table 4. In the experimental group where 52 percent entered training, eleven clients or 44 percent match Career Areas during goal setting, training, and closure. In the control group where 40 percent engaged in training, only three clients or 12 percent match Career Areas at these three stages (Cf. Appendix M).

The significance of occupational consistency between groups during the latter portion of the process is expressed in Table 5. Chi square was again employed as the statistical procedure and is tested for significance as a further measure of occupational consistency posed in the third hypothesis. On the table crosstabulations for chi square calculations show experimental and control group figures in the rows and match of goal, training, and closure in the columns (M.G.T.C.). Again, M.G.T.C. refers to a three phase consistency or match (M.) among Career Areas of Worker Groups for job titles of voca-

Table 4

Number of Clients Who were Occupationally Consistent (M.G.T.C.)* by Group

Experimental Group (1)		
Category	Number	Percentage
M.G.T.C.	11	44.0
No M.G.T.C.	2	8.0
No training	12	48.0
Total	25	100.0

Control Group (2)		
Category	Number	Percentage
M.G.T.C	3	12.0
No M.G.T.C.	7	28.0
No training	15	60.0
Total	25	100.0

*M.G.T.C. = Match (M.) of job titles of goal (G.), training (T.), objective and closure (C.).

tional goal (G.) in plan (I.W.R.P.), training (T.), objective, and occupation during employment at closure (C.). The columns present numbers and percentages of clients in relation to M.G.T.C. as (1) yes (2) no and (3) no training. In Group 1 there are 11 of 25 clients in the "yes" column. Further, 78 percent of Group 1 are in the "yes" category. This figure, the column percentage, means that 78 percent of the study subjects matched in terms of vocational goal, training objective, and occupation at closure are in Group 1. Only three of 25 clients in Group 2 are matched in terms of goal, training, and closure. The column percentage of "yes" category in that case is

21.4. Again, the number and percentage of clients who receive the assessment method and who are matched in goal, training, and closure (M.G.T.C.) is large. Again, also, the relationship is high between those who are evaluated with the method and those who are consistent in their choice of work in the rehabilitation process. Chi square is again used to test the significance of the assessment method on the experimental group in comparison with the control group that receives evaluation by means other than the method. Chi square is 7.68254 with one degree of freedom. This figure is also significant, this time at less than the .05 level of confidence.

Table 5

Number and Percent of Clients Who were Occupationally Consistent By Group

Count	M.G.T.C.			
Column Percentage	Yes 1.	No 2.	No Training 3.	Row Total
Group				
Experimental 1	11 78.6	2 22.2	12 44.4	25 50.0
Control 2	3 21.4	7 77.8	15 55.6	25 50.0
Column Total	14 28.0	9 18.0	27 54.0	50 100.0

chi square = 7.68254, df = 2; $P < .05$

The procedure indicates from a statistical standpoint that the work assessment method appeared to have an effect on establishing consistency of occupational choice through the latter stages of the rehabilitation process. This second statistical test was run to show consistency at three stages, instead of two. Thus, match discloses continuity of job choice at three steps of the process: goal-setting, training, and employment itself. To present consistency in this more complex way, the variable of whether or not clients trained for work had to be entered into the statistical test. After this variable had been included, the statistical test was again significant. Therefore, the third hypothesis--that the assessment method will affect consistency of occupational choice--appeared to have been confirmed twice. This second apparent confirmation was at a more complex level and examined the consistency of choice at three steps in the rehabilitation process.

In summary, the statistical analysis of Tables 1 through 5 is concerned largely with the effect of the treatment method on the experimental group in comparison with the control sample and a comparison between groups of the consistency of vocational choice for individuals engaged in the vocational rehabilitation process.

There are ten variables considered for the statistical analysis of the study. Five of the variables are concerned with measuring the effect of the experimental treatment, the vocational assessment method. Three of these variables are concerned with placement,

stabilization, and match of goal and job and with match of training objective and job at closure, and match of goal, training objective, and job at closure (M.G.T.C.). Two other variables concern whether or not training was involved in the client's rehabilitation and whether the client was in the experimental or control group. There are five other variables that could potentially confound the effect of the experimental treatment. These are age, sex, disability, and Career Area of goal at plan development as well as Career Area of job at closure. These potentially confounding variables are analyzed in Tables 6 - 10 in terms of the experimental and control groups. As the analysis of these tables discloses below, the experimental and control groups are very similar with respect to these variables. The statistics in Tables 6 - 10 support the idea that random selection of sample subjects created equal groups. Thus, possible contamination by these variables of the effect of the experimental treatment was reduced as much as apparently possible.

C. Analysis of Data from Other Variables

The variable, age, is described in Table 6. The age range was comparable between the two groups: from 17 to 53 in the experimental group (1) and from 19 to 57 in the control group (2). The most frequent age and the average age were closely paired in the two groups. The mode was 27 in Group 1, and 26, as well as 19, in Group 2. The mean was 34.56 in Group 1 and 32 in Group 2. The median age was 33 in

Table 6

Subjects in Population Described by Age

	Experimental Group		Control Group	
Age	Number	Percentage	Number	Percentage
17	1	4.0	0	0
19	0	0	3	12.0
20	1	4.0	2	8.0
22	1	4.0	1	4.0
23	2	8.0	2	8.0
24	0	0	1	4.0
26	1	4.0	3	12.0
27	4	16.0	1	4.0
29	2	8.0	0	0
30	0	0	2	8.0
33	1	4.0	1	4.0
35	0	0	1	4.0
36	1	4.0	0	0
37	1	4.0	0	0
38	2	8.0	0	0
40	0	0	1	4.0
41	1	4.0	0	0
42	0	0	1	4.0
44	1	4.0	0	0
45	0	0	1	4.0
47	1	4.0	1	4.0
48	1	4.0	1	4.0
49	1	4.0	1	4.0
50	0	0	1	4.0
51	1	4.0	0	0
52	1	4.0	0	0
53	1	4.0	0	0
57	0	0	1	4.0
Total	25	100.0	25	100.0

Group 1 and 27 in Group 2. Thus, the age ranged generally from late teens to fifties in both groups with measures of central tendency clustering in the late twenties and early thirties.

The numbers of males and females in the study for the variable, sex, are delineated in Table 7. Again, the groups are comparable in

Table 7

Subjects in Population Described by Sex

Experimental Group (1)		
Category	Number	Percentage
Males	14	56.0
Females	11	44.0
Total	25	100.0
Control Group (2)		
Category	Number	Percentage
Males	13	52.0
Females	12	48.0
Total	25	100.0

both groups with respect to this variable. In both groups, there are slightly more males than females. There are 14 males and 11 females in Group 1 and 13 males and 12 females in Group 2. The difference in percentages of males to females in the two groups differs by only four percentage points. There are 56 percent males and 44 percent females in Group 1 while there are 52 percent males and 48 percent females in Group 2.

The variable, disability, shows three categories for both groups in Table 8. These categories are (1) physical disability (2) mental disability, and (3) mixed, i.e., both physical and mental

disability. Diabetes mellitus and below knee amputation are examples of physical disabilities; depression and personality disorder are both illustrations of category two. An instance of category three is a client disabled both by a heart condition and alcoholism. Clients in both groups are placed in one of these three categories depending on the handicapping condition of each person. As can be seen from review of Table 8, most of the clients in both groups have physical disabilities. The number in this category as a percentage of the total number in each sample is very comparable between groups. There are 17 clients in that category in the experimental group (1) or 68 percent. In the control group (2) there are 16 clients in the physical disability category or 64 percent. The percentage of clients who are physically disabled differs by only four percentage points across groups. The similarity of the percentage representation of disability category between the groups appears to attest to the fact that random sampling has effectively eliminated disability category as a confounding variable. Finally, there are six clients in Group 1 or 24 percent with a mental disability and eight clients or 32 percent with this condition in Group 2. Thus, the percentage of mentally disabled clients is approximately one quarter to one third of the whole sample in both groups and differs by only eight percentage points across groups. The percentage of clients in the mixed category is less than ten percent in each group. There are two clients in category three in Group 1 and one client in Group 2.

Table 8

Subjects in Population Described by Disablity

Experimental Group (1)		
Category	Number	Percentage
Physical	17	68.0
Mental	6	24.0
Both	2	8.0
Total	25	100.0

Control Group (2)		
Category	Number	Percentage
Physical	16	64.0
Mental	8	32.0
Both	1	4.0
Total	25	100.0

Similarly, the type of disabilities and the number of each kind are comparable between groups. There were, for example, three clients with schizophrenia in Group 1 and two in Group 2. There were three clients with low back syndrome in Group 1 and two in Group 2. There was one individual in each group with a hearing loss. There were two persons in Group 1 with disabling conditions of drug or alcohol abuse and one person with that condition in Group 2. These data on disabling condition further support the notion of similarity between groups along this variable. Not only are the groups similar with respect to the number of clients in disability categories 1.) physical, 2.) mental, and 3.) mixed, but also the groups are comparable with respect to the frequencies of the disabling conditions

themselves.

A distribution of occupational categories at Plan Development Stage for the two groups is presented in Table 9. The occupational categories are represented by Interest or Career Areas. There is, for example, a corresponding Career Area for each job title and its Worker Group recorded as the vocational goal in the Individualized Written Rehabilitation Program (I.W.R.P.) of all study subjects. The Career Area, as discussed earlier in Interest or Career Areas in Chapter II, Definitions of Terms, is represented by two digits to the left of the decimal point in the four digit numerical representation of the Worker Group. Career Areas range from 01. to 12. Area 01., Artistic, includes Worker Groups 01.01, Literary Arts, through 01.08, Modeling. Thus, knowledge of Career Area gives important indications as to general occupational classifications. In this study, Career Areas are delineated to show the correspondence between groups in terms of occupational categories and themes. Again, this was done to replace and/or eliminate any variables that might confound the effect of the treatment such as higher and/or dissimilar occupational levels and categories between groups.

As can be determined from examining Table 9, the Career Areas number seven and range from 01. - Artistic to 11. -Leading-Influence- in Group I. The number of Career Areas and the range is comparable in the control group. There are six Career Areas and the spread is 01. to 10.-Humanitarian. The slightly lower number and narrower range of

Table 9

Number of Clients in Career Areas at Plan (I.W.R.P.) By Group

Career Area	Career Area Code	Number group 1	Number group 2	Percentage group 1	Percentage group 2
Artistic	01	3	3	12.0	12.0
Scientific	02		1		4.0
Mechanical	05	4	3	16.0	12.0
Industrial	06	6	3	24.0	12.0
Business Detail	07	5	3	20.0	12.0
Selling	08	1		4.0	
Humanitarian	10	2	1	8.0	4.0
Leading influence	11	3		12.0	
No goal or closed Not employed	13	1	11	4.0	44.0
Total		25	25	100.0	100.0

the control group in comparison with the experimental group may be partially accounted for by the fact that despite normal evaluation procedures for a period of up to or exceeding six months for all members of the control group, fewer study subjects in Group 2 than in Group 1 reached the stage of plan development when a vocational goal and concommitant Career Area are established. Subjects in Group 2 who did not establish a goal either were unable to set a firm vocational objective at plan development or were closed after referral, application, evaluation and plan development phase of the normal vocational rehabilitation process. The normal process from referral to plan development may involve up to or more than a half a year's time to do diagnostic examinations and study in order to prepare an

Individualized Written Rehabilitation Program (I.W.R.P.). Refer again to Appendix N for the Time in Status chart. The chart gives the period of time normally allowed for a client to be in each of the various stages or statuses of the rehabilitation process. The chart also describes each status. As the chart discloses, one month is the time normally allowed for referral, three months for application, nine months for extended evaluation, and three months for plan development. Thus, even without the assessment method, clients are given considerable time and service to assist them in developing a viable vocational goal in the course of normal rehabilitation programming. In the study, the control group clients received the normal rehabilitation process of referral, application and plan development in order to develop an Individualized Written Rehabilitation Program (I.W.R.P.) (Cf. Definitions of Terms). This period can last up to seven months or even longer if the counselor feels it is necessary to use extended evaluation status.

The fact that more study subjects in Group 1 have developed I.W.R.P.s may be attributed, to a large degree, to the effect of the vocational assessment method. The most frequent occupational category, however, is the same for both groups: 06. - Industrial. The relative frequency is 24 percent in Group 1 and 12 percent in Group 2 although three other Career Areas in Group 2--Artistic, Mechanical, and Business Detail--also show the same relative frequency of study subjects. The Industrial Career Area encompasses the

Worker Groups of Production Technology, Work, and Control, as well as Elemental Work including such job titles as machine operator, electronics assembler, inspector, and laundry worker. Clarification of the other Career Areas and their corresponding Worker Groups and the jobs they include may be found in Appendix D.

Despite the effect of the assessment method on Group I, the two groups appear to be quite similar from several statistical standpoints. These standpoints are the close comparability between groups of the total number of Career Areas, the likeness in categories of the Areas, the range of Areas, and the modal category. It appears that the groups are comparable in numbers and types of Career Areas.

Career Area 13 refers to clients who were closed unsuccessful after evaluation and/or plan development stages or statuses (Status 08 and 30, Cf. Appendix M and N). In Group 1 there was one client closed unsuccessful after application (evaluation) and/or plan development. In Group 2, there were 11 clients in this category. As discussed previously, it does appear as if the clients in Group 2 were given ample opportunity for evaluation and plan development since up to seven months or more is normally allowed in the normal vocational rehabilitation process to which every client is entitled and receives. Further, it appears from review of time in process data in Appendix M that the 11 Group 2 clients in the no goal or closed not employed category were in the evaluation and plan development stages of the process at least that length of time. The average time in process for

the 11 Group 2 clients in Career Area 13, in fact, was 1.1 years. So, it appears Group 2 was given ample time for evaluation and plan development. The difference in the numbers of clients in Career Area 13 may imply a difference in quality of evaluation that each group received. The fact that more clients developed goals in plans in Group 1 with fewer clients leaving the process before plans were developed appears to suggest that the quality of the assessment method Group 1 received may have contributed to that difference.

In general, however, the data suggest that the clients were alike as sample populations because of the similarity of distribution of occupational categories of the study subjects in both groups. It can be inferred further there was no extreme differences generally in terms of ability or personality characteristics between groups since the selection of Career Areas and their concommitant vocational goals was relatively similar between groups given the sample size and the number of Group 2 clients in Career Area 13. Holland, for example, hypothesized in his "Birds of a Feather" theory of vocational choice that an individual's vocational interests also describe the individual's personality, which gravitates toward a compatible occupational environment (Weinrach, 1979, pp. 85-95). Holland assumes that a person making a vocational choice in a sense "searches" for those environments which are congruent with his personal orientations. These orientations or coping methods are associated with characteristic physical and social environments and with characteristic pat-

terns of abilities (Holland, 1959, pp. 34-45, 1960-1978, Cf. Chapter 1A).

Similarly, distributions of occupational categories for the two groups at the time of case closure are exhibited in Table 10. These categories represent the Career Areas of Worker Groups for the job titles of each client. As can be seen from a comparison with Table 9, it can be seen in Table 10 that the categories and range of Career Areas for the experimental and control groups has remained constant from the time of plan development to case closure.

Table 10

Number of Clients in Career Areas

at Closure by Group

Career Area	Career Area Code	Number		Percentage	
		1 group	2	1 group	2
Artistic	01	2	1	8.0	4.0
Scientific	02		1		4.0
Mechanical	05	3	1	12.0	4.0
Industrial	06	5	2	20.0	8.0
Business Detail	07	4	2	16.0	8.0
Selling	08	1		4.0	
Humanitarian	10	2	1	8.0	4.0
Leading influence	11	2		8.0	
No goal or closed Not employed	13	6	17	24.0	68.0
Total		25	25	100.0	100.0

For Group 1 clients, for example, there is relative constancy of numbers and percentages of individuals in the various Career Areas

as they advance through the rehabilitation process from Table 9 (evaluation and plan development) to Table 10 (closure). This constancy of percentages of the various Career Areas may suggest again that the assessment model has an impact on consistency of occupational choice. In Group 2, meanwhile, 17 clients were closed unsuccessful in Career Area 13. Thus, 68 percent of the control group were closed not rehabilitated either before being able to establish a vocational goal at plan development stage (Status 08 or 30, Cf. Appendix M and N) or closed not employed (Status 28). Again, the assessment method intervention appears to have contributed to the greater rate of cases closed successfully rehabilitated in the treatment group in comparison with the control group.

In general, however, the groups still appear to be alike as shown by the kinds of Career Areas in each group. The categories of Career Areas have remained the same from Table 9 to 10. The modal category, Industrial, has remained the same for both groups throughout the vocational rehabilitation process. Only the relative frequency has changed. It is 20 percent for Career Area 06. in Group 1, and eight percent in Group 2. Business Detail, Career Area 07., is also at the same relative frequency, eight percent, in Group 2.

D. Summary

In summary, this chapter analyzed the statistical results of the study. All three hypotheses in the study were supported at less

than the .01 level of confidence using chi square. Thus, from a statistical standpoint, the vocational assessment method appeared to affect the rate at which clients are placed in employment and how well they stabilized in work. Further, the method positively affected the consistency of occupational choice from the time job goals are set to actual placement in employment. A second statistical test confirmed the third hypothesis concerning occupational consistency at a more complex level involving three stages of the rehabilitation process. The variable of whether or not clients entered training for work was included in this calculation. The test was significant at less than the .05 level of confidence, showing that the assessment method appeared to affect consistency of job choice from the time goals are set through training for work to placement on the job. Finally, the analysis also involved discussion of variables such as age, sex, disability, and Career Area that might potentially confound the effect of the experimental treatment. Because the groups are shown to be relatively equal with respect to these variables, the potential for the variables to contaminate the effect of the treatment has been reduced.

The analysis of statistical results presented in this chapter support the notion that a vocational assessment method positively affects employment placement and stabilization as well as consistency of occupational choice among rehabilitation clients under study. The method appears to provide its positive effect on employment outcomes

through its capacity to relate client functioning to job demands using the same terminology. The entire assessment model is described in Chapter 1 and Appendix. In brief, the model promotes a oneness or interaction of the individual with the employment environment. The method accomplishes an interaction of person with job by relating the individual and his or her functional capacities for work with occupational requirements of job goals using a common language and set of criteria. The language and criteria are set out in the qualifications profile contained within the Worker Group system (Cf. Chapter II, Definitions of Terms: Worker Group). Each Worker Group has its own qualifications profile and each Worker Group contains a number of jobs. Thus, each job has a qualifications profile.

The professional conducting an evaluation compares the individual and her or his qualifications as profiled by client functional capacities with the qualifications profiles of job goals and their corresponding Worker Groups. Through this facility for matching client with job, the method then achieves a greater rate of success in employment outcomes than does the evaluation process normally employed in vocational rehabilitation programming. That the method can facilitate these outcomes in employment placement, stabilization and consistency of choice appears to be supported by the statistical results and analysis of these data.

C H A P T E R V

DISCUSSION AND CONCLUSIONS

A. Overview

The general conclusion of this study is discussed in this chapter as well as its implications for vocational assessment, rehabilitation, counseling and occupational psychology, as well as future research needs.

The purpose of this study was to examine the effect of a particular vocational assessment method on the placement and stabilization in employment of rehabilitation clients as well as their consistency of occupational choice throughout the vocational rehabilitation process. The research problem and the need for a study was stated in Chapter 1. The actual vocational assessment model used in the study is presented in Chapter 1 and Appendix. A review of the literature was the central aspect of Chapter II. This review attempted to give a perspective on how counselors have attempted to build an assessment model. This perspective was given in order that the vocational evaluation method used in this study be placed in historical context. The method is a relatively complex and refined system using the theoretical underpinnings of the trait-and-factor approach. The model, however, extends the trait-and-factor method to

what the Minnesota Theory of Work Adjustment termed the client functioning -job demands approach. The model describes people and jobs in terms of qualifications profiles of Worker Groups. These profiles of groups created a common language through which client functional capacities and job requirements could be compared and matched. An exposition of the methodology used in the research is presented in Chapter III. It includes descriptions of hypotheses, experimental and control group subjects, and treatments. The measurements used, its dependent variables, experimental design, and the statistical analysis used in testing the hypotheses are also depicted in the methodology chapter. A detailed analysis of the statistical results is given in Chapter IV. The assessment method appeared to have a very significant effect upon the placement and stabilization of handicapped clients in employment as well as on consistency of occupational choice during the rehabilitation process.

B. Discussion of Research Questions

The statistical results of the study have answered both research questions described in Chapter III. The results in Chapter IV appear to show that the assessment methodology used in the study has a significant impact on both of the outcome variables. The first research question asks if a particular assessment method has an effect on whether or not clients secure and adjust to employment. The statistical results suggest that the method affects the first dependent

variable, the number of clients placed and stabilized in employment. Thus, it appears that the quality of evaluation and planning for objectives may have a direct bearing on the percentage of vocational rehabilitation clients who experience successful outcomes, in this case placement and adjustment to employment. The second research question asks if a specific assessment model has an effect on the consistency of occupational choice throughout the rehabilitation process. The statistical results also suggest that the model affects the second dependent variable, consistency of vocational goal, training objective and eventual job among clients evaluated. Therefore, it also appears that the quality of evaluation and planning for vocational goals may have a direct relationship to how consistent these goals are over time with eventual roles in employment.

The impressive impact of the assessment method on employment placement and stabilization as well as on consistency of occupational choice is accounted for, in part at least, by the equal emphasis on the person and the occupational situation and an interaction between the two. This assessment model provides a means to relate client functioning with occupational requirements. The lexicon of the Worker Group system facilitates the interaction between the client and the job environment.

While the goal of early trait-and-factor practitioners such as Parsons and Williamson was to equate the individual with the work setting, they appeared to lack the necessary lexicon, occupational

information, and methodology such as found in the client functioning--job demands approach in order to carry out those objectives. Instead, they placed too much emphasis on the individual at the expense of examining the individual's interaction with his environment. Parsons' extra focus on the individual has been called the Parsonian error, an error that has affected counseling psychology, whose roots in vocational guidance are deep. Counseling psychology is essentially concerned with the transaction of the person with his or her environment, of which the employment situation makes up a meaningful part. The Parsonian error may be described as a stated interest and awareness of person-environment issues (i.e., we must know the person and the work environment), but action only in the area of the individual.

Counseling psychologists have worked for many years to develop a method that could match the person to the job. Counseling psychology's leadership restated the Parsonian person-environmental model over 20 years ago to approach a balance between the development of an individual's inner life of motivations and emotions and his achieving harmony with his environment by assisting him to make effective use of community resources and influencing society to make full development of people. Nonetheless, counseling psychology still involves itself in Parsonian error, talking a good story about environmental action but not always implementing those ideas (Ivey, 1980, pp. 3-4).

During the last few decades, periods of renewed interest in

career counseling, as well as a need for a valid assessment model, both have contributed to psychologists' attempts to develop an assessment method that would truly match person and job. Earlier, for example, theoretical reservations about Parsons' and others' early efforts to focus both on individuals and the work setting without the methodological tools necessary to accomplish the task contributed to psychologists seeing the need to refine those assessment methods more to the client functioning-job demands approach.

As discussed in Chapter IB in terms of the Minnesota Theory of Work Adjustment, the client functioning-job demands approach does what the efforts of the early practitioners did not do. This latter approach and the vocational assessment model used in this study equate the person with the job environment through the lexicon of the Worker Group system. This system first appeared as the Worker Trait Group classification in the third edition of the Dictionary of Occupational Titles (D.O.T.) published in 1965 (United States Department of Labor). Since then the system has been modified and improved to the Worker Group classification as described currently in the Worker Trait Group Guide published in 1978 (Appalachia Educational Laboratory, Inc.). The Guide may serve as a companion piece to the fourth edition of the D.O.T. published in 1977 (United States Department of Labor).

These two references of occupational classification and information represent only the latest stage of development of an occupational taxonomy that aims to help the individual transact and interact

with an employment environment. The assessment model described in Chapter I and Appendix appears to have a beneficial effect on job placement, stabilization and consistency of occupational choice. Results described in Chapter IV suggest the assessment method appears to affect acquisition and adjustment to a working role. A high relationship was found between those clients who were evaluated with the method and the number of clients placed and stabilized in employment. A chi square test was employed to measure the statistical significance of that relationship in comparison with that relationship found in the control group evaluated by means other than the method. The relationship of use of the method with job placement and stabilization compared between groups was found to be significant at less than the .01 level of confidence.

Statistical results also suggest the evaluation model seems to affect the consistency of occupational choice during the vocational rehabilitation process. Again a high relationship was found between those clients who were evaluated with the method and the number of clients who chose a vocational goal consistent with their eventual working role. A high relationship was also found between those clients assessed with the method and the number of clients who chose vocational goals consistent with their training objectives and eventual jobs. The relationship of use of method with choice of goal consistent with job and use of the method with choice of goal consistent with training objective and job again was tested between groups using

the chi square measure on two occasions. The relationship of use of the method with choice of goal consistent with job compared between groups was found to be significant at less than the .01 level of confidence. The relationship of use of the model with choice of goal consistent with training objective and job compared between groups was found to be significant at less than the .05 level of confidence.

The vocational assessment model employed in this study seemed to have an impact on the rate at which clients find and adjust to work. The model also appeared to affect the rate at which clients chose vocational goals that were consistent with their eventual working roles. Thus, the assessment model appeared to have a beneficial effect on the goals and outcomes of the vocational rehabilitation process. The fact that the method seemed to help people find and adjust to work consistent with their functional capacities supports the notion that the assessment methodology needs to be improved and refined. Research on refinement may also lead to the development of whole new methodologies incorporating some of the theoretical bases of the current method. Further, with the advent of the computer and its high speed capacity for information storage and retrieval, refined assessment methodology may also lead to more efficient technology. The application of computerization to refined and/or new assessment methodologies, for example, may lead to more sophisticated technologies for performing vocational evaluation.

C. Implications for Counseling Psychology

The development of a theoretical model of vocational assessment should be applicable to the goals of the profession of counseling psychology, and, from an eclectic frame of reference, take the best elements of the various theoretical positions offered, discarding those portions that do not have utility today. Counseling psychologists now are concerned with human development and growth and a positive person-environment transaction (Ivey, 1980, pp. 4-5). As has been presented, more recent developments in the trait-and-factor approach have focused attention on the criteria and requirements of occupational environments in the creation of a method that saw the evolution of the Worker Group as a primary component. As has been discussed, the error by the early theorists was too much directive attention on the individual at the expense of the career environment model they had helped create. The current assessment model corrects the earlier error with a conceptual adjustment. The present paradigm gives equal balance to the person and the environment in their transaction incorporating pragmatic, contemporary counseling psychology strategies.

The original identification of worker traits by Parsons, Williamson and others had led to a systematized grouping of worker traits and a language for relating the occupational requirements of those groups to aptitudinal, interest, physical and personality characteristics and criteria. In the evolution of the Worker Group

concept, concern has moved from helping the individual fit into a job with the attention centered on the individual and his qualifications to an interactionary process of the person with an employment environment. The final result is a transaction of the individual's functional capacities with the requirements of an occupational situation.

In short, psychologists in recent history have worked long and hard to find a language and a method that will match the individual with his or her employment environment. One need look at only one branch of psychology as an example-social psychology-to see the enormity of concern of researchers in studying the relationship of the individual interacting with his or her environment. In addition to an investment in the concept of goal-setting (Rotter et al., Cf. Chapter IIIA), social learning theorists have concurrently made a significant contribution to the model of vocational assessment through a concern with the person interacting with the environment. Social psychology, of course, is the study of how people interrelate and affect one another (Deutsch, p. 1). By definition, social learning theory is concerned with the behavior of people in groups and in the effects of groups upon their behavior (Morgan, pp. 315-317). In their attention to the helpful effects of groups upon individual learning, social learning theorists have extended their scrutiny to various group environments, including school and work environments, and the interaction of the individual with these environments.

Various social learning theorists have been concerned with developing a model for the person interacting with his environment. That concern has been another building block in the development of some of the basic components of the model for vocational assessment presented in this study, namely the individual and his interrelationship with his job environment.

In general, the central concept in the social psychology of learning stresses that the nature of personal interaction with the social environment will determine behavior. It is a way to combine person variables (psychology) with situation variables (sociology) to understand human behavior. Wilson (1977) summarized how two assumptions: (a) "that human behavior is complexly influenced by the context in which it occurs [p. 253]," and (b) "the social scientist cannot understand human behavior without understanding the framework within which the subjects interpret their thoughts, feelings, and actions [p. 249]," underlie the rationale for using ethnographic methods for gathering data (McMillan, pp. 7-8).

In arguing for a new focus for educational research, for example, Urie Bronfenbrenner (1976) suggested a methodology to examine what he referred to as the "dynamic relation between person and situation [p. 6]." He based his suggestion on the work of Kurt Lewin, a social psychologist who started the study of complex group processes in the 1940s. Lewin developed a formula, B=f(P,E)--behavior is a function of the person and the environment--as a model to organize and

apply individual differences and instructional approaches to explain learning.

Other innovative social psychologists, such as Mischel (1977, 1973), Hunt (1975), and Bandura (1977), have made a variety of attempts at constructing a paradigm of the individual and her or his interaction with the environment. Those efforts in turn have made a significant contribution to the concept of the person interacting with her or his employment environment, a concept that is contained within the components of a theoretical model for vocational assessment.

The assessment model described in Chapter I and Appendix relates the individual and his or her functional capacities for performing work with the qualifications requirements of employment situations. The model relates person to job by using similar criteria and language for the individual's capacities and job requirements. The criteria is expressed in a qualifications profile which is part of the Worker Group system. Each of 66 Worker Groups expresses a set of job requirements according to its own qualifications profile.

The qualifications profile is a set of criteria that includes aptitudes, interests in work activities, general educational development, specific vocational preparation, temperaments for work situations, and physical capacities and demands. The client is related to job choices in terms of a qualifications profile. The client and his or her qualifications profile is related to qualifications profiles or requirements of job choices. Because the client is

related to work according to the same qualifications criteria, a taxonomy for equating the person to the world of work is created using a common language for people and occupations.

Thus, the vocational assessment model provides a framework for the client to interact with his or her employment environment. The statistical results and analysis of data presented in Chapter IV suggest that the assessment model has a positive effect on vocational rehabilitation goals and outcomes. The vocational assessment method appeared to affect the rate at which clients are placed in employment and how well they stabilized in work. A chi square calculation tested the significance of the relationship between use of the method and placement and stabilization between treatment and control groups. The calculation was highly significant at less than the .01 level of confidence. In addition, the method seemed to affect the consistency of occupational choice from the time job goals are set through training and employment. Again the chi square measure was used to test the significance of the relationship between use of the method and consistency of choice between groups. The test was significant at less than the .01 level of confidence in terms of relationship of method use with vocational goal consistent with employment outcome. The test was significant at less than the .05 level of confidence in terms of the relation of method use with vocational goal consistent with training objective and employment outcome. In summary, the assessment model seems to accomplish the interaction of the

individual's capacities for work with employment requirements that the social psychologists sought in pursuing the concept of person-environment transaction. The assessment intervention appears to give a client a greater understanding of oneself than would an evaluation of eligibility alone; specifically, the model appears to help the individual understand her or his abilities and functional capacities better, particularly in relation to the demands and requirements of various occupations.

Over the course of 75 years or more of development of the person-environment concept, the focus has shifted from one of primary involvement with what is going on inside the individual to an equal concern with the employment environment as well as the person's capacities. Thus, fit becomes interaction and transaction. A chief difference in the model of vocational assessment today from that of its precursor is that in the process of evolution, the method has centered attention on additional functional capacities and critical vocational behaviors such as self-direction, energy reserves, etc., as well as Worker Group categories of general educational development, interests in work activities and so on. In the Functional Capacities System recommended for use as method (Cf. Appendix I), several supplementary criteria such as work behaviors, motivators, etc. match qualifications of clients with jobs besides the Worker Groups.

While the worker trait components are a product of the trait-and-factor approach that was the source of the current method, other

functional capacities and critical vocational behaviors are also included in the current assessment model in order to capture more of the elements and criteria that are involved in integrating the individual with an employment environment. Using the new system as method, for example, one matches client functional capacities such as hand functioning, fine motor coordination, capacity for exertion and endurance with the degree to which those same capacities are required by the job. The format is similar to the Functional Evaluation System used in research on assessing vocational potential (Crewe, Athelstan, & Meadows, 1975, pp. 514-516). The system also includes estimation of such behaviors as interpersonal relationships and personal attractiveness and self-care. These behaviors are similar to job-keeping and social living competencies presented by Krantz (1971) as necessary actions that workers present to employers in order to retain jobs. They are also identified as on-the-job social skills in the Vocational Behavior Checklist (Walls, Werner, & Zane, 1979, pp. 183-202).

Psychologists in general are often interested in functional systems and how they focus on behavior. Indeed, in working with handicapped clients, vocational rehabilitation counselors often use behavioristic strategies such as positive reinforcement, shaping, and modeling in order to assist clients in reaching vocational goals. Generally, a behavioral assessment takes the form of a functional analysis since the behaviorist is usually not interested in interpreting human actions as signs of underlying traits or intrapsychic conflicts

but rather as samples of how a particular person responds to a particular situation. So also does the Functional Capacities System aim to assess samples of behavior and functioning crucial to employment effectiveness (Bootzin & Acocella, 1980, pp. 135-136, 464).

D. Implications for Job Placement

The key to whether or not the vocational assessment method presented in this study is useful is its capacity to facilitate "selective placement" of the handicapped client population into employment situations (Cf. Definitions: Vocational Rehabilitation Services, e.g., Selective Placement). Analysis of the statistical results of the study have shown the vocational assessment method appears to have a significant impact on the number of handicapped clients selectively placed in employment. Further, the method seems to have a dramatic effect on client adjustment to the working role as shown by stabilization in employment for a two month period.

If the method enhances employment placement, can the method and/or adjustment from it ease and reduce stress associated with job-seeking and placement? Perhaps one of the more difficult aspects of selectively placing the handicapped person in employment is the stressful situation for the disabled individual created by the very existence of a physical or emotional disability. Even when disabled individuals are highly successful at integrating themselves into the mainstream culture, the stigma of disability and institutionalization

pervades people's perceptions of them (Stensrud, R. & Stensrud, K., 1980). For these clients a specific rehabilitation program dimension seems necessary--a program which teaches clients how to cope with the interpersonal stresses of prejudice. Stress management training programs exist for disabled individuals (Arnold & Parrot, 1978; Garrison, 1978), but few programs deal specifically with the interpersonal stresses of being stigmatized (Stensrud, R. & Stensrud, K., 1981, p. 43).

According to Brown (1980), approximately 75% of an illness is stress-related. Stress is a psychophysiological response to environmental stimulation. Although much of the stress response is physiological, the antecedents of a generalized stress response are cognitive. The cognitive process which leads to a generalized stress response is termed worry. Brown characterized the process of intentional perceptions through which stress results as comprising seven stages: 1) Expectations, 2) Perceptions, 3) Worry, 4) Uncertainty, 5) Images of worry, 6) Rumination, 7) Self-deception.

Worry is an attempt at problem-solving when adequate information is not available to solve the problem. As handicapped people sense differences between their life experiences as they would like them to be and as they perceive them, they strive to resolve these differences. When they do not have either the information or the skills necessary to do this, the problem-solving process continues in a vicious circle of worry with no hope of gaining a resolution. They

form negative mental images of worry which in turn create stress. The sixth step is rumination which is the total preoccupation with the images of worry which exclude other possible considerations or alternatives. So wrapped up do they become in their rumination that the entire process arrives at its ultimate conclusion--self-deception. They deceive themselves into a self-fulfilling prophecy which creates a rigid expectation (step one) that is self-perpetuating, highly resistant to change and inflexible.

Therefore, social stress is the result of a natural learning process manifesting itself in a dysfunctional manner. When social and personal identities of disabled individuals conflict, their interpersonal relationships may become destabilizing. Such experiences often result in a complex process which, over time, lead to inflexible expectations that rigidly restrict possible actions. What is needed in interpersonal interactions is greater flexibility of response and this can occur only when expectancies permit people to perceive alternative responses as possible and alternative environmental reinforcers as desirable (Ibid, pp. 44-45). In short, flexibility can be the result of an individual having a greater sense of awareness of one's functioning in relation to the requirements of the world of work. The vocational assessment model used in this study is designed to promote an understanding of the individual with work.

While rehabilitation counselors as well as occupational psychologists in general cannot create ideal relationships for clients, they

can teach the interpersonal skills necessary for clients to create such relationships for themselves. The vocational assessment method presented in this study offers the opportunity to clients to learn how to manage social stress and to develop interpersonal skills. First of all, the method can easily accommodate stress management training for clients as part of any job-seeking skills training that is incorporated into the vocational assessment process. Secondly, an appraisal approach that allows clients to perceive themselves and various occupations along a broad spectrum of criteria that includes physical, mental, and personal capacities as well as abilities and interests has the potential to analyze and pinpoint difficulties that may arise between the person and work environment in order that corrective action be taken. Furthermore, the approach compares the persons and their total selves along these criteria to the jobs being considered with respect to their unique and total requirements. Use of the method to scrutinize clients and their work environments can certainly lead to the necessary interpersonal skills training needed by clients as well as the accommodations needed to be made by employers. If satisfactory adjustments are made along these lines for clients, the vocational assessment method is contributing to the facilitation of clients being hired in employment and to the alleviation of interpersonal stress.

Contemporary specialists in vocational assessment point out the need for appraisers paying foremost attention to the employment

setting. To accomplish that aspect, assessment should be extended into the actual industrial situation. As Neff points out, "Once we do so it will become clear that work behavior is a complex product of not one but two sets of variables: on the one hand, those which characterize the working person, and on the other, those which characterize the work situation" (Neff, 1970).

What is needed is a technology which enables psychologists to measure the many important differences in a whole range of varied work situations, those involving skilled and complex operations as well as those demanding only simple labor. It is also important to build into the assessment situation as many of the actual features of real employment as possible--supervision, actual job tasks, etc.

The vocational assessment model and the effectiveness of it on job placement and stabilization appears to meet those needs for a work evaluation technology. While the method presented in Chapter I uses all approaches to appraisal--psychological and psychometric testing, sheltered, simulated as well as actual work--, the framework of the assessment model applies the same criteria for comparing the individual and the employment environment in a common occupational psychology language. When used by a skilled practitioner in an appropriate setting, the method has the potential for assisting clients toward a truly client-centered person-environment transaction.

E. Suggestions for Further Research

As the analysis of statistical data in Chapter IV has shown, the effectiveness of the vocational assessment method in enhancing job placement, stabilization and consistency of occupational choice should promote additional research in several areas of work evaluation. Efforts should focus on ways to improve assessment methodology. Some of these energies could be directed at streamlining the process of assessment to bring about an efficient system that expedites workers making career changes and transferring skills to new job areas. Job analysis and other techniques would also focus on the important need to refine the criteria such as those that make up Worker Groups in order to improve the components of the methodology itself. The tools used in the assessment process such as the Dictionary of Occupational Titles (D.O.T.) would also be the subject of job analysis research aimed at advancing the approach.

The fact that the vocational assessment model can be used to help bring about the successful vocational rehabilitation of handicapped clients only underscores the need for improvement of the method through research efforts. The need gains further impetus from recent programmatic thrusts for cost effective planning and economy of action as pointed out in Chapter 1B. An effective vocational assessment model will enhance budget conscious programming by permitting the selection, by the client, of an appropriate vocational goal based upon facts rather than assumptions. Furthermore, the study described the

effect of the model on job placement and stabilization as well as on choice of vocational goals that remain consistent with employment roles.

The method is similar in purpose to the Crux model and the Minnesota Theory of Work Adjustment mentioned in Chapter IB. It aims to help the individual correspond to the job environment by matching his or her functional qualifications with occupational requirements along the same criteria. Since these criteria are represented by the Worker Groups, there is an obvious need to improve the Worker Group system through job analyses and other research on the D.O.T. and supporting documents used in the assessment process such as the Guide for Occupational Exploration (Cf. Chapter 1(1) Procedure). As these refinements are made, it is quite possible that research will lead to the development of new criteria and a new system altogether for integrating client functioning and job demands. It is also probable that future research will help psychologists and counselors use new assessment methodology routinely to bring about selective placement of clients in employment by its capacity to enhance counseling activities. In the counseling process, the model can be used to identify client skill areas from previous work experience that can be transferred to new job areas in high demand.

As it has been stated earlier in Chapter IIA, the D.O.T. has wide usage among counselors, psychologists, and other professionals, particularly as a resource tool for vocational assessment methodolo-

gies aimed at assisting the placement of individuals in employment. Substantial improvements are needed, however, in the assessment process particularly in the occupational information contained in the D.O.T. and other supporting volumes such as the Worker Trait Group Guide 1978. Specifically, deficiencies in the worker trait and worker function level areas point out the need for more job analysis. As suggested previously, research should be concentrated in the following areas: 1) job analysis, 2) review of worker trait and function scales in order to replace them with carefully developed multiple item scales that better measure central aspects of job content, 3) cross occupational linkages that indicate possible transferability of skills or experience and 4) research on labor markets. In order to improve understanding of the processes by which workers acquire jobs, researchers need to make the transferability of skills between occupations the primary basis for studies on new classification systems whose purpose is job worker matching. Toward that end, for example, the use of data on worker mobility from job to job and/or occupation to occupation can help indicate the transferability of skills to new occupations and to locate plausible job worker matches. In this way, improvements to the criteria of the assessment method used in this study, as well as to the versatility of its application, can lead to its having a greater effect on facilitating job placement among individuals.

In brief, research on methodology likely may lead to expanding

the use of the assessment model from simply being used with handicapped individuals to other client populations as well. A method that can indicate how skills may be transferred to new employment markets, for example, can be particularly useful with other client populations. This might be a novel career assessment approach for individuals contemplating mid-life occupational changes or more importantly, for those left unemployed by technological change. Thus, a career assessment model can conceivably serve a vital function in expeditiously helping unemployed workers whose jobs are obsolete identify those skills and functional capacities that can be transferred to new labor market areas that are currently in high demand.

F. Summary

The emerging art and science of vocational assessment will make a significant contribution not only to vocational rehabilitation services but also to the profession of counseling psychology in general. The appraisal method tested in this study will have an impact because the need to assess physically and mentally impaired citizens' capacities to participate in the employment marketplace in a systematic and effective manner is expected to increase. The necessity for a career assessment approach for normal individuals is also apparent. Programmatic concerns with cost effective planning, efficiency, and improved counseling techniques in recent years only highlight the urgency of developing an effective assessment method.

While it is widely acknowledged that the vocational potential of physically and mentally impaired persons should be evaluated in an organized manner, there are differences of opinion among professional evaluators as to which approach, or approaches, are the most meritorious. As presented in Chapter IIA, the four general approaches are: 1) mental testing, 2) job analysis, 3) work sampling, 4) situational analysis and job tryouts (Steiner, 1970). Although work samples are usually evaluated as being more meaningful to potential work performance than is mental testing, their use comprises reliability and measurement accuracy. Work sampling is also far less sensitive to educational differences than is mental testing.

In the career counseling relationship, the client is making a life decision and his psychologist or counselor is assisting in the process. In the context of rehabilitation, for example, every disabled individual desiring vocational rehabilitation services faces the task of selecting an appropriate vocational goal. To help the client generate several appropriate vocational goal alternatives, the counselor must facilitate client exploration of both self and the world of work. The accuracy of client perceptions for decision-making is greatly a function of the sufficiency of the objective data possessed by the client. The assessment method used in this study is particularly useful in providing such objective data. Statistical results support the assessment method's positive effect on job placement and stabilization as well as occupational consistency. Also, the

method under study appears to enhance a client's understanding of self, particularly one's functional capacities in relation to job requirements.

As Rubin and Roessler noted in Chapter IB, the individual's perceptions and concommitant vocational choice decisions are less likely to be compatible with reality factors when such data are either inaccurate, insufficient, or inappropriately weighted. They hypothesized that the counselor's skill at facilitating such client exploration will be greatly dependent on 1) the degree to which the counselor accurately understands the client's existing and potential vocational limitations, capacities, skills, and interests, and 2) the counselor's knowledge of the demand characteristics and available reinforcers of accessible jobs. Using the Crux model discussed earlier, the researchers showed the relationship between client functioning and potential job demands and between client interests and job rewards. Counselors must acquire a thorough understanding of the client during the initial evaluation phase, the researchers emphasized, in order to help the client "fit" into the world of work. Data in this study suggest the assessment method facilitates that understanding of client in relation to work.

In general, an evaluation procedure can include one or more of three levels of involvement: 1) screening, 2) clinical and, 3) vocational evaluation. How the three levels are used is determined by the client's individual needs and also by the competencies of the coun-

selor (Task Forces 1-7, 1975). All clients in a service program go through a basic assessment process which can be termed screening. Typically, it is similar to the guidance procedures used by high school counselors or the initial interview by rehabilitation counselors and done in one or two sessions. Extensive reliance is placed on client statements of choice, competence and job history.

The second level of assessment can be termed the clinical, case study, or in-depth vocational counseling approach. In addition to methods used in screening, the clinical method uses detailed recovery of personal history, securing the synthesizing the findings of other agencies and professional persons, use of clinically interpreted tests, and several hours of interaction between counselor and client.

Vocational evaluation is the third level of assessment in a sequential strategy and involves placing the client into real or simulated work experience within a controlled setting.

The sequence of a three level process has a number of advantages to it. First, it is comprehensive: all the clients can be accommodated within the process. Secondly, it is economically conservative by practicing the "Law of Parsimony." By parsimony it is meant that the first procedure used is the most simple, common, and economical; more elaborate, difficult, and expensive assessment processes are used only if necessary. It is direct, and it practices conservation. Assessment findings of previous processes are retrieved and passed along. It is cost effective.

The recommended vocational assessment model tested in this study is most like levels two and three because it is a comprehensive evaluation method. Yet, it can have the economy of level one in that it may only involve free aptitude and interest testing such as the G.A.T.B. and Interest Check List and the qualifications appraisal of the client by the counselor. As stated previously in Chapter III, F. Measurements, this study's vocational assessment method may also incorporate other psychological testing and on site vocational evaluation as represented by level two and three.

This study examined the effects of a specific vocational assessment strategy whose comprehensiveness is represented by level two and three, the clinical and evaluation methods, and its impact on vocational planning, training, and employment outcomes. The research compared these effects to those of clients who received less thorough evaluation which is represented by level one, screening. Stated more exactly, the study investigated those clients who received vocational assessment, a comprehensive method that may incorporate psychological testing and/or evaluation. It weighed the rehabilitation outcomes as far as goal-setting, training, and employment are concerned of the experimental client group with those clients who were merely screened through interviews without the benefit of the specific vocational assessment method.

The results of the study show the effectiveness of the assessment strategy in achieving good results in job placement and

stabilization for clients. From the fact the strategy is similar to evaluation levels two and three, it can be seen that the method is comprehensive but at the same time efficient and cost effective. Thus, the attributes of thoroughness and inexpensiveness the assessment method has are the very same qualities program developers are seeking in the cost-conscious years ahead.

In summary, the findings of this study do contribute to a better understanding of how to assess the functional and personal capacities as well as environmental dynamics that contribute to an individual's securing and stabilizing in employment in the world of work. They will also add to the growing body of knowledge in several related areas: vocational assessment and career development, the profession of counseling psychology and the fields of occupational and industrial psychology.

The fact a specific assessment methodology has such a significant impact on the vocational rehabilitation of handicapped clients suggests that improving the methodology will enhance job placement and stabilization for clients as well as rehabilitation programming in general. Since the study shows the method works for handicapped clients, the generalizability of its use as such is limited to similar populations of vocational rehabilitation clients of working age from 16 to 65 plus. An occupational assessment methodology, however, can be applied to other client groups, particularly if research efforts led to refinements that would make its use more applicable to a

variety of populations. As such, vocational assessment methodology and improvements to it through future research have broad implications generally for the profession of counseling psychology which concentrates much of its work on the fields of occupational and industrial psychology.

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APPENDICES

APPENDIX A

THE COMMONWEALTH OF MASSACHUSETTS
DIVISION OF EMPLOYMENT SECURITY

Introducing the GATB *and Your Participation in* "THE JOB COUNSELING PROCESS"

WHAT IS THIS TESTING ABOUT?

The test you are being asked to take is the General Aptitude Test Battery (or GATB as we call it) for occupational counseling purposes. The GATB has been researched with the working population and also with individuals working in specific job categories. It is used by State Employment Service offices around the country to assist people in finding jobs and training for which they are qualified. If a person could work at a dozen different jobs, he/she would be good at some and poor at others. But, trying a dozen jobs might take years and is impossible for most of us to do. The GATB can show, in about 3 hours, a variety of jobs at which a person might be successful.

You will not be scheduled to take the GATB until you have developed, with your counselor, some ideas of job interest. When you have reached the counseling stage of developing a number of job interests or have one occupational job choice, you will be referred to the Employment Service for testing.

HOW IS THIS TEST RELATED TO YOUR JOB CHOICE?

When you have taken the test, your results will be compared with the test results obtained from individuals working in the occupations of your choice. The information obtained from your test performance will indicate what abilities and/or potential aptitudes you have to enter an occupation or learn a particular job skill. Therefore, by taking this test, you will be helping the counselor assist you in making a proper occupational decision that is best suited for you.

WHAT IS THE GATB?

The GATB will aid your counselor to determine your occupational strength and weaknesses and provide information on your aptitude potential for selected occupational fields of work.

For example, a bookkeeper would need a certain amount of numerical ability; an electronic assembler would need a certain amount of finger dexterity. The GATB measures these abilities. Some of the subtests will seem relevant to your job interest, others will not. In order to find out what abilities are important for your job choice you must be tested on all of the subtests in order to insure that none of your aptitudes are left out.

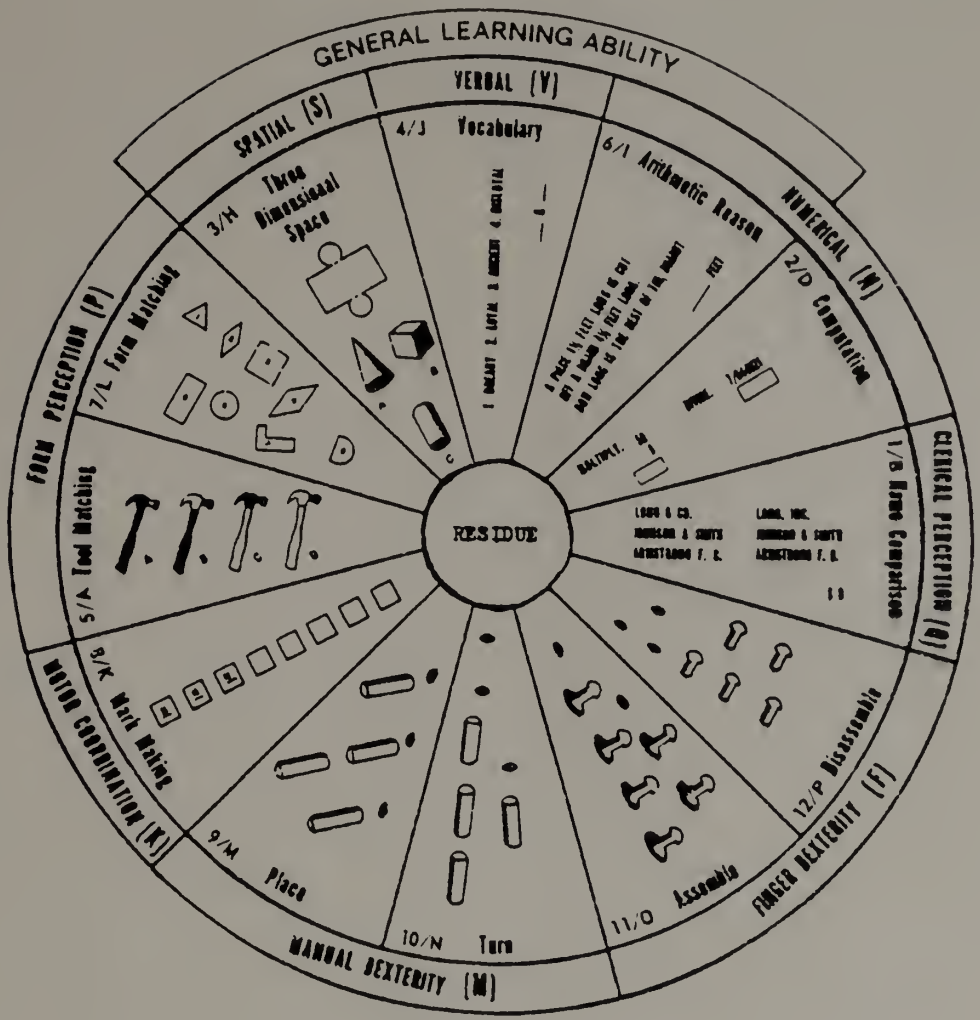
The GATB measures your ability to perform tasks related to various jobs. You are not being tested to see how much you learned in school, nor is this a test you pass or fail.

The GATB consists of 12 short "subtests" which take from 1-7 minutes to complete, a total of 2½ hours testing time. Some are paper-and-pencil tests; others involve apparatus, such as a pegboard and pegs. The subtests combine to measure such things as general learning ability, verbal aptitude, numerical aptitude, motor coordination, finger dexterity, and manual dexterity.

Relax, try your best and thereby learn more about yourself.

Form 3612-B
New 2-77

TESTING SERVICES DIVISION
THE COMMONWEALTH OF MASSACHUSETTS
DIVISION OF EMPLOYMENT SECURITY
CHARLES F. HURLEY BUILDING
GOVERNMENT CENTER, BOSTON, MASS. 02114



USE OF THE GATB IN COUNSELING TEST INTERPRETATION

If the GATB test is to serve the purpose for which it is intended, it is important that counselors provide students with an accurate and understandable interpretation of the test results. What follows is a reminder of how the test scores can and cannot be used in the interpretation:

1. It is important to remember that an aptitude score on the GATB, by itself, has no occupational significance. There is no objective evidence of any relationship between an individual aptitude score on the GATB and an occupational potential (this information is found by means of the occupational aptitude pattern structure described in Section II of the manual for the GATB).

2. When reporting the results of the GATB to a student the results should be reported in terms of his potential for fields of work or kinds of jobs as indicated by the occupational aptitude patterns.

3. The patterns which result from the test must be weighed and integrated with the applicants' interest, experience, education, training, physical-personal traits, leisure time activities, financial situation, and the world of work, etc.

4. The applicant must understand the limitations of the test and that an aptitude test is only one factor to consider in choosing a vocation.

5. The counselor must not give the test scores to applicants because these scores are meaningful only when considered in relation to all the other pertinent factors about the individual, and because the applicant has not been trained to interpret them.

6. The "G" score on the aptitude test can be used as a predictor of college success (see Page 7) in Section II of the GATB manual.

7. We can use the G, V and Q scores on the GATB to predict success on the GED test (see USES test research report #33).

8. The obtained aptitude score must be used in conjunction with the 1 Sem to allow for the maximum number of occupational aptitude patterns when you interpret the results of the test.

9. Since the aptitude test was validated on the general working population with the score of 100 representing the average score for each aptitude shown, we can use the aptitude scores to indicate an individual's aptitude strengths and weaknesses and also his/her strengths or weaknesses in relation to the general working population.

10. In interpreting the GATB or the SATB's, only the scores given in the manuals are to be used, no arbitrary combination of tests and passing scores are to be used.

Form 3612
Rev. 9-67

THE COMMONWEALTH OF MASSACHUSETTS
DIVISION OF EMPLOYMENT SECURITY

INTRODUCING THE GENERAL APTITUDE TEST BATTERY

The test you are about to take is known as the General Aptitude Test Battery. It was developed by the U.S. Employment Service after many years of research. Aptitude tests, as you probably know, are based on the fact that people are born with certain potential abilities or aptitudes. These abilities are usually fully developed at about the senior year in high school and change very little after that time. While training and practice are very important in developing your abilities, the amount of skill you acquire in any activity is determined for the most part by the amount of aptitude you possess for that type of activity.

While no test pretends to tell you exactly what you should do, this test which you are going to take will measure your aptitudes in comparison with those required in a large number of occupations. You can't fail an aptitude test, nor can you pass one. We simply obtain some scores that compare your efforts on the test with those of people successfully employed in the various occupations covered by the test. If you achieve the scores made by successfully employed workers in a given type of work and you are interested in it, you can feel confident that you have the aptitude to be successful in that field. If you miss the qualifying scores, it is likely that you would find that kind of work too difficult, and it would be wiser for you to enter some other field.

Occasionally someone does not qualify for any of the fields of work covered by this test. Such a person hasn't wasted his time, however. We are still able to give him much useful general information. It should be recognized also that this test has only been related to about seven hundred jobs. There are thousands of jobs not covered by this test, some of which he can certainly do well.

We obviously couldn't bring seven hundred jobs into this room for you to try. The tests which you are about to take do not resemble any of these jobs. In fact, some parts are so simple you may wonder why they are included. But remember that each individual part measures an aptitude that is necessary for success in a certain kind of work.

Each part of the test will be carefully timed. You will probably find that time will be called before you finish. Don't let that worry you. Each part was purposely designed so that very few people can finish. So work quickly and complete as many items as you can.

After this test battery has been scored, we will have an interview with each one of you to discuss your interests and to help you consider possible fields of work in the light of your performance on the test.

So, good luck! and do your very best!

APPENDIX B

THE COMMONWEALTH OF MASSACHUSETTS
DIVISION OF EMPLOYMENT SECURITY

WIDE RANGE SCALE
ADMINISTRATION PROCEDURES

The GATB-NATB BOLT Screening Device consists of the Wide Range Scale of the Basic Occupational Literacy Test. It is simple to administer and score. The entire procedure can be done at the time of the counseling interview.

The BOLT Wide Range Scale is to be administered in an informal setting. The counselor or other person who administers the Wide Range Scale should be patient and reassuring. Seat the examinee at a table or desk in a quiet place where he can be observed.

Say to the examinee, "I'M GOING TO GIVE YOU A FEW SHORT EXERCISES TO DO. THIS IS NOT A TEST, BUT LATER ON WE MAY WANT TO GIVE YOU SOME TESTS AND THESE EXERCISES WILL HELP US TO FIND OUT WHICH ONES WOULD BE BEST FOR YOU. YOU CAN'T FAIL, AND YOU WON'T BE TIMED. YOU'LL HAVE AS MUCH TIME AS YOU NEED."

Give the examinee a copy of the Wide Range Scale. Identifying information on page 1 may be completed either by examiner or the examinee.

Say, "YOU WILL WORK THE EXERCISES ON BOTH SIDES OF THIS SHEET. NOW LOOK AT THE SAMPLE IN THE UPPER LEFT HAND CORNER (point to sample sentence). THE SENTENCE SAYS, 'SOMEONE WHO TAKES CARE OF SICK PEOPLE IS A _____.' WHICH OF THESE (point) IS THE RIGHT ANSWER? MAID, CHIEF, NURSE, LEADER, OR PAINTER. (Get response from individual.) YES, NURSE IS THE RIGHT ANSWER SO THE CIRCLE NEXT TO NURSE HAS BEEN FILLED TO SHOW THAT 'NURSE' IS THE RIGHT ANSWER."

"YOU WILL SHOW YOUR ANSWERS TO THE REST OF THE EXERCISES IN THIS WAY. FILL IN THE CIRCLE FOR YOUR ANSWER. REMEMBER THAT ALL THE ANSWERS YOU CHOOSE ARE TO BE MARKED IN THESE CIRCLES. (Again point to answer circles.) DON'T WRITE ANYTHING IN THIS BLANK SPACE (point to blanks in sentence). IF YOU ARE NOT SURE OF THE CORRECT ANSWER, MAKE YOUR BEST GUESS. DON'T WASTE TOO MUCH TIME ON ANY ONE EXERCISE (reinforce this instruction if necessary.) WHEN I TELL YOU TO BEGIN, START WITH EXERCISE 1, AND DO THE OTHER EXERCISES IN ORDER: 1, 2, 3, 4, DOWN THE PAGE, THEN START AT THE TOP OF THE PAGE FOR NUMBER 5 (point to number 5). HERE AT THE BOTTOM OF THE PAGE IS A STOP SIGN (point to stop sign). WHEN YOU FINISH THIS EXERCISE (point to item 8) LET ME KNOW, AND I WILL SHOW YOU WHAT YOU ARE TO DO NEXT. DO YOU HAVE ANY QUESTIONS?" (Answer any questions).

"YOU MAY BEGIN NOW."

Observe the examinee. If it becomes apparent that he has worked to his limit and/or is engaging in blind guessing, have him go on to the next part. When the examinee has completed Part 1, tell him, "Turn the page over." Then say, "NOW YOU WILL WORK SOME EXERCISES IN ARITHMETIC. WORK THEM RIGHT ON THIS PAGE BUT DON'T MAKE ANY MARKS IN THESE ANSWER BOXES (point). FIGURE YOUR ANSWERS AND THEN LOOK TO SEE IF THE ANSWER YOU GET IS NEXT TO ONE OF THESE CIRCLES. (Point to answer circles.) IF YOUR ANSWER IS SHOWN HERE (point) FILL IN THE CIRCLE FOR YOUR ANSWER. IF THE ANSWER YOU GET IS NOT SHOWN HERE IN THIS LIST OF NUMBERS, FILL IN THE CIRCLE HERE. (point) NEXT TO 'RIGHT ANSWER NOT SHOWN.' DON'T MAKE ANY MARKS INSIDE THESE ANSWER BOXES. (Point to boxes containing response alternatives.) BE SURE YOU FOLLOW THESE INSTRUCTIONS (point) THAT TELL YOU WHETHER TO ADD, SUBTRACT, MULTIPLY OR DIVIDE. WHEN I TELL YOU TO BEGIN, START WITH EXERCISE 1, AND WORK THE OTHER EXERCISES IN ORDER: 1, 2, 3, 4 DOWN THE PAGE, THEN START AT THE TOP OF THE PAGE FOR NUMBER 5 (point to number 5) WHEN YOU COME TO THE END OF THE PAGE AND SEE THIS STOP SIGN (point to stop sign) STOP AND PUT YOUR PENCIL DOWN."

"DO YOU HAVE ANY QUESTIONS?" (Answer any questions.)

"YOU MAY BEGIN NOW."

Again observe the examinee and stop him if he appears to have worked to his limit and/or is engaged in blind guessing. When the examinee has finished working, collect the Wide Range Scale and pencils and thank him for his cooperation.

Directions for Scoring

The Wide Range Scale is scored with two stencils: Scoring Key for Wide Range Scale-Vocabulary and Scoring Key for Wide Range Scale-Arithmetic. The first step in scoring is to check both sides of the Wide Range Scale for multiple answers and draw a red line through all the choices on items where more than one answer circle is filled in. Next, place the Vocabulary Key over Page 1 of the Wide Range Scale and count the number of circles filled in (except those crossed out in red). The Vocabulary score is the number of correct answers given on page 1. The Arithmetic score is the number of correct answers visible through the Arithmetic Key when it is placed over Page 2.

Standards

Screening Device multiple cutting scores are 3 on Part 1-Vocabulary and 6 on Part 2-Arithmetic. Those who score 3-8 on Vocabulary and 6-8 on Arithmetic have sufficient literacy skills to take the GATB. Those who score 0-2 on Vocabulary or 0-5 on Arithmetic have an insufficient amount of basic reading and arithmetic skills to take the GATB. They should be tested with the NATB.

Who Should be Scheduled to take the BOLT

Most of the applicants who are scheduled to take the BOLT will be the same applicants who are scheduled to take the Nonreading Aptitude Test Battery (NATB). In these instances the Counselor should administer the Wide Range Scale to determine the appropriate level of BOLT to be administered. After results of the Wide Range Scale are known, the Counselor should schedule applicants for testing on both the BOLT and the NATB (but not all on the same day and not necessarily in that order) so that results of both tests will be available for counseling disadvantaged applicants.

In addition, anyone who is scheduled for a Spanish Language version of the GATB or NATB should be given the BOLT to see whether he can be placed in English speaking training or work environment. The Wide Range Scale is to be used for determining the appropriate BOLT level for foreign language speaking applicants. However, a person who has achieved a certain level of education in a foreign language will obviously be at a disadvantage on an English language achievement test which presupposes that level of education in the English language. In general the lower range of "Years of Education" (0-6 years on the BOLT Level Grid) should be used in determining the BOLT level to be taken.

There may also be instances when an individual was given the entire GATB or a certain SATB and the Counselor has doubts about the adequacy of the individual's literacy skills for immediate employment or occupational training. It might be desirable to schedule such an individual for BOLT testing.

The Wide Range Scale is used to determine the appropriate level of each BOLT test for an individual. Results on the Wide Range Scale are interpreted together with information on claimed years of education and other information obtained in the counseling interview to choose the most appropriate level of the BOLT for the examinee to take. Scores on Wide Range Vocabulary are used in choosing levels of the BOLT Reading Vocabulary and Reading Comprehension tests forms, and scores on Wide Range Arithmetic are used in choosing levels of the BOLT Arithmetic Computation and Arithmetic Reasoning. The appropriate level of BOLT Reading Vocabulary and Reading Comprehension to be administered are read from the same BOLT Level Grid. Appropriate BOLT Arithmetic Computation and BOLT Arithmetic Reasoning levels are read from separate BOLT Level Grids. The use of the Grids may result in the choices of different levels of BOLT in Arithmetic Computation and Arithmetic Reasoning. The level of the two reading booklets (Reading Vocabulary and Reading Comprehension) may be different from either one or both of the arithmetic booklets. The reading booklets will be the same unless the Counselor decides that different reading levels should be administered.

WIDE-RANGE SCALE

U.S. Department of Labor Employment Administration Washington, D.C. 20210

SAMPLE **Part 1**

Someone who takes care of sick people is a _____.

- ○ MAID
- ○ CHIEF
- ● NURSE
- ○ LEADER
- ○ PAINTER

NAME _____
FIRST MIDDLE INITIAL

ADDRESS _____
NUMBER STREET

_____
CITY STATE ZIP CODE

DATE OF BIRTH _____
MONTH DAY YEAR

TODAY'S DATE _____
MONTH DAY YEAR

1. The sides of a house are its _____.

- ○ SKIN
- ○ ROOF
- ○ TREES
- ○ PAINT
- ○ WALLS

2. You can tell who is winning if you know the _____.

- ○ WIDE
- ○ DATE
- ○ PRICE
- ○ SCORE
- ○ WEIGHT

3. A chase is _____.

- ○ a PURSUIT
- ○ a TREATMENT
- ○ an INJECTION
- ○ an OCCUPATION
- ○ an INVITATION

4. A stop sign should be placed so that it is _____.

- ○ OBVIOUS
- ○ UNUSUAL
- ○ CONCEALED
- ○ OVERLOOKED
- ○ DISORGANIZED

5 To be determined is to be _____.

- ○ SOMBER
- ○ HESITANT
- ○ RESOLUTE
- ○ HUMOROUS
- ○ BARBAROUS

6. A peculiar or mysterious object is said to be _____.

- ○ COMMONPLACE
- ○ TRANSPARENT
- ○ ADMIRABLE
- ○ LOATH
- ○ WEIRD

7. A baby cutting teeth may be _____.

- ○ GENIAL
- ○ CUNNING
- ○ RESTFUL
- ○ FRETFUL
- ○ OBLIVIOUS

8. The unexpected death of a young person is said to be _____.

- ○ STEALTHY
- ○ UNTIMELY
- ○ CREDIBLE
- ○ UNAVENGED
- ○ UNAVOIDABLE

Part 2

1.

ADD (+)

752
330
79
+ 648

- ○ 1709
- ○ 1719
- ○ 1809
- ○ 1819
- ○ Right answer not shown

2.

SUBTRACT (—)

265
— 41

- ○ 224
- ○ 234
- ○ 236
- ○ 246
- ○ Right answer not shown

3.

ADD (+)

4733
3937
6648
+ 6598

- ○ 22,016
- ○ 21,916
- ○ 20,806
- ○ 19,796
- ○ Right answer not shown

4.

MULTIPLY (×)

896
× 647

- ○ 559,712
- ○ 578,712
- ○ 579,712
- ○ 580,712
- ○ Right answer not shown

5.

SUBTRACT (—)

8544
— 6898

- ○ 1542
- ○ 1646
- ○ 1656
- ○ 1742
- ○ Right answer not shown

6.

ADD (+)

995286
528957
864739
+ 349687

- ○ 2,709,669
- ○ 2,718,669
- ○ 2,736,669
- ○ 2,738,669
- ○ Right answer not shown

7.

DIVIDE (÷)

$439\overline{)18438}$

- ○ 32
- ○ 39, remainder 6
- ○ 41, remainder 9
- ○ 43
- ○ Right answer not shown

8.

SUBTRACT (—)

374255
— 195678

- ○ 178,577
- ○ 178,587
- ○ 178,687
- ○ 188,577
- ○ Right answer not shown

Reorder from INTRAN CORPORATION, 4555 West 77th Street, Minneapolis, Minn. 55435

APPENDIX C

TO: _____ _____
(Individual or Counselor Making Test Referral) Date

TEST REPORTING FORM

Individual Handicapped unable to take GATB in Standardized manner
( ) Paper & Pencil
( ) Apparatus Boards

TEST RESULTS FOR: _____
Name

☐ GATB ☐ ENGLISH ☐ SPANISH ☐ FRENCH ☐ NATB ☐ SATB ( ) SKILL ( ) BOLT TEST DATE _____

COMMENTS

Circle score as: H or M

OCCUPATIONAL APTITUDE PATTERNS

OAP No.	Artistic	Scientific	Plants & Animals	Protective	Mechanical	Industrial
	1 2 3 4 5 6	7 8 9 10	11 12 13 14	15 16	17 18 19 20 21 22 23 24 25 26 27 28 29	30 31 32 33 34
	H H H H H H	H H H H	H H H H	H H	H H H H H H H H H H H H H	H H H H H
	M M M M M M	M M M M	M M M M	M M	M M M M M M M M M M M M M	M M M M M

OAP No.	Business Detail	Selling	Accomodating	Humanitarian	Leading-Influencing
	35 36 37 38 39 40 41	42 43 44	45 46 47 48	49 50 51	52 53 54 55 56 57 58 59 60 61 62 63 64 65 66
	H H H H H H H	H H H	H H H H	H H H	H H H H H H H H H H H H H H H
	M M M M M M M	M M M	M M M M	M M M	M M M M M M M M M M M M M M M

	G	V	N	S	P	Q	K	F	M	READ:
APTITUDE SCORE →										→ FOR GRADE H
APT. SCORE + 1SEm → (adjusted)										→ FOR GRADE M OR FOR GRADE L

COMMONWEALTH OF MASSACHUSETTS - DIVISION OF EMPLOYMENT SECURITY

job matching

Test Administered By: _____

Testing Unit (Address) _____

Form MA7-39-B
Rev. 1-80

Clerical Skills Tests	Date	Speed Grade	Special Grade	Errors	Accuracy Grade
Typing ☐ Manual ☐ Electric		wpm			
Dictation		wpm			
Spelling ☐ General ☐ Medical ☐ Legal					
Statistical Typing					

SPECIFIC APTITUDE TEST BATTERIES

Check Correct Col.
1. H—High
2. M—Plus 1SEm
3. L—Low

GATB: ☐ English ☐ French
GATB: ☐ Spanish
BEAG: ☐ Spanish

No.	Occupation	H	M	L	No.	Occupation	H	M	L

BOLT READING

Date	Subtest-Level	STD Score	GED
	RV-		
	RC-		

BOLT ARITHMETIC

Date	Subtest-Level	STD Score	GED
	AC-		
	AR-		

COMMENTS: _____

OBSERVATION CHECK LIST

REACTIONS IN TESTING

☐ Understands oral inst. ☐ easily ☐ avg. ☐ slow
☐ Works without understanding instructions
☐ Asks questions ☐ Talkative
☐ Composed ☐ Silent
☐ Cheerful, Cooperative ☐ Antagonistic
☐ Interested in test ☐ Bored
☐ Nervous: ☐ Paper ☐ Appar. ☐ Calm
☐ Determined ☐ Gives up
☐ Works systematically ☐ Careless, sloppy
☐ Serious ☐ Playful
☐ Criticized test ☐ No remarks
☐ Picks up materials ☐ Leaves materials
☐ Talks about mistakes ☐ Explains mistakes
Had trouble ☐ Reading ☐ Math. ☐ Writing
COMMENTS _____

Glasses
☐ Wears
☐ Without
Needs? ☐ Yes ☐ No

Hearing
Difficulty ☐ Yes ☐ No
Device _____

TESTING SERVICES DIVISION

MA7-39-B Rev. 1-80

APPENDIX D

Outline of the 12 Interest Areas and 66 WORKER GROUPS: U.S. Dept. of Labor's GUIDE FOR OCCUPATIONAL EXPLORATION

Interest Area 01. ARTISTIC

01.01 Literary Arts
01.02 Visual Arts
01.03 Performing Arts: Drama
01.04 Performing Arts: Music
01.05 Performing Arts: Dance
01.06 Technical Arts
01.07 Amusement
01.08 Modeling

Interest Area 02. SCIENTIFIC

02.01 Physical Sciences
02.02 Life Sciences
02.03 Medical Sciences
02.04 Laboratory Technology

Interest Area 03. PLANTS & ANIMALS

03.01 Managerial Work: Nature
03.02 General Supervision: Nature
03.03 Animal Training and Care
03.04 Elemental Work: Nature

Interest Area 04. PROTECTIVE

04.01 Safety & Law Enforcement
04.02 Security Services

Interest Area 05. MECHANICAL

05.01 Engineering
05.02 Managerial Work: Mechanical
05.03 Engineering Technology
05.04 Air & Water Vehicle Operation
05.05 Craft Technology
05.06 Systems Operation
05.07 Quality Control
05.09 Land Vehicle Operation
05.10 Skilled Hand & Machine Work
05.11 Equipment Operation
05.12 Elemental Work: Mechanical

Interest Area 06. INDUSTRIAL

06.01 Production Technology
06.02 Production Work
02.03 Production Control
06.04 Elemental Work: Industrial

Interest Area 07. BUSINESS DETAIL

07.01 Administrative Detail
07.02 Mathematical Detail
07.03 Financial Detail
07.04 Information Processing: Speaking
07.05 Information Processing: Records
07.06 Clerical Machine Operation
07.07 Clerical Handling

Interest Area 08. SELLING

08.01 Sales Technology
08.02 General Sales
08.03 Vending

Interest Area 9: ACCOMMODATING

09.01 Hospitality Services
09.02 Barbering & Beauty Services
09.03 Passenger Services
09.04 Customer Services
09.05 Attendant Services

Interest Area 10. HUMANITARIAN

10.01 Social Services
10.02 Nursing & Therapy Services
10.03 Child and Adult Care

Interest Area 11. LEADING-INFLUENCE

11.01 Mathematics & Statistics
11.02 Educational & Library Service
11.03 Social Research
11.04 Law
11.05 Business Administration

Interest Area 11. LEADING-INFLUENCE cont'd

11.06 Finance
11.07 Services Administration
11.08 Communications
11.09 Promotion
11.10 Regulations Enforcement
11.11 Business Management
11.12 Contracts and Claims

Interest Area 12. PHYSICAL PERFORMING

12.01 Sports
12.02 Physical Feats

The following is a descriptive list of these 66 Work Groups. Note: The page numbers refer to the blue Guide for Occupational Exploration. Note: This list can be used to find out which Work Groups correspond to the High and Medium OAP's indicated on the test report form sent to you after GATB testing.

01.01 LITERARY ARTS

Workers in this group write, edit, or direct the publication of prose and poetry. They find employment on newspapers or magazines, in radio and television studios, and in the theatre and motion picture industry. Some writers are self-employed and sell stories, plays, and other forms of literary composition to publishers. Page 16.

01.02 VISUAL ARTS OAP 2

Workers in this group create original works of art or do commercial art work, using such techniques as drawing, painting, photographing, and sculpturing to express or interpret ideas or to illustrate various written materials. Some visual artists design products, settings, or graphics (such as advertisements or book covers), and oversee the work of other artists or craftsmen who produce or install them. Others teach art, or appraise or restore paintings and other fine art objects. Advertising agencies, printing and publishing firms, television and motion picture studios, museums and restoration laboratories employ visual artists. They also work for manufacturers and in retail and wholesale trade. Many are self-employed, operating their own commercial art studios or doing free-lance work. Page 18.

01.03 PERFORMING ARTS: DRAMA OAP 3

Workers in this group produce, direct, and perform in dramatic productions and similar forms of entertainment. They also teach acting, choose performers for particular roles, and perform other 'behind the scenes' work to make productions run smoothly. They are employed by motion picture, television, and radio studios, and by stock companies, theatres and other places where plays or floor shows are presented. Schools and colleges hire performing artists both to teach drama and to produce and direct student productions. Full time employment in this field is found at educational institutions, at studios which have staff announcers, disc jockeys, and regularly scheduled shows or dramatic presentations. However, most performing artists are not permanently employed, an must be auditioned for roles in both short-term and long-run productions. Page 21.

01.04 PERFORMING ARTS: MUSIC OAP 4

Workers in this group sing or play instruments, teach, or direct vocal or instrumental music. They compose, arrange, or

orchestrate musical compositions, and plan the presentation of concerts. They work for motion picture studios, television and radio networks or local stations, recording studios, night clubs, and other places where musical entertainment is provided regularly. They may be employed by orchestras, bands, or chorale groups which give scheduled performances or are hired for special events. Composers, arrangers, and orchestrators work for music publishing companies and firms in the recording and entertainment fields. Schools and colleges hire musicians to teach and direct vocal and instrumental music. Many musicians are self-employed and like all performing artists, must audition for parts in musical productions or for employment with an orchestra or other performing group. Page 23.

01.05 PERFORMING ARTS: DANCE OAP 5

Workers in this group compose, perform, or teach dance routines or techniques. Performing dancers and composers (choreographers) work for motion picture and television studios, nightclubs, and theatres, and other places where this kind of entertainment is regularly presented. Dance teachers are employed by schools and studios. Although some dancers work full-time as performers or teachers, most must audition for both chorus and solo work in the theatrical productions of all kinds. Many dancers are self-employed as teachers who give private lessons to children and adults, specializing in ballroom or ballet instructions. Page 26.

01.06 CRAFT ARTS OAP 6

Workers in this group apply artistic techniques, fabricate, decorate or repair a variety of products, and reproduce photographs and graphic or printed materials. They use engraving and etching precision equipment, knives and chisels, paint brushes and power tools to work wood, stone, clay, metal, and gemstones, or embellish objects made from all of these materials. They are employed by manufacturing firms, printing and publishing companies, and motion picture and television studios. They also work for advertising agencies and other firms which provide specialized services, museums, and retail stores. Some craft artists are self-employed selling items they have made, or providing their services on a free-lance basis to businesses and individuals. Page 28.

01.07 ELEMENTAL ARTS No OAP

Workers in this group entertain or divert people by announcing features or performing acts at carnivals or amusement parks, or

02.03 MEDICAL SCIENCES

Workers in this group are involved in the prevention, diagnosis, and treatment of human and animal diseases, disorders, or injuries. It is common to specialize in specific kinds of illnesses, or special areas or organs of the body. Workers who prefer to be more general may become general practitioners, family practitioners, or may learn to deal with groups on related medical problems. A wide variety of work environments is available to medical workers ranging from large city hospitals and clinics, to home offices in rural areas, to field clinics in the military or in underdeveloped countries. Page 43.

02.04 LABORATORY TECHNOLOGY

Workers in this group use special techniques and equipment to perform tests in the fields of chemistry, biology, or physics. They record information that results from their experiments and tests. They help scientists, medical doctors, researchers, and engineers in the work. Hospitals, government agencies, universities, and private industries employ these workers in their laboratories and research facilities. Page 46.

03.01 MANAGERIAL WORK: PLANTS AND ANIMALS

Workers in this group operate or manage farming, fishing, forestry, and horticultural service businesses of many kinds. Some of them breed specialty plants and animals. Others provide services to increase production or beautify land areas. Many of them work in rural or woodland areas, on farms, ranches, and forest preserves. Others find employment with commercial nurseries, landscaping firms, business services, or government agencies located in large and small communities all over the country. Many are self-employed, operating their own large or small businesses. Page 51.

03.02 GENERAL SUPERVISION: PLANTS AND ANIMALS No OAP

Workers in this group supervise others, and often work right along with them, in farms, ranches, fish hatcheries or forests, plant nurseries or parks. Most of them work in rural or forest locations, but some jobs are located in city or suburban areas. Some of these workers travel throughout an area to inspect or treat croplands for insects or disease, or supervise workers performing agricultural or lawn care services. Page 54.

03.03 ANIMAL TRAINING AND SERVICE OAPs 12 & 13

by conducting person-to-person consultations with people to predict their future or to tell them other things about themselves. They work with travelling carnivals or circuses, or at permanently located amusement parks. Some are self-employed, conducting interviews in their homes or giving consultations by mail. Page 32.

01.08 MODELING

Workers in this group appear before a camera or live audience in non-speaking capacities. They stand in for actors and take part in crowd scenes in television or motion picture productions. They show clothing, hair styles, and other products, appear in fashion shows and other public or private product exhibitions, and pose for artists and photographers. They work for manufacturers, or wholesale, and retail establishments. Some are employed by motion picture and television studios, nightclubs, and other entertainment facilities. Modeling instructors work for public or private schools. Many of these workers are self-employed or obtain job assignments through model agencies or unions which represent persons in the entertainment industry. Page 34.

02.01 PHYSICAL SCIENCES OAP 7

Workers in this group are concerned with non-living things, such as chemicals, rocks, metals, mathematics, movements of the earth and the stars, etc. They conduct scientific studies and perform other activities requiring a knowledge of math, physics, or chemistry. Workers investigate, discover, and test new theories. Some look for ways to develop new or improved materials or processes for use in production and construction. Others do research in such fields as geology, astronomy, oceanography, and computer science. Workers base their conclusions on information that can be measured or proven. Industries, government agencies, or large universities employ most of these workers in their research facilities. Page 38.

02.02 LIFE SCIENCES OAP 8

Workers in this group are concerned mostly with living things such as plants and animals. They conduct research and do experiments to expand man's knowledge of living things. Some may work on problems related to how the environment affects plant and animal life. Others may study causes of disease and ways to control disease. These workers are usually employed in the research facilities of hospitals, government agencies, industries, or universities. Page 41.

Workers in this group take care of animals of many kinds, and train them for a variety of purposes. They work in pet shops, testing laboratories, animal shelters, and veterinarians' offices. Some are employed by zoos, aquariums, circuses, and at other places where animals are exhibited or used in entertainment acts. Others work for animal training or obedience schools, or in stables or kennels maintained by individuals or such facilities as race tracks or riding academies. These workers are not employed on farms, ranches, or other places where animals are raised as crops. Page 57.

03.04 ELEMENTAL WORK: PLANTS AND ANIMALS OAP 14

Workers in this group perform active physical tasks, usually in an outdoor non-industrial setting. They work with their hands, use various kinds of tools and equipment, or operate machinery. They find employment on farms or ranches, at logging camps or fish hatcheries, in forest or game preserves, or with commercial fishing businesses where they may work onshore or in fishing boats. In urban areas, they work in parks, gardens, or nurseries, or for businesses that provide horticultural or agricultural services. Page 59.

04.01 SAFETY AND LAW ENFORCEMENT OAP 15

Workers in this group are in charge of enforcing laws and regulations. Some investigate crimes, while others supervise workers who stop or arrest lawbreakers. Others make inspections to be sure that the laws are not broken. Most jobs are found in the Federal, State, or local governments, such as the Police and Fire Departments. Some are found in private businesses, such as factories, stores, and similar places. Page 66.

04.02 SECURITY SERVICES OAP 16

Workers in this group protect people and animals from injury or danger. They enforce laws, investigate suspicious persons or acts, prevent crime, and fight fires. Some of the jobs are found in Federal, State, or local governments. Some workers are hired by railroads, hotels, lumber yards, industrial plants, and amusement establishments. Some work on their own, acting as bodyguards, or private detectives. Page 68

05.01 ENGINEERING

Workers in this group plan, design, and direct the construction or development of buildings, bridges, roads, airports, dams,

sewage systems, air-conditioning systems, jining machinery, and other structures and equipment. They also develop processes and/or techniques for generating and transmitting electrical power, manufacturing chemicals, extracting metals from ore, and controlling the quality of products being made. Workers specialize in one or more kinds of engineering, such as civil, electrical, mechanical, mining, and safety. Some are hired by industrial plants, petroleum and mining companies, research laboratories, and construction companies. Others find employment with Federal, State, and local governments. Some have their own engineering firms, and accept work from various individuals or companies. Page 72.

05.02 MANAGERIAL WORK: MECHANICAL OAP 18

Workers in this group manage industrial plants or systems where technical work is being performed. Jobs are found in oil fields, power plants, transportation companies, radio and television networks, and telephone and related communications systems. Page 77.

05.03 ENGINEERING TECHNOLOGY

Workers in this group collect, record, and coordinate technical information in such activities as surveying, drafting, petroleum production, communications control, and materials scheduling. Workers find jobs in construction, factories, engineering and architectural firms, airports, and research laboratories. Page 81.

05.04 AIR AND WATER VEHICLE OPERATION OAP 20

Workers in this group pilot airplanes or ships, or supervise others who do. Some instruct other persons in flying. Most of these workers are hired by shipping companies and commercial airlines. Some find jobs piloting planes on ships for private companies or for individuals. Page 85.

05.05 CRAFT TECHNOLOGY OAP 21

Workers in this group perform highly skilled hand and/or machine work requiring special techniques, training, and experience. Work occurs in a variety of nonfactory settings. Some workers own their own shops. Page 88.

05.06 SYSTEMS OPERATION — No OAP

Workers in this group operate and maintain equipment in an overall system, or a section of a system, for such purposes as generating and distributing electricity; treating and providing water to customers; pumping oil from oilfields to storage tanks; making ice in an ice plant; and providing telephone service to users. These jobs are found in utility companies, refineries, construction projects, large apartment houses and industrial establishments, and with city and county governments. Page 101.

05.07 QUALITY CONTROL — OAP 22

Workers in this group inspect and/or test materials and products to be sure they meet standards. The work is carried out in a non-factory setting, and includes such activities as grading logs at a lumber yard, inspecting bridges to be sure they are safe; inspecting gas lines for leaks, and grading gravel for use in building roads. Jobs may be found with construction companies, sawmills, petroleium refineries, and utility companies. Page 104.

05.08 LAND AND WATER VEHICLE OPERATION — OAP 23

Workers in this group drive large or small trucks, delivery vans, or locomotives, to move materials or deliver products. Some drive ambulances; others operate small boats. Most of these jobs are found with trucking companies. Wholesale and retail companies hire delivery drivers; ambulance drivers are hired by hospitals, fire departments, and other establishments concerned with moving the sick or injured. Page 108.

05.09 MATERIAL CONTROL — OAPs 24 & 25

Workers in this group receive, store, and/or ship materials and products. Some estimate and order the quantities and kinds of materials needed. Others regulate and control the flow of materials needed. Others regulate and control the flow of materials to places in the plant where they are to be used. Most have to keep records. Jobs are found in institutions, industrial plants, and Government agencies. Page 110.

05.10 CRAFTS — OAPs 26 & 27

Workers in this group use hands and handtools skillfully to fabricate, process, install, and/or repair materials, products, and/or structural parts. They follow established procedures

and techniques. The jobs are not found in factories, but are in repair shops, garage wholesale and retail stores, and hotels. Some are found on construction projects, and others with utilities, such as telephone and power systems. Page 115.

05.11 EQUIPMENT OPERATION OAP 28

Workers in this group operate heavy machines and equipment to dig, drill, dredge, hoist, or move substances and materials. They also operate machines to pave roads. These jobs are found at mining, logging, and construction sites: receiving and shipping areas of industrial plants; and large storage buildings and warehouses. Page 123.

05.12 ELEMENTAL WORK: MECHANICAL OAP 29

Workers in this group perform a variety of unskilled tasks, such as moving materials, cleaning work areas, operating simple machines, or helping skilled workers. These jobs are found in a variety of non-factory settings. Page 127.

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06.01 PRODUCTION TECHNOLOGY OAPs 30 & 31

Workers in this group use their skill and knowledge of machines and processes to perform one or more demanding or complex activities. Some set up machines for others to operate or set up and perform a variety of machine operations on their own. Some do precision handwork; some supervise or instruct others in the use of machines, processes to be carried out, and the techniques to be used. Page 138.

06.02 PRODUCTION WORK OAP 32

Workers in this group perform skilled and/or machine work to make products in a factory setting. Page 147.

06.03 QUALITY CONTROL OAP 33

Workers in this group check the quality and quantity of products and materials being manufacutured. They inspect, test, weigh, sort, and grade specific items to be sure that they meet certain standards. Some may also keep inspection records of the number and kinds of defects and flaws they find. They work in factories and other large plants that process materials and manufacture products. Page 172.

06.04 ELEMENTAL WORK: INDUSTRIAL OAP 34

Workers in this group feed, off bear, or tend machines and equipment, or do manual work. They perform routine, uncomplicated work that required little training or experience. They also assist other, more skilled workers. They work in a factory setting. Page 180.

07.01 ADMINISTRATIVE DETAIL OAP 35

Workers in this group perform clerical work which requries special skills and knowledge. They perform management activities according to established regulations and procedures. Jobs in this group are found in the offices of businesses, industries, courts of law, and government agencies, as well as in office of doctors, lawyers, and other professionals. Page 229.

07.02 MATHEMATICAL DETAIL OAP 36

Workers in this group use clerical and math skills to gather, organize, compute, and record, with or without machines, the numerical information used in business or in financial transactions. Jobs in the group are found wherever numerical record-keeping is important. Banks, finance companies, accounting firms, or the payroll and inventory control departments in business and government are typical of places where this work is done. Page 232.

07.03 FINANCIAL DETAIL OAP 37

Workers in this group use basic math skills as they deal with the public. Keeping records, answering customers' questions, and supervising others is often a part of the job. Jobs in this group are found where money is paid to or received from the public. Banks, grocery check-out counters, and ticket booths are typical places for employment. Page 235.

07.04 ORAL COMMUNICATIONS OAP 38

Workers in this group give and receive information verbally. Workers may deal with people in person, by telephone, telegraph, or radio. Recording of information in an organized way is frequently required. Private businesses, institutions such as schools and hospitals, and governmental agencies hire these workers in their office, reception areas, registration desks, and other areas of information exhange. Page 237.

07.05 RECORDS PROCESSING OAP 39

Workers in this group prepare, review, maintain, route, distribute, and coordinate recorded information. They check records and schedules for accuracy. They may schedule the activities of people or the use of equipment. Jobs in the group are found in most businesses, institutions, and government agencies. Page 241.

07.06 CLERICAL MACHINE OPERATION OAP 40

Workers in this group use business machines to record or process data. They operate machines that type or print, sort, compute, send, or receive information. Their jobs are found in businesses, industries, government agencies, or wherever large amounts of data are processed, sent, or received. Page 245.

07.07 CLERICAL HANDLING OAP 41

Workers in this group perform clerical duties that require little special training or skill. Workers routinely file, sort, route, or deliver things like letters, packages, or messages. Most large businesses, industries, and government agencies employ these workers. Page 247.

08.01 SALES TECHNOLOGY

Workers in this group sell products such as industrial machinery, data processing equipment, and pharmaceuticals; services such as industrial shipping, insurance, and advertising. They advise customers of the capabilities, uses, and other important features of these products and services, and help them choose those best suited to their needs. They work for manufacturers, wholesalers, and insurance, financial, and business service institutions. Also included in this group are workers who buy products, materials, securities and properties for resale. Some work for themselves. Page 251.

08.02 GENERAL SALES

Workers in this group sell, demonstrate, and solicit orders for products and services of many kinds. They are employed by retail and wholesale firms, manufacturers and distributors, business services and non-profit organizations. Some spend all their time in a single location, such as a department store or automobile agency. Others call on business or individuals to sell products or services, or follow up on earlier sales. Page 255.

08.03 VENDING OAP 44

Workers in this group sell novelties, snacks, and other inexpensive items. They work at stadiums and street fairs, in night clubs or restaurants or wherever crowds gather for entertainment or recreation. Some of them sell products on the street, staying in one location, or moving through commercial and residential areas. Page 258.

09.01 HOSPITALITY SERVICES OAP 45

Workers in this group help persons, such as visitors, travelers, and customers get acquainted with and feel at ease in an unfamiliar setting; provide escort and guide services; and plan and direct social activities. They may also be concerned with the safety and comfort of people when they are tra-

veling or vacationing. These workers find employment with air-, rail-, and water-transportation companies; radio and television broadcasting stations; hotels and restaurants; museums; retirement homes, and related establishments. Page 262.

09.02 BARBER AND BEAUTY SERVICES OAP 46

Workers in this group provide people with a variety of barbering and beauty services. These services include care of the hair, skin, and nails. These workers find employment in barber and beauty shops, department stores, hotel, and retirement homes. A few workers find jobs on passenger ships. Some are self-employed and work in their own homes or go to the customer. Page 264.

09.03 PASSENGER SERVICES OAP 47

Workers in this group drive buses, taxi, limousines, or other vehicles to transport people. Workers who teach driving are also included in this group. Taxi, bus, and street railway companies hire most of the workers in this group but they can also find employment with government agencies. Page 266.

09.04 CUSTOMER SERVICES No OAP

Workers in this group provide customers in commercial settings with various services ranging from delivering newspapers to serving food. Their duties usually include receiving payment and making change. Most of these workers find employment in hotels, restaurants, stores, and concessions. However, some do work on board trains and ships and at amusement parks and resorts. Page 269.

09.05 ATTENDANT SERVICES OAP 48

Workers in this group perform services that make life easier and more pleasant for people. They do things, that most people can't or don't want to do for themselves, like opening doors, delivering messages, carrying luggage and packages, and dishing up food. They find employment in a variety of settings, such as hotels, airports, golf courses, theatres, reducing salons, and gymnasiums. Page 271.

10.01 SOCIAL SERVICES OAP 49

Workers in this group help people deal with their problems. They may work with one person at a time or with groups of

people. Workers sometimes specialize in problems that are personal, social, vocational, physical, educational, or spiritual in nature. Schools, rehabilitation centers, mental health clinics, guidance centers, and churches employ these workers. Jobs are also found in public and private welfare and employment services, juvenile courts, and vocational rehabilitation programs. Page 276.

10.02 NURSING, THERAPY, AND SPECIALIZED TEACHING OAP 50

Workers in this group care for, treat, or train people to improve their physical and emotional well being. Most workers in this group deal with sick, injured, or handicapped people. Some workers are involved in health education and sickness prevention. Hospitals, nursing homes, and rehabilitation centers hire workers in this group, as do schools, industrial plants, doctors' offices, and private homes. Some sports also have a need for workers in this group. Page 278.

10.03 CHILD AND ADULT CARE OAP 51

Workers in this group are concerned with the physical needs and the welfare of others. They assist professionals in treating the sick or injured. They care for the elderly, the very young, or the handicapped. Frequently, these workers help the people do the things they cannot do for themselves. Jobs are found in hospitals, clinics, day care centers, nurseries, schools, private homes, and centers for helping the handicapped. Page 281.

11.01 MATHEMATICS AND STATISTICS OAP 52

Workers in this group use advanced math and statistics to solve problems and conduct research. They analyze and interpret numerical data for planning and decision making. Some of these workers may first study and then determine how computers may best be used to solve problems or process information. Colleges, large businesses and industries, research organizations, and government agencies use these workers. Page 285.

11.02 EDUCATION AND LIBRARY SERVICES OAPs 53 & 54

Workers in this group do general and specialized teaching, vocational training, advising in agriculture and home economics, and library work of various kinds. Jobs are found in schools, colleges, libraries, and other educational facilities. Page 287.

11.03 SOCIAL RESEARCH OAPs 55 & 56

Workers in this group gather, study, and analyze information about individuals, specific groups, or entire societies. They conduct research, both historical and current, into all aspects of human behavior, including abnormal behavior, language, work, politics, lifestyle, and cultural expression. They are employed by museums, schools and colleges, government agencies, and private research foundations. Page 290.

11.04 LAW OAPs 57 & 58

Workers in this group advise and represent others in legal matters. Those in small towns and cities conduct criminal or civil cases in court, draw up wills and other legal papers, abstract real estate, and perform related activities. Those in large cities usually specialize in one kind of law, such as criminal, civil, tax, labor, or patent. They work in law firms, unions, government agencies, and commercial and industrial establishments. Some are self-employed and have their own office, particularly as legislators. Many state governors and U.S. presidents have been lawyers. Page 292.

11.05 BUSINESS ADMINISTRATION OAP 59

Workers in this group are top level administrators and managers who work through lower level supervisors to direct all or a part of the activities in private establishments or government agencies. They set policies, make important decisions, and set priorities. These jobs are found in large businesses, industry, and government. Labor unions and associations will also hire these workers. Page 294.

11.06 FINANCE OAP 60

Workers in this group use mathematical and analytical skills to design financial systems and examine and interpret financial records. They are concerned with accounting and auditing activities, records, systems analysis, risk and profit analysis, brokering, and budget and financial control. They find employment in banks, loan companies, investment firms, colleges, government agencies, and miscellaneous business firms. Some workers, like accountants and appraisers, are self-employed. Page 298.

11.07 SERVICES ADMINISTRATION OAP 61

Workers in this group manage programs and projects in agencies that provide people with services in such areas as health, education, welfare, and recreation. They are in charge of program planning, policy making, and other managerial activities. The jobs are found in welfare and rehabilitation agencies and organizations, hospitals, schools, churches, libraries, and museums. Page 301.

11.08 COMMUNICATIONS OAP 62

Workers in this group write, edit, report, and translate factual information. They find employment with radio and television broadcasting stations, newspapers, and publishing firms. Government agencies and professional groups provide some opportunities as do large firms which publish company newspapers and brochures. Page 304.

11.09 PROMOTION OAP 63

Workers in this group raise money, advertise products and services, and influence people in their actions and thoughts. They find employment in business and industry, with advertising agencies, professional groups, unions, colleges, and government agencies. Page 306.

11.10 REGULATIONS ENFORCEMENT OAP 64

Workers in this group enforce government regulations and company policies that affect peoples' rights, health and safety, and finances. They examine records, inspect products, and investigate services, but do not engage in police work. Most workers find employment with government agencies, licensing departments, and health departments. Some are employed by retail establishments, mines, transportation companies, and non-profit organizations. Page 308.

11.11 BUSINESS MANAGEMENT OAP 65

Workers in this group manage a business, such as a store or cemetery, a branch of a large company, such as a local office for a credit corporation, or a department within a company, such as a warehouse. They usually carry out operating policies and procedures determined by administrative workers, such as presidents, vice-presidents and directors. Some managers own their own businesses and are considered self-employed. Managers find employment in all kinds of businesses as well as government agencies. Page 310.

11.12 CONTRACTS AND CLAIMS

Workers in this group negotiate contracts and settle claims for companies and individuals. Some make arrangements for agreements between buyers and sellers. Others investigate claims involving damage, injury, and losses. Jobs are found in insurance and transportation companies; businesses; construction companies; and government agencies. Some are found in booking agencies. These agents are frequently self-employed. Page 314.

12.01 SPORTS No OAP

Workers in this group compete in professional athletic or sporting events, coach players, and officiate at games. They also give individual and group instruction, recruit players, and regulate various aspects of sporting events. Jobs in this group are found in all types of professional sports, such as football, baseball, basketball, hockey, golf, tennis, and horse racing. Some jobs are also available with private recreation facilities, including ski resorts, skating rinks, athletic clubs, and gymnasiums. Page 318.

12.02 PHYSICAL FEATS No OAP

Workers in this group perform unusual or daring acts of physical strength of skills to entertain people. They may perform alone or with others. Circuses, carnivals, theaters, and amusement parks hire these workers. Page 321.

07.04

Oral Communications

07.04.01 Interviewing

Bonding Agent (bus. ser.) 186.267-010

Charge-Account Clerk (clerical) 205.367-014
Credit Clerk (clerical) 205.367-022
Employment Clerk (clerical) 205.362-014
Identification Clerk (clerical) 205.362-022
Skip Tracer (clerical) 241.367-026
Supervisor, Survey Workers (clerical) 205.137-014
Survey Worker (clerical) 205.367-054

Loan Interviewer (finan. inst.) 241.367-018
New-Accounts Clerk (finan. inst.) 205.362-026

Creel Clerk (gov. ser.) 205.367-026
Employment-and-Claims Aide (gov. ser.) 169.367-010
Registration Clerk (gov. ser.) 205.367-042
Traffic Checker (gov. ser.) 205.367-058

Customer-Service Representative (light, heat, & power; tel. & tel.; waterworks) 239.367-010
Customer-Service Representative Supervisor (light, heat, & power; tel. & tel.; waterworks) 239.137-014

Admitting Officer (medical ser.) 205.137-010
Blood-Donor-Unit Assistant (medical ser.) 245.367-014
Hospital-Admitting Clerk (medical ser.) 205.362-018
Outpatient-Admitting Clerk (medical ser.) 205.362-030

Rehabilitation Clerk (nonprofit organ.) 205.367-046

Supervisor, Contingents (ret. tr.) 205.367-050

07.04.02 Order, Complaint, and Claims Handling

Collection Clerk (clerical) 241.357-010
Correspondence Clerk (clerical) 209.262-010
Supervisor, Customer-Complaint Service (clerical) 241.137-014
Supervisor, Order Takers (clerical) 249.137-026

Referral-and-Information Aide (gov. ser.) 237.367-042

Order Clerk, Food and Beverage (hotel & rest.) 209.567-014

Claims Clerk (insurance) II 205.367-018

Customer-Service-Representative Instructor (light, heat, & power; tel. & tel.; waterworks) 239.227-010
Supervisor, Contact and Service Clerks (light, heat, & power) 249.137-014
Supervisor, Customer Records Division (light, heat, & power) 249.137-022

Classified-Ad Clerk (print. & pub.) I 247.367-010

07.04.03 Registration

Airplane-Charter Clerk (air trans.) 295.367-010
Reservations Agent (air trans.) 238.367-018

Recreation-Facility Attendant (amuse. & rec.) 341.367-010

Election Clerk (gov. ser.) 205.367-030
Fingerprint Clerk (gov. ser.) I 209.367-026
License Clerk (gov. ser.) 205.367-034
Public Health Registrar (gov. ser.) 169.167-046
Registrar (gov. ser.) 205.367-038

Hotel Clerk (hotel & rest.) 238.362-010

Registration Clerk (library) 249.365-010

Animal-Hospital Clerk (medical ser.) 245.367-010

Animal-Shelter Clerk (nonprofit organ.) 249.367-010
Dog Licenser (nonprofit organ.) 249.367-030
Supervisor, Dog License Officer (nonprofit organ.) 379.137-014

07.04.04 Reception and Information Giving

Appointment Clerk (clerical) 237.367-010
Information Clerk (clerical) 237.367-022
Receptionist (clerical) 237.367-038

Telephone-Quotation Clerk (finan. inst.) 237.367-046

Civil-Service Clerk (gov. ser.) 205.362-010
Land-Leasing Examiner (gov. ser.) 237.367-026
Supervisor, Travel-Information Center (gov. ser.) 237.137-014
Tourist-Information Assistant (gov. ser.) 237.367-050

Travel Clerk (hotel & rest.) 238.367-030

Policyholder-Information Clerk (insurance) 249.262-010

Information Clerk (motor trans.; r.r. trans.; water trans.) 237.367-018
Manager, Traffic (motor trans.) II 237.367-030
Rate Clerk, Passenger (motor trans.) 214.362-030
Supervisor, Telephone Information (motor trans.) 237.137-010

Information Clerk, Automobile Club (nonprofit organ.) 237.267-010

07.04.05 Information Transmitting and Receiving

Radio Station Operator (aircraft-aerospace mfg.) 193.262-026

Airline-Radio Operator (air trans.; bus. ser.) 193.262-010
Airline-Radio Operator, Chief (air trans.; bus. ser.) 193.162-022
Communication-Center Coordinator (air trans.) 235.132-014
Communication-Center Operator (air trans.) 235.662-014
Flight-Information Expediter (air trans.) 912.367-010
Trip Follower (air trans.) 209.367-050

Scoreboard Operator (amuse. & rec.) 349.665-010

Protective-Signal Operator (any ind.) 379.362-014

Dispatcher, Maintenance Service (clerical) 239.367-014
Service Clerk (clerical) 221.367-070

Fire Lookout (forestry) 452.367-010

Alarm Operator (gov. ser.) 379.162-010
Dispatcher (gov. ser.) 193.262-014

07.04

Dispatcher, Radio (gov. ser.) 379.362-010
Police Aide (gov. ser.) 243.362-014
Switchboard Operator, Police District (gov. ser.) 235.562-014

Dispatcher, Chief, Service or Work (light, heat, & power) 959.137-010
Dispatcher, Service (light, heat, & power) 959.167-010
Dispatcher, Service, Chief (light, heat, & power) 959.137-014
Dispatcher, Service or Work (light, heat, & power) 952.167-010
Gas-Distribution-and-Emergency Clerk (light, heat, & power) 249.367-042

Dispatcher (mining & quarrying) 932.167-010

Bus Dispatcher, Interstate (motor trans.) 913.167-010
Dispatcher, Bus and Trolley (motor trans.) 913.167-014
Dispatcher, Traffic or System (motor trans.; r.r. trans.) 919.162-010
Taxicab Starter (motor trans.) 913.367-010

Receiver-Dispatcher (nonprofit organ.) 239.367-022

Chief Dispatcher (petrol. production) 939.137-010
Dispatcher, Oil Well Services (petrol. production) 939.362-010

Dispatcher, Relay (pipe lines) 221.362-014

Photoradio Operator (print. & pub.; tel. & tel.) 193.362-010

Car Distributor (r.r. trans.) 910.367-014
Telegrapher (r.r. trans.) 236.562-010
Telegrapher Agent (r.r. trans.) 236.562-014
Train Dispatcher (r.r. trans.) 184.167-262

Dispatcher (tel. & tel.) 239.167-014
Private-Branch-Exchange Service Adviser (tel. & tel.) 235.222-010
Radiotelegraph Operator (tel. & tel.) 193.262-030
Service Observer (tel. & tel.) 239.367-026
Service Observer, Chief (tel. & tel.) 239.137-022
Telephone Clerk, Telegraph Office (tel. & tel.) 239.362-010

Dispatcher, Ship Pilot (water trans.) 248.367-026
Dispatcher, Tugboat (water trans.) 911.167-010
Radio Officer (water trans.) 193.262-022
Waterway Traffic Checker (water trans.) 248.367-030

Water-Service Dispatcher (waterworks) 954.367-010

07.04.06 Switchboard Services

Telephone-Answering-Service Operator (bus. ser.) 235.662-026

Telephone Operator (clerical) 235.662-022
Telephone Operator, Chief (clerical) 235.137-010

Central-Office Operator (tel. & tel.) 235.462-010
Central-Office-Operator Supervisor (tel. & tel.) 235.132-010
Directory-Assistance Operator (tel. & tel.) 235.662-018
Supervisor, Telephone Clerks (tel. & tel.) 239.132-010

APPENDIX F

Instructions for
Administering and Using
The Interest Check List
1979

U.S. Department of Labor
Employment and Training
Administration
U.S. Employment Service
Washington, D.C. 20213

Introduction

The Interest Check List (ICL) is a technique developed to help the counselor identify the counselee's occupational interests. It is especially useful with counselees who have no definite, stated work interests or who are not aware of the variety of jobs and occupational fields that exist. No score is obtained from the Check List. It is not a test, but rather a counseling aid. It is an exploratory device from which the counselor and counselee can investigate together the range of vocational interests of the counselee.

Earlier editions of the ICL were related to previously used classification structures of the USES Dictionary of Occupational Titles (DOT). The 1979 edition of the ICL is designed for use with the occupational classification structure of the new USES Guide for Occupational Exploration. The Guide contains all 4th edition DOT-defined occupations (except military) organized according to an interest-oriented structure developed specifically for use in vocational counseling. By utilizing the Guide's descriptions of Interest Areas and the Work Groups, the counselor will be able to assist the counselee to understand his/her occupational interests. But even more important, the Guide will be useful for additional occupational exploration focused on those Work Groups where interests seem strongest. Suggestions for using the Guide in career exploration and occupational choice appear in Chapter II of that publication.

The 1979 edition of the ICL was developed by the California Test Research Field Center, with general guidance from the Testing Division of the U.S. Employment Service.

Content

The ICL consists of 210 work activity statements representing the broad range of activities in the American economy. These items were selected to reflect a sampling of jobs found in the 66 Work Groups described in the Guide for Occupational Exploration. Sixty-two of the Work Groups are represented by three work activities. The other four Work Groups are each represented by six work activities. Additional items were necessary in these cases to insure adequate coverage of the varied activities in these populous and important Work Groups.

The four-digit codes appearing on the ICL refer to the coding structure of the Guide for Occupational Exploration. The first two digits represent the Interest Areas (01 through 12) into which all occupations have been allocated. The last two digits identify a particular Work Group with an Interest Area (e.g. 02.01 Physical Science, within Interest Area 02 Scientific). Thus, each set of work activity statements in the ICL is associated with a four-digit code corresponding to one of the 66 Work Groups in the Guide. Note that the ICL item sets are arranged in order of four-digit code.

Administration

The Interest Check List is self-administering. Directions in the ICL explain how to make responses. Average time to complete the ICL is approximately 25 minutes.

The following steps are suggested in administering the ICL:

-Explain to the counselee(s) the purpose of the ICL and the fact that it is not a test--that there are no right or wrong answers.

-Ask the counselee to print name, date, and address (name of school, if a student) in the space provided on the face sheet.

-Have the counselee read the directions silently. Ask if there are any questions. Be sure that the counselee understands the purpose of the ICL and how to make the responses, including double checking at least five activities most liked. Observe the first few responses to the items to make sure the directions are being followed.

-Explain that there is no time limit, but that too much time should not be spent on any one item, since a person's first reaction usually gives a better picture of interest than a carefully thought-out response. Caution the counselee not to consult others in making a choice.

Completed ICLs should be returned to the counselor for interpretation.

Suggestions for Use in Counseling

An advantage of a nonscorable check list format for an interest inventory is that it permits a joint counselor-counselee exploration in some depth of the specific responses on the check list. The better understanding of the basis for and strength of the counselee's interests achieved through these discussions will help insure more realistic interpretations and will help determine the appropriate

directions of occupational exploration. The following suggested approach involves counselor-counselee exploration of item responses and an interpretation of results in terms of Interest Areas and Work Groups in the Guide for Occupational Exploration.

Discuss "liked" activities with the counselee to be certain that they represent true vocational interests and not interests based solely on such factors as pay rate or glamorous nature of the job. First, discuss the items double checked as "most liked." Then review other items checked as "liked," particularly where there is a concentration of checks within a Work Group (four digits) or Interest Area (first two digits). It is important to discuss what is liked about the activities and why they are liked, and to explore relationships between "liked" activities in order to determine possible patterns of the strongest interests. Discuss with the counselee whether he/she had actual work experience, leisure time activities, schooling or hearsay information related to the activity and whether the counselee is interested in investigating the job possibilities for that activity or other activities in that occupational field. Interests given the greatest consideration should be those which reflect a desire to participate in the activity, rather than be an observer.

Negative interests ("disliked" activities) may also be significant, particularly when they have a bearing on the formation of the vocational plan. Activities that are disliked should usually be eliminated from consideration. However, disliked activities should be explored when the counselee has had definite work experience or training involving these activities. In these instances, the counselor should attempt to find out why the activities are disliked. Responses checked as uncertain (?) might also be explored in activities where the counselee has had work experience or training.

The counselor-counselee discussions will help resolve ambiguities and inconsistencies in ICL responses and obtain a clearer picture of the general range and strength of interests underlying the responses. As a result, the counselor and counselee, working together, should be able to identify (1) the Work Groups which appear to represent the major occupational interests of the counselee and (2) the Interest Area(s) with greatest Work Group representation.

The next step involves enabling the counselee to obtain a better understanding of the Interest Areas and Work Groups and assisting him/her to explore further the Work Groups of major interest. This can be done by following the procedures described in Chapter II of the Guide for Occupational Exploration, under the heading "Use of the Guide in Career Exploration."

A consideration of a counselee's interests in only one factor in the development of a vocational plan. Aptitude, education, job training,

personal traits, physical capacities, financial considerations, as well as job requirements and employment opportunities are other important factors. The vocational plan should represent the best reconciliation of all facts by the counselee.

Interest Check List

U.S. Department of Labor
Employment and Training Administration
U.S. Employment Service
1979

Name _____

Address or School _____

_____

_____ Date _____

It is important to all of us that we like our jobs; doing so will increase our chances of success.

This Interest Check List may help you decide what kinds of work you would like to do. It lists activities that are found in a broad range of industries and occupations in the United States today.

Read each of the statements carefully. If you think you would "like" to do this kind of activity, make a check ✓ under the "L"; if you "don't like" the activity, make a ✓ under the "D"; if you are not certain whether you would like the activity or not, make a ✓ under the "?". After you have checked each activity, go back and double check ✓✓ at least *five* activities that you think you would like most to do.

You may check an activity even if you do not have training or experience for it, if you think you would enjoy the work. Check the "?" *only* when you cannot decide whether you would like or dislike the activity, or when you do not know what the activity is.

There are no right or wrong answers. Check each activity according to how *you* feel about it. The more the counselor knows about your likes and dislikes, the more he or she will be able to help you in thinking about a career.

Now turn the page and begin.

Read each of the items below and indicate how you feel about the activity described by placing a check ✓ under

L (Like)	? (Uncertain)	D (Dislike)

		L	?	D
01 01	Write short stories or articles			
	Edit work of writers			
	Write reviews of books or plays			
01 02	Teach classes in oil painting			
	Carve figures of people or animals			
	Design artwork for magazines			
01 03	Direct plays			
	Perform magic tricks in a theater			
	Announce radio or television programs			
01 04	Conduct a symphony orchestra			
	Compose or arrange music			
	Play a musical instrument			
01 05	Create routines for professional dancers			
	Dance in a variety show			
	Teach modern dance			
01 06	Restore damaged works of art			
	Carve designs in wooden blocks for printing greeting cards			
	Design and paint signs			
01 07	Analyze handwriting and appraise personality			
	Introduce acts in a circus			
	Guess weight of people at a carnival			
01 08	Model clothing for customers			
	Pose for a fashion photographer			
	Be a stand-in for a television star			
01 09	Develop chemical processes to solve technical problems			
	Analyze data on weather conditions			
	Develop methods to control air or water pollution			
01 10	Study causes of animal diseases			
	Develop methods for growing better crops			
	Develop new techniques to process foods			
02 01	Examine teeth and treat dental problems			
	Diagnose and treat sick animals			
	Give medical treatment to people			
02 02	Prepare medicines according to prescription			
	Study blood samples using a microscope			
	Test ore samples for gold or silver content			
01 11	Manage a beef or dairy ranch			
	Operate a commercial fish farm			
	Manage the use and development of forest lands			

		L	?	D
03 02	Supervise farm workers			
	Supervise a logging crew			
	Supervise a park maintenance crew			
03 03	Train horses for racing			
	Feed and care for animals in a zoo			
	Bathe and groom dogs			
03 04	Pick vegetables on a farm			
	Catch fish as a member of a fishing crew			
	Trim branches and limbs from trees			
04 01	Direct police activities			
	Issue tickets to speeding motorists			
	Enforce fish and game laws			
04 02	Guard inmates in a prison			
	Guard money in an armored car			
	Fight fires to protect life and property			
05 01	Plan and design roads and bridges			
	Design electrical equipment			
	Plan construction of a water treatment plant			
05 02	Direct operations of a power plant			
	Direct construction of buildings			
	Supervise operations of a coal mine			
05 03	Survey land to determine boundaries			
	Make drawings of equipment for technical manuals			
	Operate a radio transmitter			
	Design and draft master drawings of automobiles			
	Direct air traffic from an airport control tower			
	Conduct water pollution tests			
05 04	Pilot a commercial aircraft			
	Operate a ferry boat			
	Be captain of an oil tanker			
05 05	Build frame houses			
	Make and repair dentures			
	Prepare and cook food in a restaurant			
	Plan, install and repair electrical wiring			
	Repair and overhaul automobiles			
	Set up and operate printing equipment			
05 06	Operate generators at an electric plant			
	Operate boilers to heat a building			
	Operate water purification equipment			
05 07	Inspect fire-fighting equipment			
	Inspect aircraft for mechanical safety			
	Grade logs for size and quality			

Go on to the next page

		L	?	D
05 08	Drive a tractor-trailer truck			
	Operate a locomotive			
	Operate a motorboat to carry passengers			
05 09	Prepare items for shipment and keep records			
	Receive, store and issue merchandise			
	Record amount and kind of cargo on ships			
05 10	Develop film to produce negatives or prints			
	Repair small electrical appliances			
	Paint houses			
05 11	Operate a bulldozer to move earth			
	Operate a crane to move materials			
	Operate an oil drilling rig			
05 12	Recap automobile tires			
	Operate a duplicating or copying machine			
	Clean and maintain office buildings			
06 01	Set up and operate a lathe to cut and form metal			
	Drill tiny holes in industrial diamonds			
	Hand polish optical lenses			
06 02	Operate a drill press			
	Operate a power saw in a woodworking factory			
	Assemble refrigerators and stoves in a factory			
	Operate a power sewing machine to make clothing			
	Operate a dough-mixing machine for making bread			
	Assemble electronic components			
06 03	Inspect bottles for defects			
	Sort fruit according to size			
	Test electronic parts before shipment			
06 04	Operate a grinding machine in a factory			
	Work on a factory assembly line			
	Operate a machine that fills containers			
	Hand package materials and products			
	Assemble parts to make venetian blinds			
	Drive a fork-lift truck to move materials in a factory			
07 01	Take dictation, type and handle business details			
	Search records to verify land ownership			
	Maintain records on real estate sales			
07 02	Maintain charge account records			
	Keep time card records			
	Compute average weekly production from daily records			
07 03	Receive and pay out money in a bank			
	Sell tickets at places of entertainment			
	Operate a cash register in a grocery store			

		L	?	D
07 04	Answer questions at an information counter			
	Operate a telephone switchboard			
	Interview persons wanting to open checking accounts			
07 05	Check typewritten material for errors			
	Compile and maintain employee records			
	Deliver mail to homes and businesses			
07 06	Type letters and reports			
	Operate a computer typewriter to send or receive information			
	Operate a billing machine to prepare customer bills			
07 07	File office correspondence			
	Locate and replace library books on shelves			
	Handstamp return addresses on envelopes			
08 01	Sell telephone and other communication equipment			
	Sell newspaper advertising space			
	Select and buy fruits and vegetables for resale			
08 02	Sell automobiles			
	Demonstrate products at a trade exhibit			
	Sell articles at auction to highest bidder			
08 03	Sell merchandise from door to door			
	Sell candy and popcorn at sports events			
	Persuade night club customers to pose for pictures			
09 01	Supervise activities of children at vacation camp			
	Greet and seat customers in a restaurant			
	Serve meals and beverages to airline passengers			
09 02	Give haircuts			
	Style, dye and wave hair			
	Give scalp-conditioning treatments			
09 03	Drive a bus			
	Drive a taxi cab			
	Teach automobile driving skills			
09 04	Wait on tables in a restaurant			
	Park automobiles			
	Cash checks and give information to customers			
09 05	Check passenger baggage			
	Help hotel guests get taxi cabs			
	Operate a carnival ride			
10 01	Plan and carry out religious activities			
	Work with juveniles on probation			
	Help people with personal or emotional problems			

Go on to the next page

		L	?	D
10 02	Provide nursing care to hospital patients			
	Plan and give physical therapy treatment to patients			
	Teach the blind to read braille			
10 03	Give hearing tests			
	Care for children in an institution			
	Prepare patients for examination by a physician			
11 01	Plan and write computer programs to help solve scientific problems			
	Plan collection and analysis of statistical data			
	Apply knowledge of statistics to set insurance rates			
11 02	Teach courses in high school			
	Teach vocational education courses			
	Manage the library program for a community			
11 03	Do research to develop new teaching methods			
	Do research to understand social problems			
	Review and analyze economic data			
11 04	Serve as a court judge			
	Advise clients on legal matters			
	Settle wage disputes between labor and management			
11 05	Manage a department of a large company			
	Plan and direct work of a government office			
	Purchase supplies and equipment for a large firm			
11 06	Examine financial records to determine tax owed			
	Approve or disapprove requests for bank loans			
	Buy and sell stocks and bonds for clients			

		L	?	D
11 07	Direct administration of a large hospital			
	Serve as principal of a school			
	Direct operations of a museum			
11 08	Write news stories for publication or broadcast			
	Broadcast news over radio or television			
	Direct operations of a newspaper			
11 09	Plan advertising programs for an organization			
	Direct fund raising for a non-profit organization			
	Lobby for or against proposed legislation			
11 10	Direct investigations to enforce banking laws			
	Inspect work areas to detect unsafe working conditions			
	Inspect cargo to enforce customs laws			
11 11	Manage a hotel or motel			
	Direct activities of a branch office of an insurance company			
	Manage a grocery, clothing or other retail store			
11 12	Investigate and settle insurance claims			
	Obtain leases for outdoor advertising sites			
	Sign entertainers to theater or concert contracts			
12 01	Manage a professional baseball team			
	Referee sporting events			
	Drive in automobile races			
12 02	Perform as a trapeze artist in a circus			
	Perform stunts for movie or television scenes			
	Perform juggling feats			

NOW, GO BACK AND DOUBLECHECK AT LEAST FIVE ACTIVITIES THAT YOU WOULD MOST LIKE TO DO

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THE COMMONWEALTH OF MASSACHUSETTS
DIVISION OF EMPLOYMENT SECURITY

Testing Services Division

SPECIAL APPLICANT SERVICES
INTEREST CHECK LIST

Lista De Cotejo De Intereses

Nombre _____ Fecha _____

Dirección o Escuela _____

Es importante que nos guste el trabajo que hacemos porque, para tener exito, debemos sentirnos felices e interesados en el mismo.

Una Lista de Cotejo de Intereses puede ayudarte a determinar qué clase de trabajo te gustaría más hacer. La lista con que vas a trabajar contiene, actividades comunes a la mayor parte de las ocupaciones en las distintas industrias.

Lee cuidadosamente cada una de las actividades. Marca con un signo de cotejo (✓) en el espacio correspondiente de la columna "Si", aquellas actividades que crees te gustaría realizar. Si no te gustaría realizarlas haz una marca (✓) en la columna "No". Si tienes duda en cuanto a si te gustaría o no la actividad, haz la marca en la columna "?".

Luego de haber marcado todas las actividades, marca de nuevo con otro signo de cotejo (✓ ✓) por lo menos aquellas tres que preferirías realizar.

No es necesario que tengas adiestramiento o experiencia en la actividad que vas a marcar; es suficiente con saber si te gustaría o no hacerla. Si marcas en la columna "?" es porque no estás seguro, ya sea porque no conoces la actividad o porque no sabes cómo decidirte.

Después que llenes la Lista de Cotejo de Intereses el Consejero estudiará las contestaciones contigo para ayudarte a clarificar tus intereses y los trabajos que a ti más te gustaría hacer.

Recuerda que para cada actividad lo que tienes que hacer es marcar si te gustaría hacerla, si no te gustaría, o si estás en duda.

Estudia el ejemplo que se ofrece a continuación.

	SI	?	NO
Trabajar en un taller de mecánica	____	____	____
Si te gusta la actividad, marcas en la columna "SI", así	✓		
Si no te guste, marcas en la columna "NO", así			✓
Si estás indeciso, marcas en la columna "?", así		✓	

Form 3100-6
Rev 2-76

	SI	?	NO
Dibujar o pintar cuadros de personas u objetos	—	—	—
Crear Dibujor artísticoe	—	—	—
Acomodar objetos o adornarlos para crear un efecto agradable	—	—	—
Hacer figuras de barro o de piedra	—	—	—
Tomar fotografías pare anuncios	—	—	—
Diseñar o dibujar modas para trajes (228,230,232) 14,298	—	—	—
Cántar mediante paga pare entretener	—	—	—
Tocar un instrumento musical	—	—	—
Componer música o hacer arreglos musicales	—	—	—
Dirigir une orquesta o grupo musical (396,394,496) 152	—	—	—
Escribir cuentos cortos o libros	—	—	—
Escribir artículos o libros pare influir en la opinión públice	—	—	—
Escribir sobre acontecimientos o actividades	—	—	—
Redactar o corregir noticias	—	—	—
Escribir libretos o drames para radio o televieión (522,524,526,528) 13	—	—	—
Actuar en un drama	—	—	—
Bailar bailes clásicos (392,398) 15	—	—	—
Comentar noticias en la radio y la televisión	—	—	—
Anunciar programas de radio y televisiou (522,400) 15	—	—	—
Jugar baloncesto profesional, pelota u otros deportes (402) 15	—	—	—
Enseñar clases a estudiantes	—	—	—
Demostrar a otros como jugar neuvos deportes o juegos (332) 09	—	—	—
Seleccionar y clasificar libros y otras publicaciones (276) 10	—	—	—

	SI	?	NO
Recoger y analizar información acerce de problemas da la comunidad (294) 05	—	—	—
Aconsejar personas en relación con sus problemas personales	—	—	—
Entrevistar y aconsejar personas en relación con su trabajo o educación (296,250) 09,045,195	—	—	—
Dirigir estudios o investigaciones sobre le opinión pública	—	—	—
Dirigir estudios o investigaciones sobre problemas económicos (294) 05	—	—	—
Dirigir el transito	—	—	—
Hacer cumplir las ordenanzes municipales y las leyes del país	—	—	—
Dirigir la operación de apagar y evitar fuegos en fábricas	—	—	—
Inspeccionar máquinas y condiciones de trabajo pars evitar accidentes (416,427) 37,168,169,441	—	—	—
Hacer labores de enfermarie en hospitales o casas	—	—	—
Hacer pruebas químicas o de laboratorio	—	—	—
Curar animales heridos o enfermos	—	—	—
Preparar medicinse de acuerdo con la receta	—	—	—
Hacer experimentoe sobre las propiedades de metales y otros materiales	—	—	—
Hacer trabajo médico de rayos -X	—	—	—
Plenear la comida de hospitales, escuelas u hoteles (473,418,477,479) 00,01,02,04,07,354	—	—	—
Revisar y preparar estados de cuentes pare una compañía (252) 160,161	—	—	—
Ayudar a personas e utilizar su derecho legal (425) 11	—	—	—
Comprar materiales pare une tienda grande (484) 162,223	—	—	—

	SI	?	NO
Vigilar los bosques	—	—	—
Observar e informar las condiciones del tiempo	—	—	—
Explorar y hacer mapas de la capa terrestre para localizar depósitos de gas y de petróleo (466,468,413) 02,04	—	—	—
Planear y diseñar carreteras y puentes	—	—	—
Diseñar herramientas, maquinaria y equipo eléctrico	—	—	—
Pilotar un avión para una línea comercial aérea	—	—	—
Resolver problemas con rapidez haciendo uso de las matemáticas	—	—	—
Instalar maquinaria en una fábrica y planear el proceso de trabajo (371,468,375,383,385,422) 00,01,02,196	—	—	—
Observar y localizar señales de luces en una pantalla de radar para informar sobre el tránsito aéreo (261) 193	—	—	—
Dibujar planos para herramientas o máquinas	—	—	—
Hacer dibujos detallados a base de especificaciones para edificios	—	—	—
Inspeccionar terrenos para determinar sus medidas y límites (377,385) 00,01	—	—	—
Dirigir un grupo de trabajadores	—	—	—
Supervisar el personal de una oficina	—	—	—
Organizar y dirigir las operaciones de una fábrica	—	—	—
Supervisar un grupo de vendedores (460)	—	—	—
Manipular máquinas de una oficina, tales como calculadoras y máquinas de sumar (274,435,447) 20,21	—	—	—

	SI	?	NO
Revisar documentos para corregir errores	—	—	—
Calcular gastos y comisiones (280,289) 20,21	—	—	—
Cambiar cheques y bregar con dinero	—	—	—
Llevar los libros de cuentas de un negocio	—	—	—
Escribir cartas e informes a máquina	—	—	—
Tomar dictado taquigráfico	—	—	—
Mantener un inventario de materiales y equipo (280,271,278,287,269) 20,21,22,23,24	—	—	—
Manipular una máquina de mimeógrafo	—	—	—
Archivar informes en orden alfabético	—	—	—
Clasificar y distribuir correspondencia (289,435,360) 20,21,22,23,24	—	—	—
Operar un cuadro telefónico	—	—	—
Contestar el teléfono y hacer arreglos para entrevistas	—	—	—
Cobrar a los clientes	—	—	—
Dirigir los clientes a los distintos departamentos de una tienda	—	—	—
Atender quejas de clientes (258,269,291) 20,21,22,23,24	—	—	—
Vender muebles en una tienda	—	—	—
Vender seguros o bienes raíces	—	—	—
Vender casas y equipo de construcción	—	—	—
Demostrar artículos de belleza para la venta	—	—	—
Visitar casas para hacer demostraciones y vender productos	—	—	—
Hacer contacto con el comprador de un mercado para venderle mercancía	—	—	—
Vender entradas y dar cambio en un teatro	—	—	—
Repartir productos en una ruta fija	—	—	—
Vender mercancía en una tienda de miscelánea	—	—	—
Dirigir una excursión y actuar como guía	—	—	—
Vender gasolina y aceite en un garaje (484,488,258,269,503) 25,26,27,28,29,211,212,353	—	—	—

	SI	?	NO
Entrevistar personas para recoger información para censos	___	___	___
Interrogar a automovilistas para recoger información para la planificación de carreteras	___	___	___
(250) 249			
Modelar ropa para clientes	___	___	___
(408) 297			
Cocinar en un restaurante	___	___	___
Planear y preparar comidas en una casa privada	___	___	___
Hornear bizochos, galletas y otra repostería para clientes	___	___	___
Ordenar provisiones para un hotel	___	___	___
(310,319) 30,31,52			
Encargarse de un salón de juegos para niños	___	___	___
Organizar juegos y lecturas para niños	___	___	___
Cuidar y alimentar niños en un hogar infantil diurno o en un hospital infantil	___	___	___
(479) 307,354,359			
Poner mesas y sirvir comidas y bebidas	___	___	___
Lavar cabezas, arreglar uñas, dar masajes faciales	___	___	___
Dirigir los clientes a las mesas en un restaurante	___	___	___
Servir de camarero en un avión durante el vuelo	___	___	___
Manipular un ascensor de pasajeros	___	___	___
(498) 3			
Sembrar, cultivar y recoger cosechas	___	___	___
Criar y cuidar ganado, cerdos, caballos y pollos	___	___	___
Cultivar vegetales para el mercado	___	___	___
Plantar y cuidar flores, grama, arbustos	___	___	___
(411,322) 40,41,42			
Pescar grandes cantidades de peces y venderlos	___	___	___
Trabajar a bordo de remolcadores, lanchones y botes	___	___	___
Operar un criadero de peces	___	___	___
(411,322) 43,911			

	SI	?	NO
Servir de guía en cacerías o viajes de pesca	___	___	___
Mantener vigilancia para evitar fuegos en bosques	___	___	___
(416,505) 44,45			
Aserrar, podar y cortar arboles en los bosques	___	___	___
(322) 94			
Construir y repara máquinas, piezas y herramientas	___	___	___
Trabajar con taladros y tornos para cortar metal y moldear metales	___	___	___
Pulir lentes para telescopios, cámeras y microscopios	___	___	___
Manipular máquinas para aserrar y moldear madera	___	___	___
Engrasar, ajustar y repara máquinas	___	___	___
Desarmar y reparar motores de automóviles	___	___	___
Dar servicio de reparación de máquinas de escribir, de calcular y de sumar	___	___	___
Manipular telares de tejidos o máquinas de hacer medias	___	___	___
Operar una imprenta	___	___	___
(430,312,319,435,447) 6,7			
Guiar un camión o una guagua	___	___	___
Operar grúas y palas mecánicas para mover material	___	___	___
(444,519) 85,90,91			
Construir y probar equipo electrónico	___	___	___
Instalar y reparar cuadros telefónicos	___	___	___
Reparar radios y televisores	___	___	___
(312) 72,82			
Pintar, enyesar o empapelar casas o edificios	___	___	___
Poner y ajustar tuberías y plumas de agua	___	___	___
Poner ladrillos para la construcción de paredes y chimeneas	___	___	___
Construir casas u otras estructuras de madera	___	___	___
(312,319) 8			

	SI	?	NO
Armar y reparar artículos como relojes y cámaras	—	—	—
Cortar, coser y adaptar artículos de tela, cuero o piel	—	—	—
Hacer o reparar muebles o gabinetes	—	—	—
Cortar y modelar vidrio, piedras y otros artículos pequeños para joyería	—	—	—
(430,312)			
5,6,7,8,9			
Usar instrumentos de precisión para inspeccionar defectos en materiales y productos	—	—	—
(271,282)			
5,6,7,8,9			
Dibujar o marcar letreros y anuncios	—	—	—
Colocar e mano tipos de imprenta para imprimir	—	—	—
Manipular máquinas que colocan los tipos de imprenta	—	—	—
Desarrollar o imprimir retratos	—	—	—
(312,274,435)			
65,97			
Hacer pan, bizcochos y otros productos de repostería	—	—	—
Operar hornillas y hornos para calentar y derretir metales	—	—	—
Echar o sumergir metales calientes en moldes	—	—	—
Mezclar soluciones para materiales plásticos	—	—	—
(319,435,447)			
5			
Proteger la propiedad contra fuego, robo o daños	—	—	—
Almacenar explosivos	—	—	—
Servir de portero en un establecimiento e indicar la entrada correcta a los visitantes	—	—	—
(427)			
37			
Inspeccionar y probar la calidad de artículos por medio del gusto, visión y audición	—	—	—
Inspeccionar artículos usando instrumentos sencillos de medir	—	—	—
Clasificar artículos por tamaño y color	—	—	—
(271,282)			
4,5,6,7,8,9			

	SI	?	NO
Levantar y mover objetos mediante pequeñas grúas pegadas a camiones	—	—	—
Manipular máquinas automáticas de metal	—	—	—
Manipular máquinas para llenar botellas, jarros, o latas con líquidos	—	—	—
(435,444,447,356)			
5,6,92			
Atender máquinas que mezclan drogas o alimentos	—	—	—
Manipular equipo que refina productos de petróleo	—	—	—
Operar una máquina de mezclar concreto	—	—	—
(435,447)			
5			
Soldar piezas de metal usando una máquina automática de soldar	—	—	—
Barrenar con une perforadora de mano an minaral o roca	—	—	—
Enderezar guardafangos doblados y carrocarías de un auto	—	—	—
(312,435,322)			
8,93			
Manipular máquinas eléctricas de coser	—	—	—
Empacar frutas y vegetales para el mercado	—	—	—
Unir piezas de metal con herramientas de mano	—	—	—
Enrollar alambre eléctrico y armaduras	—	—	—
(312,319,435,322)			
7,8			
Suplir material a una máquina para cortar o moldear productos metálicos	—	—	—
Atender máquinas usadas en carpintería para cortar y taladrar	—	—	—
Pulir mármol o granito por medio de máquinas	—	—	—
Usar máquinas para prensar, estirar o plegar artículos de tela o cuero	—	—	—
Mezclar pinturas de acuerdo con fórmulas	—	—	—
Atender tanques para teñir o descolorar cuero	—	—	—
Operar equipo que hace o prepara papel	—	—	—
(435,322,447,356)			
5,6			

	SI	?	NO
Entregar telegramas en bicicleta	—	—	—
Limpiar y brillar zapatos	—	—	—
Repartir hojas sueltas de anuncios por las casas	—	—	—
Lavar platos y cubiertos a máquina	—	—	—
Amontonar mazos de yerba, maíz y caña (509,360) 3,23	—	—	—

	SI	?	NO
Servir de portamiras y poner puntos con un grupo de agrimensores (282) 081	—	—	—

AHORA, VUELVE ATRAS Y HAZLE OTRA MARCA A LAS ACTIVIDADES QUE MAS TE GUSTARIA HACER (POR LO MENOS A TRES)

FUNCTIONAL ASSESSMENT PROFILE GRID

FUNCTIONAL AREA	DESCRIPTION	DEGREE OF LIMITATION				COMPENSATION					COMMENTS OR COMPENSATION TO BE CONSIDERED
		ASSET	NO LIMITATION	MINOR LIMITATION	MAJOR LIMITATION	COMPENSATED FULLY	COMPENSATED PARTIALLY	NO COMPENSATION N/K	NO POSSIBLE COMPENSATION		
1. PROBLEM SOLVING											
2. INTERPERSONAL RELATIONSHIPS											
3 COMMUNICATION											
4 SELF CARE											
5. OBJECT MANIPULATION											
6. MOBILITY											
7. TIME MANAGEMENT											
8. ENERGY RESERVES											
9 SELF DIRECTION											
10 WORK											

APPENDIX H

VOCATIONAL EXPLORATION USING Q.P.

Instructions:

1. Record the client's potential qualifications profile in the boxes to the right.
2. Place this sheet over the first page of the Worker Requirement Group Master Comparison Chart so that the columns are properly aligned.
3. Slide this page down until you can compare the client's Q.P. with that for WRG 01.01. If the client's QP is compatible with that for the WRG, draw a circle around the corresponding WRG on this page. Since this is a vocational exploration activity, "compatible" should be interpreted liberally. If the client's potential characteristics are generally consistent with the characteristics of occupations in the WRG, further exploration is advisable.
4. If there is little or no similarity between the two QPs, place an X over the WRG number on this page.
5. Consider each of the 66 WRGs in terms of general compatibility.
6. WRGs with circles should be explored in detail. Those having no marks may also be explored. In general, the greater the similarity between the client;s QP and that for a WRG, the more likely that occupations within the QP will be potentially feasible.

Work Activities	Work Situations	Gen. Ed. Develop.	Sp. Voc Prep.	G	V	N	S	P	Q	K	F	M	E	C
Name:														

01.01	04.01	07.01	11.01
01.02	04.02	07.02	11.02
01.03	05.01	07.03	11.03
01.04	05.02	07.04	11.04
01.05	05.03	07.05	11.05
01.06	05.04	07.06	11.06
01.07	05.05	07.07	11.07
01.08	05.06	08.01	11.08
02.01	05.07	08.02	11.09
02.02	05.08	08.03	11.10
02.03	05.09	09.01	11.11
02.04	05.10	09.02	12.01
03.01	05.11	09.03	12.02
03.02	05.12	09.04	
03.03	06.01	09.05	
03.04	06.02	10.01	
	06.03	10.02	
	06.04	10.03	

WORKER REQUIREMENT GROUP

MASTER COMPARISON CHART

WRG	Work Activities	Work Situations	GED	SVP	KEY APTITUDES BY LEVEL										
					G	V	N	S	P	Q	K	F	M	E	C
01.01	5,6,8	3,4,5,7,9	5	7-9	1-2	1-2									
01.02	6,8	3,4,7,9	5	7-9	2-3			2	2		2-3	1-2-3	2-3		2
01.03	5,6,8	3,4,7,9	5	6-9	2	2									
01.04	5,6,8	3,4,7,9	5	7-9	1-2-3	1-2-3			2-3	2-3	2	2	2	1-2	
01.05	5,6,8	3,4,7,9	5	6-9	2-3			2-3			2-3			1-2	
01.06	1,9,10	7,8,10	4-5	6-8	3			2-3	2-3		3	2-3	3		3
01.07	2,6	4,5,7,9	4-5	2-4	3	3									
01.08	3,6	4,9	3-4	2-4	3-4						3-4		3-4		
02.01	1,6,7,8	7,8	5-6	8-9	1	1		1-2	2	3	3				3
02.02	1,6,7,8	7,8	5-6	8-9	1	1-2	1-2	1-2-3	1-2-3			2-3	3		3
02.03	4,5,7	4,7,8,10	5-6	8-9	1	1-2	1-2	1-2	1-2		2-3	1-2			3
02.04	1,7,9	8,10	4-5	6-8	2-3		2-3	3	2-3	3-4	3	3	3		3
03.01	1,2,7,9,10	1,3,4,7,8	5	6-8	2-3	3	3	3-4		3-4					
03.02	5,9	1,3,4,7,8	4	6-8	3	3	3	3					3		
03.03	3,4,6	1,4,7,8	3-4	3-7	3-4	3-4			3-4		3-4	3-4	3	3-4	----
03.04	1,3,9	1,2	2-3	1-3					3-4		3-4	4	3		
04.01	2,5,6	1,3,4,6,7	5	6-9	2-3	2-3			3-4	3					
04.02	2,3,6	4,6,7	3-4	3-5	3	3			3-4	4	3-4		3-4		
05.01	1,2,6,7,8,9	1,4,7,8	5-6	8-9	1-2	1-2	1-2	2	2-3						
05.02	2,5,6,7,9	1,3,4,7,8	5	7-9	2	2	2-3	2-3	3	3					
05.03	1,7,9	7,8,10	5	7-8	2-3		2-3	2-3	2-3	3	2-3	2-3	3		
05.04	1,5,9	3,4,6,7,8,10	5	7-8	2	2-3	2-3	2	2-3	3	3	3-4	3	3	
05.05	1,9,10	1,7,8,10	4	7-8	3		3	2-3	2-3		3	3	2-3		
05.06	1,9	1,3,8,10	3-4	6-8	3	3	3	3-4		3-4	3-4		3-4		
05.07	1,3,9	7,8,10	4	5-8	3		3-4	3	3				3-4		
05.08	1,3,9	8	4	3-5	3			3			3		3	3	4
05.09	1,2,3,9	4,8,10	3-4	2-6	3	3	3			3			3-4		
05.10	1,3,9,10	8,10	3	4-7			3-4	3	3		3	3-4	3		

WORKER REQUIREMENT GROUP MASTER COMPARTSON CHART

WRC	Work Activities	Work Situations	GED	SVP	KEY APTITUDES BY LEVEL										
					G	V	N	S	P	Q	K	F	M	E	C
05.11	1,3,9	8,10	2-3	3-7	3			3			3		3	3-4	
05.12	1,3,9	8,10	2-1	2-3				3-4	3-4		3-4		3		
06.01	1,9,10	3,4,8,10	3-4	6-8	3		3	3	3		3	3	3		
06.02	1,3,9,10	2,3,4,8,10	3	4-7	3		3-4	3-4	3		3-4	3-4	3		
06.03	1,3,9,10	2,8,10	3	3-5	3			3-4	3		3-4	3-4	3		
06.04	1,3,9,10	2,10	1-2	2-3				4	3-4		3-4	3-4	3		
07.01	2,5,6	1,4,7,8	4-5	5-7	2-3	2-3	3			2-3					
07.02	1,2,3,9	2,8,10	3-4	3-7	3	3	3			2-3					
07.03	1,2,3	4,8,10	3-4	2-6	3	3	3			3		3-4			
07.04	2,3,6,9	1,4,8	3-4	3-7	3	3	3-4			2-3	3-4				
07.05	2,3,6	4,8,10	3-4	3-5	3	3	3-4			2-3		3-4			
07.06	1,3,9	2,4,8,10	3	4-6	3					2-3	2-3	3	3-4		
07.07	1,3	8,10	2-3	2-3	3-4	3-4				3		3-4	3-4		
08.01	2,5,6,7	4,5,7,8	4-5	5-8	2-3	2-3	2-3		3	3					
08.02	2,6	4,5,7,8	3-4	4-6	3	3	3			3					
08.03	2,3	4,5	2	2-3	4	4	3-4					3-4	3-4		
09.01	2,5,6	1,3,4,7	4	3-6	3	3				3-4					
09.02	2,8,9	1,4,7,8,10	4	5-6	3	3		3	2-3		2	3	3		3
09.03	2,3,9	4,7,8	3-4	3-4	3		3-4	3			3		3	3	
09.04	1,2,3	4	2-3	2-3	3-4	3-4	3-4			3-4	3-4	4	3-4		
09.05	2,3	4	2-3	2-3	3-4	3-4						4	3-4		
10.01	4,5,6,8	1,3,4,7	5-6	7-9	1-2	1-2	3								
10.02	4,6,7	1,4,7,8,10	4-5	6-8	2	2-3	2-3	3	3	3-4	3-4	3	3		3-4
10.03	2,3,4	1,4,7,8,10	3-4	3-6	3	3				3-4	3-4	3-4	3		
11.01	6,7,9	3,7,8	5-6	7-9	1-2	1-2	1-2	2		2					
11.02	s 2,4,5,6	1,3,4,7	5-6	7-9	1-2	1-2	3			2-3					
11.03	6,7,8	1,4,7,8	5-6	7-9	1-2	1-2	2-3			2-4					
11.04	2,5,6,8	1,4,5,7,8	5-6	8-9	1-2	1	1-3			3					
11.05	2,5,6	1,3,4,7,8	5-6	7-9	2	2	2-3			3					
11.06	1,2,5,6,7, 9	4,7,8	5	7-8	2	2	2			2-3					

WORKER REQUIREMENT GROUP

MASTER COMPARISON CHART

WRG	Work Activities	Work Situations	GED	SVP	KEY APTITUDES BY LEVEL										
					G	V	N	S	P	Q	K	F	M	E	C
11.07	2,4,5,6	1,3,4,7	5	8-9	2	2	3			3					
11.08	2,5,6	1,3,4,7,8	5	7-8	1-2	1	3			3					
11.09	2,5,6	1,3,4,5,7	5	8-9	2	2	2-3			3-4					
11.10	2,6	1,3,4,7,8	5	6-8	2-3	2-3	3	3-4	3-4	3					
11.11	2,5	1,3,4,7,8	5	6-8	2-3	2-3	3		3-4	3					
11.12	2,5,6	1,3,4,7,8	5	7-8	2	2	3			3					
12.01	5	4,5,6,7,8	4-5	5-8	3	3-4		3-4	3-4	3-4	2	2	2	1	
12.02	5,9	6,7	3-4	5-8	3			2	3		2-3	2-3	2-3	1-2	

APPENDIX I

METHOD

Functional Capacities System

Work Choice Areas

Vocational Goals

Job Title	DOT Code	Industry Designation	Worker Trait Group
1.			
2.			
3.			
4.			

Other possibilities

Method

Functional Capacities System

	Client	Job	Job	Job	Job
1. General Educational Development					
Reasoning					
Math					
Language					
Specific Vocational Preparation					
Problem Solving					
Communication and Speech					
2. Work Activities (Interests)					
Things and Objects					
Business Contact					
Routine, Definite, Organized					
Direct personal contact to help others					
Recognition or Appreciation					
Communication of ideas and information					
Scientific and Technical					
Creative Thinking					
Processes, Methods, Machines					
Working, or Producing, Things					

	Client	Job	Job	Job	Job
Work History					
Work Situations (Temperaments)					
1 Performing duties which change frequently					
2 Performing routine tasks					
3 Planning and directing an entire activity					
4 Dealing with people					
5 Influencing opinions, attitudes, and judgments					
6 Working under pressure					
7 Making decisions using personal judgment					
8 Evaluation by measurement and verification					
9 Interpret and express feelings, facts, ideas					
10 Achieve precise limits or accuracy standards					
Interpersonal Relationships					
Personal Attractiveness, Self-care					
Self-direction					
Social and Family History					

	Client	Job	Job	Job	Job
Physical Demands					
1 Lifting, carrying, pushing, and/or pulling					
2 Climbing and/or balancing					
3 Stooping, kneeling, crouching, and/or crawling					
4 Reaching, handling, fingering, and/or feeling					
5 Talking and/or hearing					
6 Seeing					
Mobility (ambulation)					
Upper extremity functioning					
Hand functioning					
Fine motor coordination					
Head control					
Speed					
Capacity for Exertion					
Endurance, energy reserves					
Medical and Psychiatric history					
6. Working Conditions					
1 Inside, outside or both					

	Client	Job	Job	Job	Job
2 Extremes of cold plus temperature changes					
3 Extremes of heat plus temperature changes					
4 Wet and Humid					
5 Noise and vibrations					
6 Hazards					
7 Fumes, odors, toxic conditions, dust, and poor ventilation					
Hygiene Factors					
Policies and administration					
Supervision					
Opportunity for interaction with coworkers					
Motivators					
Autonomy					
Participation					
Challenge					
Mobility (Growth, development)					
Recognition, Status					
Comfort					

	Client	Job	Job	Job	Job
Aptitudes					
General Learning Ability					
Verbal					
Numerical					
Spatial					
Form Perception					
Clerical					
Motor Coordination					
Finger Dexterity					
Manual Dexterity					
Color Discrimination					

During peak calling periods, the pace at the switchboard may be very hectic.

tors obtain the information needed to complete the call, make the necessary connections, and record the details for billing. *Directory assistance operators* (D.O.T. 235.862) look up and provide telephone numbers. Service assistants train and help new operators to complete difficult calls.

PBX operators (D.O.T. 235.862) run switchboards for business offices and other establishments. They connect interoffice or house calls, answer and relay outside calls, assist company employees in making outgoing calls, supply information to callers, and record charges. In many small establishments, PBX operators work at switchboards that serve only a limited number of telephones. These operators may do other office work such as typing or sorting mail and many also act as receptionists or information clerks. (The work of receptionists is described elsewhere in the *Handbook*.)

Places of Employment

About 340,000 telephone operators were employed in 1976. More than one-half worked as PBX operators in manufacturing plants, hospitals, department stores, or businesses. The remainder worked in telephone companies. About one-fourth of all operators work only part time.

Both telephone company and PBX operators are concentrated in heavily populated areas. Nearly one-fifth work in the New York, Chicago, and Los Angeles metropolitan areas.

Training, Other Qualifications, and Advancement

Persons planning to become telephone operators should like to serve the public, be pleasant and courteous, and not mind sitting at a switchboard for long periods. A clear and pleasing voice and good hearing also are important. Many telephone companies and business firms require applicants, including operators, to pass physical examinations. High school courses in speech, office practices, and business math provide a helpful background for persons interested in this occupation.

New operators are taught on the job how to use the equipment and keep records of calls. Once they have learned the procedure, they put through practice calls. Instruction and practice usually last from 1 to 3 weeks. Operators then are assigned to regular operator jobs and receive further instruction from supervisors.

PBX operators who handle routine calls may have a somewhat shorter training period than telephone company operators. In large businesses, an instructor from the local telephone company may train new employees.

Experienced telephone company operators may be promoted to supervisory jobs or transfer to clerical occupations such as secretary or bookkeeper. They also may have the opportunity to advance to jobs as telephone craft workers such as telephone installers and repairers. PBX operators in large firms may advance to more responsible clerical positions; however, in many small business, opportunities for advancement usually are very limited.

Employment Outlook

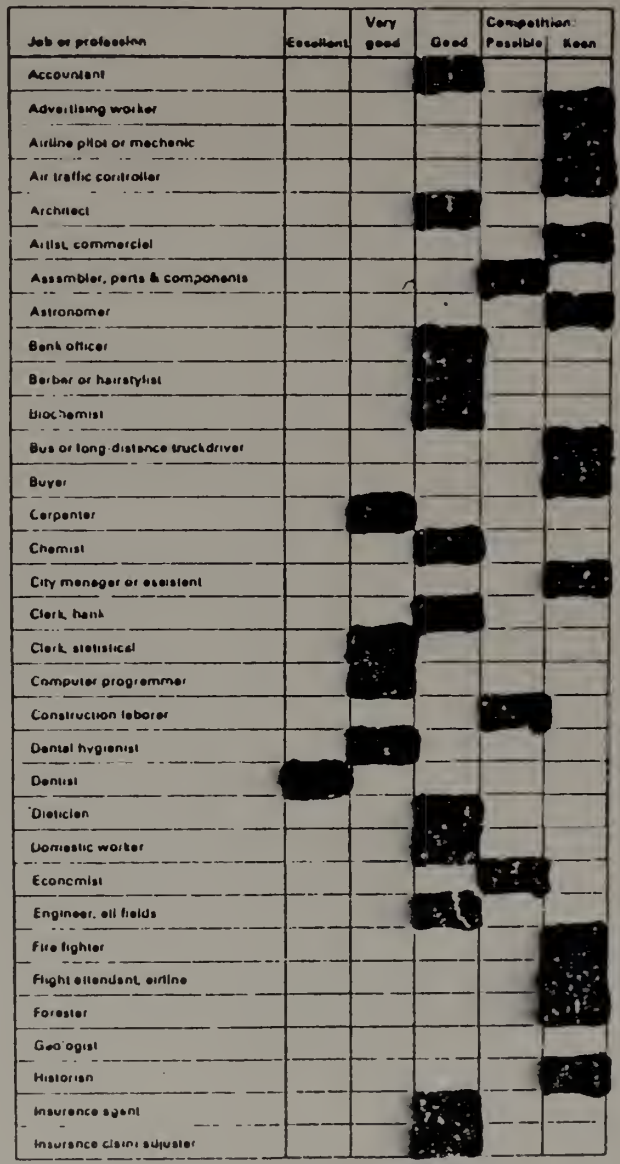
Employment of telephone and PBX operators as a group is expected to decline slightly through the mid-1980's. Nevertheless, thousands of full-time and part-time workers will be hired each year to replace experienced operators who die, retire, or stop working for other reasons. Many other openings will result from the need to replace operators who advance to other occupations

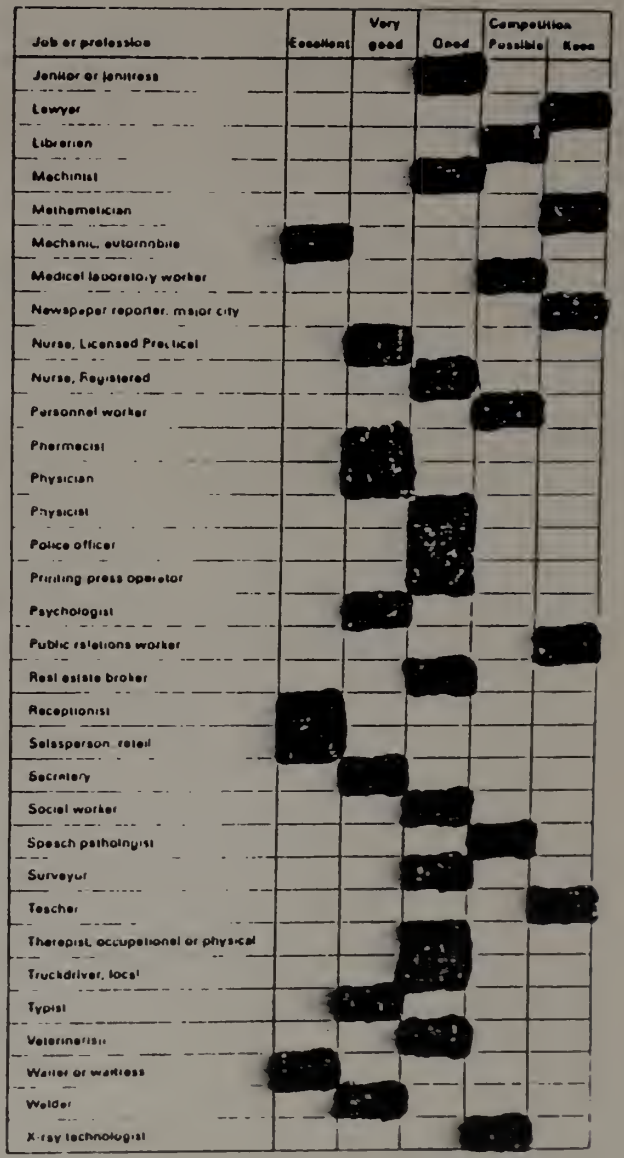
Employment of telephone company operators is expected to decline more than employment of PBX operators. As more telephone companies start charging customers for directory assistance and information calls, more people will dial numbers directly and use telephone directories to locate unknown numbers, thus reducing the need for operators. Also, technological improvements will limit the employment of operators. For example, more telephone companies are installing electronic switching systems in their central offices, thus reducing the need for manual switching of calls. In addition, traffic service position systems are being added, which automatically feed data about each telephone connection, such as the length and cost of the call, into a computer that processes the billing statements. Formerly this information was tabulated by an operator and then transferred to the statement.

Even though more small businesses will require PBX services, employment growth of PBX operators will be limited as many large businesses

Ten-Year Outlook for Selected Occupations

Source: U.S. Department of Labor





APPENDIX L

VOCATIONAL ASSESSMENT
WORKSHEET

Client_____

Job Families

DOT Page No.	DOT Code	Job Title	Training Agent	Possible Local Employers

APPENDIX M

DATA ON CLIENT PROGRESS THROUGH REHABILITATION PROCESS

Client	Age	Sex	Disability	Goal	Match Goal & Closure	Training Objective	Closure Status	M.G.T.C.	Group	Time in Process
1.	37	F	2.Mental schizo-phrenia	Machine Operator D.O.T. Code 692.686-010 Worker Group 06.04.20	No	None	28 Closed unsuccessful after plan	No	1.Exper-imental	2 years
2.	44	F	3.Mixed Heart Condition Depres-sion	Secretary D.O.T. Code 201.362-030 Worker Group 07.01.03	Yes	Secretary D.O.T. Code 201.362-030 Worker Group 07.01.03	26 Rehabilitated Secretary D.O.T. Code 201.362-020	Yes	1.Exper-imental	3 years 9 months
3.	23	F	1.Physical Low Back Syndrome	Dietitian D.O.T. Code 077.117-010 Worker Group 11.08.02	No	Dietitian D.O.T. Code 077.117-010 Worker Group 11.08.02	28 Closed unsuccesful after plan - moved	No	1.Exper-imental	7 months
4.	27	M	1.Physical Quadri-plegic	Writer D.O.T. Code 131.067-046 Worker Group 11.08.02	Yes	Writer D.O.T. Code 131.067-046 Worker Group 11.08.02	26 Rehabilitated writer D.O.T. Code 131.067-046 Worker Group 11.08.02	Yes	1.Exper-imental	3 years
5.	41	M	1.Physical Epilepsy	Sheltered workshop assembler D.O.T. Code 699.999 Worker Group 06.02.23	Yes	Sheltered workshop assembler D.O.T. Code 699.999 Worker Group 06.02.23	26 Rehabilitated Sheltered workshop assembler D.O.T. Code 699.999 Worker Group 06.02.23	Yes	1.Exper-imental	1 year

Client	Age	Sex	Disability	Goal	Match Goal & Closure	Training Objective	Closure Status	M.G.T.C.	Group	Time in Process
6.	53	F	1.Physical Low back syndrome	Salesperson D.O.T. Code 261.351-010 Worker Group 08.02.02	Yes	Salesperson D.O.T. Code 261.351-010 Worker Group 08.02.02	26 Rehabilitated Salesperson D.O.T. Code 261.351-010 Worker Group 08.02.02	Yes	1.Experimental	1 year 10 months
7.	27	M	2.Mental Schizophrenia	Truck loader D.O.T. Code 914.667-010 Worker Group 06.04.40	Yes	No training	26 Rehabilitated Truck loader D.O.T. Code 914.667-010 Worker Group 06.04.40	No training	1.Experimental	1 year
8.	26	F	1.Physical Brain injury, hemiplegia	Nurse aide D.O.T. Code 355.674-014 Worker Group 10.03.02	Yes	No training	26 Rehabilitated Nurse aide D.O.T. Code 355.674-014 Worker Group 10.03.02	No training	1.Experimental	1 year 6 months
9.	48	M	2.Mental alcoholism	Sheltered workshop assembler D.O.T. Code 699.999 Worker Group 06.02.23	Yes	Sheltered workshop assembler D.O.T. Code 699.999 Worker Group 06.02.23	Sheltered workshop assembler D.O.T. Code 699.999 Worker Group 06.02.23	Yes	1.Experimental	1 year 8 months
10.	17	F	1.Physical Bilateral sensorineural hearing loss	Mechanical layout D.O.T. Code 141.061-018 Worker Group 01.02.03	Yes	Mechanical layout D.O.T. Code 141.061-018 Worker Group 01.02.03	26 Rehabilitated Mechanical layout D.O.T. Code 141.061-018 Worker Group 01.02.03		1.Experimental	6 years 3 months

Client	Age	Sex	Disability	Goal	Match Goal & Closure	Training Objective	Closure Status	M.G.T.C.	Group	Time in Process
11.	27	M	1.Physical dislocated hip	None	n/a	n/a	30 closed unsuccessful during plan development	n/a	1.Experimental	10 months
12.	49	F	1.Physical multiple sclerosis	Music teacher D.O.T. Code 152.021 Worker Group 01.04	Yes	Music teacher D.O.T. Code 152.021 Worker Group 01.04	26 Rehabilitated music teacher D.O.T. Code 152.021 Worker Group 01.04	Yes	1.Experimental	2 years
13.	52	M	3.Mixed heart condition, alcoholism	Machinist inspector D.O.T. Code 600.280 Worker Group 05.05.07	No	None	28 closed unsuccessful after plan development	n/a	1.Experimental	1 year 7 months
14.	36	F	2.Mental depressive neurosis	Secretary D.O.T. Code 201.362-030 Worker Group 07.01.03	Yes	Secretary D.O.T. Code 201.362-030 Worker Group 07.01.03	26 Rehabilitated Secretary D.O.T. Code 201.362-030 Worker Group 07.01.03	Yes	1.Experimental	1 year 5 months
15.	27	F	1.Physical amyotonia congenital bilateral equisus valgus (feet)	Secretary D.O.T. Code 201.362-030 Worker Group 07.01.03	Yes	Secretary D.O.T. Code 201.362-030 Worker Group 07.01.03	26 Rehabilitated Secretary D.O.T. Code 201.362-030 Worker Group 07.01.03	Yes	1.Experimental	2 years
16.	51	M	1.Physical glaucoma, low back syndrome	Janitor D.O.T. Code 382.664-010 Worker Group 05.12.04	Yes	None	26 Rehabilitated Janitor D.O.T. Code 382.664-010 Worker Group 05.12.04	n/a	1.Experimental	8 months

Client	Age	Sex	Disability	Goal	Match Goal & Closure	Training Objective	Closure Status	M.G.T.C.	Group	Time in Process
17.	38	M	1.Physical polymyo-sitis	Retail manager D.O.T. Code 185.167-046 Worker Group 11.11.04	Yes	None	26 Rehabili-tated retail manager D.O.T. Code 185.167-046 Worker Group 11.11.04	n/a	1. Exper-imental	1 year 8 months
18.	29	M	1.Physical crush injury left hand	General laborer supervisor D.O.T. Code 183.168 Worker Group 06.01.01	Yes	General laborer supervisor D.O.T. Code 183.168 Worker Group 06.01.01	26 Rehabilitated General laborer supervisor D.O.T. Code 183.168 Worker Group 06.01.01	Yes	1.Exper-imental	1 year 2 months
19.	22	M	2.Mental drug addiction	General laborer D.O.T. Code 559.567 Worker Group 06.04.30	Yes	None	26 Rehabilitated General laborer D.O.T. Code 559.567 Worker Group 06.04.30	n/a	1.Exper-imental	1 year 3 months
20.	38	M	1.Physical arthritis of shoulder	Foreman supervisor clerical D.O.T. Code 222.137 Worker Group 07.07.02	Yes	None	26 Rehabilitated Foreman supervisor clerical D.O.T. Code 222.137 Worker Group 07.07.02	n/a	1.Exper-imental	3 years 10 months
21.	33	F	2.Mental schizo-phrenia in remission	Art work occupations D.O.T. Code 970. Worker Group 01.	n/a	n/a	28 unsuccessful closed after plan	n/a	1.Exper-imental	1 year 7 months

Client	Age	Sex	Disability	Goal	Match Goal & Closure	Training Objective	Closure Status	M.G.T.C.	Group	Time in Process
22.	29	F	1.Physical scoliosis	Child care worker D.O.T. Code 355.674-010 Worker Group 10.03.03	Yes	Child care worker D.O.T. Code 355.674-010 Worker Group 10.03.03	26 Rehabilitated Child care worker D.O.T. Code 355.674-010 Worker Group 10.03.03	Yes	1.Experimental	1 year 9 months
23.	23	M	1.Physical Fx arm and leg	Computer operator D.O.T. Code 213.362-010 Worker Group 07.06.01	No	Computer operator D.O.T. Code 213.362-010 Worker Group 07.06.01	28 Closed unsuccessful after plan	n/a	1.Experimental	10 months
24.	47	M	1.Physical nerve damage rt arm	Truck driver D.O.T. Code 905.663-014 Worker Group 05.08.01	Yes	None	26 Rehabilitated Truck driver D.O.T. Code 905.663-014 Worker Group 05.08.01	n/a	1.Experimental	11 months
25.	20	M	1.Physical quadriplegia	Janitor D.O.T. Code 382.664 Worker Group 05.12	Yes	None	26 Rehabilitated Janitor D.O.T. Code 382.664 Worker Group 05.12	n/a	1.Experimental	2 years 5 months
26.	49	M	1.Physical heart condition	n/a	n/a	n/a	08 Closed after evaluation	n/a	Control	2 months
27.	23	M	1.Physical blindness	n/a	n/a	n/a	08 Closed after evaluation	n/a	Control	5 months

Client	Age	Sex	Disability	Goal	Match Goal & Closure	Training Objective	Closure Status	M.G.T.C.	Group	Time in Process
28.	20	F	2.Mental mental retarda-tion	Sheltered workshop assembler D.O.T. Code 699.999 Worker Group 06.02.23	Yes	None	26 Rehabilitated Sheltered workshop assembler D.O.T. Code 699.999 Worker Group 06.02.23	n/a	Control	2 years 9 months
29.	40	M	2.Mental mental retardation	n/a	n/a	n/a	08 Closed after evalu-ation	n/a	Control	1 year
30.	22	M	1.Physical epilepsy, lupus erythema-tosus	Editor, publications D.O.T. Code 132.017-018 Worker Group 01.01.01	No	Editor, publications D.O.T. Code 132.017-018 Worker Group 01.01.01	28 Closed unsuccessful after plan developed	No	Control	4 years 5 months
31.	47	F	1.Physical low back syndrome	Secretary D.O.T. Code 201.362-030 Worker Group 07.01.03 Assembler, small parts D.O.T. Code 706.685-026 Worker Group 06.04.23	Yes	Secretary D.O.T. Code 201.362-030 Worker Group 07.01.23	26 Rehabilitated Assembler, small parts D.O.T. Code 706.685-026 Worker Group 06.04.23	No	Control	1 year 7 months
32.	35	F	1.Physical multiple sclerosis	Writer D.O.T. Code 131.067-046 Worker Group 01.01.02	No	Writer D.O.T. Code 131.067-046 Worker Group 01.01.02	28 Closed unsuccessful after plan	No	Control	2 years 8 months
33.	23	F	2.Mental psycho-neurotic reaction, depression	Housecleaner D.O.T. Code 323.687-018 Worker Group 05.12.18	No	Housecleaner D.O.T. Code 323.687-018 Worker Group 05.12.18	28 Closed unsuccessful after plan	No	Control	

Client	Age	Sex	Disability	Goal	Match Goal & Closure	Training Objective	Closure Status	M.G.T.C.	Group	Time in Process
34.	26	M	2.Mental Schizophrenia	n/a	n/a	n/a	08 Closed after evaluation	n/a	Control	1 year 9 months
35.	30	M	1.Physical low back syndrome	Instructor vocational training D.O.T. Code 097.227-014 Worker Group 11.02.02 Management Aide D.O.T. Code 195.376-014 Worker Group 07.01.01	Yes	Instructor vocational training D.O.T. Code 097.227-014 Worker Group 11.02.02	26 Rehabilitated Management aide D.O.T. Code 195.376-014 Worker Group 07.01.01	No	Control	5 years 1 month
36.	27	M	1.Physical L. hemiparesis, epilepsy	n/a	n/a	n/a	28 closed unsuccessful during plan development	n/a	Control	2 years 1 months
37.	50	M	1.Physical heart condition, diabetes mellitus	Ultrasound technologist D.O.T. Code 078.364-010 Worker Group 02.04.01	Yes	Ultrasound technologist D.O.T. Code 078.364-010 Worker Group 02.04.01	26 Rehabilitated Ultrasound technologist D.O.T. Code 078.364-010 Worker Group 02.04.01	Yes	Control	3 years 6 months
38.	20	F	2.Mental mental retardation, schizophrenia	Sheltered workshop assembler D.O.T. Code 699.999 Worker Group 06.02.23	No	Sheltered workshop assembler D.O.T. Code 699.999 Worker Group 06.02.23	28 Closed unsuccessful after plan	No	Control	2 years

Client	Age	Sex	Disability	Goal	Match Goal & Closure	Training Objective	Closure Status	M.G.T.C.	Group	Time in Process
39.	26	M	1.Physical low back syndrome	Electronics assembler D.O.T. Code 726.684-018 Worker Group 05.05.05	No	Electronics assembler D.O.T. Code 726.684-018 Worker Group 05.05.05	28 Closed unsuccessful after plan	No	Control	2 years 11 months
40.	48	M	1.Physical multiple sclerosis	Writer D.O.T. Code 131.067 Worker Group 01.01.02	Yes	None	26 Rehabilitated Writer D.O.T. Code 131.067 Worker Group 01.01.02	n/a	Control	1 year 3 months
41.	19	M	1.Physical Fx 1 ankle	n/a	n/a	n/a	08 Closed after evaluation	n/a	Control	8 months
42.	30	M	1.Physical L hip replacement	Bookkeeper D.O.T. Code 210.382-014 Worker Group 07.07.01	No	None	28 Closed unsuccessful after plan	No	Control	3 years 8 months
43.	19	F	1.Physical cerebral palsy	Secretary D.O.T. Code 201.362-030 Worker Group 07.01.03	Yes	Secretary D.O.T. Code 201.362-030 Worker Group 07.01.03	26 Rehabilitated Secretary D.O.T. Code 201.362-030 Worker Group 07.01.03	Yes	Control	10 years 4 months
44.	57	F	1.Physical stroke	n/a	n/a	n/a	08 Closed after evaluation	n/a	Control	1 year 6 months

Client	Age	Sex	Disability	Goal	Match Goal & Closure	Training Objective	Closure Status	M.G.T.C.	Group	Time in Process
45.	24	F	2.Mental personality disorder, anxiety, depression, hysteria	Child care worker D.O.T. Code 355.674 LPN D.O.T. Code 079.378 Worker Group 10.03.03	Yes	Child care worker D.O.T. Code 355.674 Worker Group 10.03.03	26 Rehabilitated Child care monitor D.O.T. Code 301.677 Worker Group 10.03.03	Yes	Control	2 years 8 months
46.	19	F	1.Physical hearing loss	n/a	n/a	n/a	08 Closed after evaluation	n/a	Control	1 year 3 months
47.	45	F	2.Mental alcoholism	n/a	n/a	n/a	08 Closed after evaluation	n/a	Control	1 year 9 months
48.	42	F	3.Mixed depression, neurological impairment	n/a	n/a	n/a	08 Closed after evaluation	n/a	Control	9 months
49.	33	F	1.Physical heart condition	Homemaker D.O.T. Code 599.999 Worker Group 05.12.18	Yes	None	26 Rehabilitated Homemaker D.O.T. Code 599.999 Worker Group 05.12.18	n/a	Control	1 year 8 months
50.	M		2.Mental mental retardation	n/a	n/a	n/a	08 Closed after evaluation	n/a	Control	10 months

APPENDIX N

TIME IN STATUS CHART

Time Frames for Stages or Statuses of the Vocational Rehabilitation Process

STATUS	DESCRIPTION	TIME ALLOWED
00 REFERRED	Potential client is referred from community agency, school, hospital, physician, family or self, etc. Counselor evaluates appropriateness of client for vocational rehabilitation.	One month
02 APPLICATION	Potential client applies for vocational rehabilitation, completing initial interview and beginning the diagnostic study involving a minimum of general medical examination and specialty medical and/or psychiatric/psychological evaluation depending on the disabilit(y)(ies) of applicant.	Three months
06 EXTENDED EVALUATION	A period of extended evaluation may be used for those clients whose handicapping condition is such that it is not immediately determinable if vocational rehabilitation services can assist the individual in terms of employ-	Nine months

	ability. Further diagnostic work and intermediate goals involving evaluation and training may be used to make this determination.	
08 CLOSED AFTER EVALUATION	Client's case may be closed after evaluation if client cannot go into plan development stage for a variety of reasons such as inability to determine vocational goal, etc.	N/A
10 PLAN DEVELOPMENT	Evaluation and counseling and guidance by rehabilitation counselor proceeds with client in order to arrive at a vocational goal and complete an Individualized Written Rehabilitation Program (I.W.R.P.)	Three months
12 THE INDIVIDUALIZED WRITTEN REHABILITATION PROGRAM (I.W.R.P.)	The I.W.R.P. is completed citing a vocational goal and those services needed to complete it.	Two months
14 COUNSELING	A client is placed in this status if counseling and guidance and placement are the	Six months

AND GUIDANCE	only services needed to achieve a client's vocational rehabilitation.	
16 PHYSICAL AND/OR MENTAL RESTORATION	Services such as physical therapy or psychotherapy provided in order to reduce or minimize a physical or mental handicap for employment.	Nine months
18 TRAINING	Services such as vocational or college training provided in order to maximize a client's potential for employment.	No time limit
20 READY FOR EMPLOYMENT	When client is job ready, client and counselor engage in selective job placement activity including job seeking skills, employer contacts, etc.	Three months
22 IN EMPLOYMENT	After client is placed on job, his program is followed for 60 days to insure job stabilization, suitability and adjustment.	Two months
26 REHABILITATED	After a two months follow up period on the job with satisfaction of both client and employer, client's case folder is closed as successful vocational rehabilitation.	N/A

28 CLOSED AFTER PLAN	Case closure after IWRP completed.	N/A
30 CLOSED IN PLAN DEVELOP- MENT	Case closure after client found eligible and entered plan development Status (IO).	N/A